VIRGINIA PASSENGER RAIL AUTHORITY

Basis of Design Report

Draft – February 2023

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1 Introduction

The Long Bridge Project (The Project) consists of improvements to the Long Bridge and related railroad infrastructure located between the Rosslyn (RO) Interlocking near Long Bridge Park in Arlington, Virginia and the L'Enfant (LE) Interlocking near 10th Street SW in Washington, DC (see Figure 1-1). The existing Long Bridge is currently owned and operated by CSX Transportation (CSXT), a Class I freight railroad, which also operates the Long Bridge Corridor (Corridor). In addition to CSXT freight, the Corridor is utilized by Amtrak and the Virginia Railway Express (VRE). The Virginia Passenger Rail Authority (VPRA) has agreed to purchase infrastructure and approximately half of the right-of-way in the Corridor from CSXT and currently has a permanent easement on the property until the title transfers.

As part of the project, the evaluation of improvements along the 1.8-mile Corridor to increase the current two-track capacity to four-tracks was completed at the conclusion of the National Environmental Policy Act (NEPA) process. The land and infrastructure transaction between VPRA and CSXT along with the build out of the four-track corridor will allow for the separation of passenger and freight traffic while maintaining interoperability for all four tracks. The proposed improvements along the Corridor include, but are not limited to, the following:

- Adding two new tracks adjacent to the existing two-track alignment;
- Adding a new two-track bridge upstream of the existing Long Bridge for a four-track crossing;
- Retaining the existing two-track Long Bridge over the Potomac River;
- Corridor-wide upgrades to track, signal, and interlockings;
- New and replacement bridges along the Corridor to achieve four-track capacity;
- New retaining walls along the Corridor to minimize impacts and facilitate phasing;
- New crashwalls and modifications to reinforce bridge piers and other structures;
- New Pedestrian Bridge crossing Maine Avenue SW; and
- New Bicycle-Pedestrian (Bike-Ped) Bridge crossing of the Potomac River and George Washington Memorial Parkway (GWMP) upstream of the new two-track rail bridge.

This Basis of Design (BOD) Report was prepared to document supporting technical criteria utilized in the development of the Project's Engineering plans, considering the various stakeholders within the Project limits. Those stakeholders included CSXT, Amtrak, VRE, and VPRA.

The BOD is applicable only to areas where new construction or major reconfiguration is anticipated to occur. Areas that do not require track structure replacement, including areas where existing tracks are maintained, are exempt from the design criteria as well as the approvals and design exception process in *Chapter 10* of this document. It is anticipated that portions of the existing track may need to be modified or upgraded for improved rail geometrics as well as to be included in modifications to the signal system.

During the previous Project phase, the Environmental Impact Statement (EIS) phase, the BOD was closely coordinated and developed with input from the major project stakeholders, including the District Department of Transportation (DDOT); Federal Railroad Administration (FRA); VPRA; CSXT; Amtrak; and VRE. The Project Sponsor for preliminary and final design, construction, future infrastructure, and corridor ownership is VPRA. Maintenance responsibilities are described in *Exhibit M – Joint Operating and Maintenance Agreement of the Virginia*

Department of Rail and Public Transportation (DRPT) CSXT Comprehensive Rail Agreement. Further discussions between CSXT and VPRA will determine maintenance responsibilities for shared structures. CSXT and VPRA have agreed that all rail improvements will be conceptually designed consistent with CSXT design standards; FRA standards; and as described in the American Railway Engineering and Maintenance-of-Way Association (AREMA) Manual for Railway Engineering.

This BOD has expanded upon the EIS BOD. It is considered a living document that will be updated throughout the Preliminary Engineering phase based upon additional input and decisions made in project development. The primary goal of this version of the BOD is to provide sufficient technical criteria to complete Preliminary Engineering (PE) design of the Preferred Alternative. Preliminary Engineering (PE) typically includes 30 percent design and engineering. Engineering disciplines that will progress further than 30 percent design in this PE phase are described in the respective discipline sections.

1.1 Engineering Limits

The Engineering Limits extend approximately 1.8 miles within the RF&P Subdivision (previously the Richmond, Fredericksburg and Potomac Railroad) of the CSXT Central Zone (see Error! Reference source not found.). The Engineering Limits extend approximately from L'Enfant (LE) Interlocking near milepost (MP) CPF 111.5 in the District of Columbia (District) to beyond the Rosslyn (RO) Interlocking at MP CPF 109.76 in Arlington, Virginia. The Engineering Limits northern terminus adjoins the proposed station capacity improvements to the VRE L'Enfant Station; and the Engineering Limits southern terminus in Arlington adjoins the northern limits of VPRA's Alexandria Fourth Track project.

The Study Area is surrounded by diverse land uses between the District and Arlington County, Virginia, including local and national parks, residential mixed use, and commercial development. These land uses constrain the operational considerations. In general, the Project intent is to create a four-track corridor by increasing the number of tracks as recommended by the capacity modeling over the Potomac River and into the District. Operational speeds will be maintained within the narrow railroad Corridor. The Engineering Limits include multiple transportation structures. Capacity increases will impact the configuration of three existing undergrade bridges and one existing overgrade viaduct within the Corridor:

- CSXT bridge over Ohio Drive SW (East) (DDOT Br # 512);
- CSXT bridge over Washington Channel (DDOT Br #513);
- CSXT bridge over Maine Avenue SW (DDOT Br # 514); and
- Republic Properties Maryland Avenue SW viaduct over CSXT (Unknown).

The following existing undergrade bridges will not require reconfiguration and are anticipated to remain in place:

- CSXT bridge over GWMP (Unknown);
- CSXT Long Bridge over Potomac River, Mount Vernon Trail, and Ohio Drive SW (West) (DDOT Br #510); and
- CSXT bridge over Interstate 395 (I-395) (DDOT Br # 1135).

FIGURE 1-1. LONG BRIDGE PROJECT LIMITS.

Additional work includes the following new structures or alterations to existing:

- A new undergrade bridge over GWMP, the Potomac River, and Ohio Drive SW (West) (MP 110.24);
- A new undergrade bridge over the Washington Metropolitan Area Transit Authority (WMATA) Yellow Line Tunnel and I-395 (MP 110.91);
- A new undergrade bridge over Ohio Drive SW (East) (MP 111.14);
- A new undergrade bridge over Washington Channel (MP 111.21);
- A rehabilitated undergrade bridge over Maine Avenue SW (MP 111.29);
- A new bike-ped bridge over GWMP and the Potomac River;
- A new pedestrian bridge over Maine Avenue SW that connects the Salamander Hotel and the SW Riverfront;
- New signal bridges will be incorporated along the Corridor;
- New crashwalls and modifications to reinforce bridge piers and other structures; and
- New retaining walls will be constructed throughout the Corridor to limit property impacts.

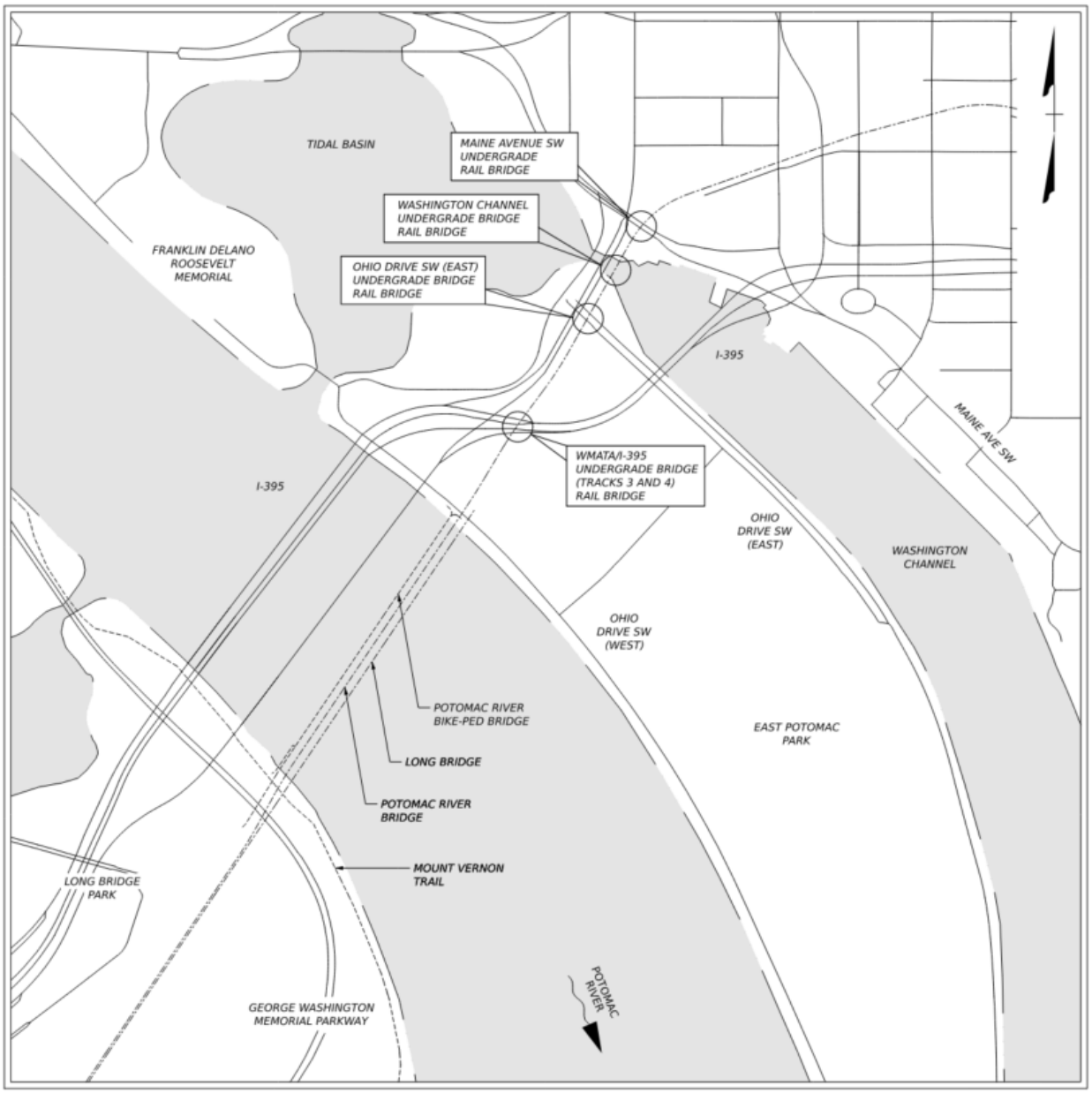

FIGURE 1-2. BRIDGE LOCATIONS.

1.2 Project Approach

The BOD Report documents the design standards applied to the preliminary engineering design. Additional criteria, definitions, and specifications are expected to be added during the development of the preliminary design and final design. These modifications shall be approved through a technical process based on sound engineering judgment, practice, and economics. A general review process is described in *Chapter 10, Approvals and Design Exceptions*.

Key Project development principles reflected in the BOD include the following:

- All mainline tracks will be designed to meet or exceed the existing speeds through the project area.
- Preliminary design is not to preclude future electrification along the passenger tracks. Future catenary structures can be installed by widening the substructure units of the bridge or on the embankments on the approaches.
- Both new and existing mainline tracks will be designed for resiliency, redundancy, interoperability, and connectivity between all passenger and freight service.
- Utilization of ongoing and previously completed studies, concept development, and rail improvement designs in the Corridor to the extent feasible and practicable.

1.3 Planning Considerations

1.3.1 OPERATIONAL CAPACITY

The Project objective is to provide additional long-term railroad capacity and to improve the reliability of railroad service through the Long Bridge Corridor. Capacity increases are needed to meet projected demand for passenger and freight rail services of stakeholders; improve operational flexibility and resiliency; and provide redundancy for this critical link in the local, regional, and national railroad network. To increase capacity, the two-track Corridor is to be updated to four-tracks through the project area. Capacity improvements were focused on obtaining one or more of the following objectives:

- Improved travel time;
- Increase and/or improve reliability and resiliency;
- Provide flexibility to recover during periods of higher demand and service delays, including track maintenance(resiliency);
- Increase in frequency of service;
- Increase in length of train/consistency; and
- Additional infrastructure to support improvements listed above.

1.3.2 PERMITTING OVERVIEW

The Long Bridge Project traverses through various historic areas, the viewshed of the Monumental Core of the District, private and federal properties, and environmentally sensitive areas. The evaluation of these features under NEPA is complete and included the following considerations:

- Stakeholder, cooperating agencies, participating agencies, and public input on the various alternatives;
- Focus on minimizing impacts to adjacent private and federal properties;
- Focus on minimizing environmental impacts;
- Influences on visual viewshed, noise mitigation, and aesthetic improvements;
- Improvements to railroad operational benefits and safety;
- Constructability of the proposed improvements; and
- Compatibility of proposed improvements with regional planning efforts.

Additionally, construction related permits, geotechnical permits, and other permits are required to construct the project and will be pursued during the Preliminary Design phase through

construction. *Appendix B* includes a list of all identified Permits and current status as of the date of this document.

1.4 Utilization of Standards

The design will include the use of applicable agency standard drawings, materials, and specifications for applicable improvements within the Authority Having Jurisdiction (AHJ). The utilization of standard practices and materials promotes understanding of the intended improvements with the benefit of expediting the design and construction. All new construction must conform to current and applicable AHJ standards or criteria, as detailed within specific design sections within this document. In the situation of multiple relevant standards, the more restrictive criteria will have precedence, unless otherwise specified and/or agreed upon.

Design Criteria and utilization of Standards may vary in accordance with the agency who will own and maintain the structure. Ownership and maintenance responsibilities for joint structures will be determined during the design phase of the project.

This basis of design will use Customary U.S. Units such as feet/inches, pounds/kips, degrees Fahrenheit (°F), etc. Horizontal datum references North American Datum of 1983/2011 (NAD83(2011)) and vertical datum references North American Vertical Datum of 1988 (NAVD88).

2 Railroad

Railroad geometric design is to be developed to provide safe, economical, and efficient freight and passenger service along the rail Corridor. The geometric design configurations must be developed to mutually maintain the operation and rolling stock stability for both freight and passenger operations.

The design criteria within the Basis of Design (BOD) reflects a combination of accepted and recommended engineering practices utilized by CSX Transportation (CSXT), Amtrak and Virginia Railway Express (VRE), as well as those contained in the American Railway Engineering and Maintenance-of-Way Association (AREMA) Manual for Railway Engineering (MRE).

2.1 Safety

Safety of freight and passenger operations, freight and passenger employees, and the public above, under, and adjacent to the railroad Corridor represents the critical priority of the design. Railroad safety promotion and regulation is governed by the Federal Railroad Administration's (FRA) Office of Railroad Safety, which includes FRA Track Safety Standards – 49 CFR Part 213. As the operator of the railroad Corridor, CSXT reserves the right to review and approve proposed railroad improvements.

The Project will maintain the existing posted speeds for freight and passenger trains along the existing railroad Corridor. If speeds are proposed to be increased by the Project due to improved geometry, FRA regulations require preparation of a system safety plan.

2.2 References

The design parameters for the Environmental Impact Statement (EIS) phase originated with the engineering and operating standards of CSXT. The following additional agency criteria were reviewed for more restrictive criteria or general compliance:

- AREMA Manual for Railway Engineering, 2022 Edition
- Amtrak Standards
- Applicable FRA safety requirements
- Federal laws
- District of Columbia general laws
- Commonwealth of Virginia general laws

For preliminary and final design documents, the latest edition of the code, regulation, standard, and specification applicable to the Project in effect on the day of engineering Notice-to-Proceed (NTP) is applicable to the Project design. Revisions to code, regulation, standard and specification made during engineering design are to be presented to the District Department of Transportation (DDOT), CSXT, or the Authority Having Jurisdiction (AHJ) and approved prior to incorporating revisions.

This BOD is based on industry standards, governmental regulations, AREMA recommended practices, and railroad standards. The following publications and documents are current references for Preliminary Engineering:

- CSXT Engineering and Operating Standards (in effect as of September 15, 2016)
- CSXT Design and Construction Standard Specifications – Pipeline Occupancies (Rev. June 5, 2018)
- CSXT Design and Construction Standard Specifications Vol. 1 (March 1, 2021)
- CSXT Design & Construction Standard Specifications – Wireline Occupancies
- AREMA Manual for Railway Engineering, 2021 Edition
- FRA Track and Rail and Infrastructure Integrity Compliance Manual (in effect as of January 2017)
- FRA Railroad Corridor Transportation Plans Guidelines (July 2005)
- District of Columbia Municipal Regulations (DCMR), Chapter 24-31. OCCUPATIONAL SAFETY: RAILROAD CLEARANCES, Title 24. PUBLIC SPACE AND SAFETY.
- U.S. Code of Federal Regulations (CFR)
- Absolute maximum/minimum values for any track design element will comply with 49 CFR 213 for the applicable class of track. (On CSXT-owned and maintained track, CSXT will not allow any proposed track design element that does not comply with FRA class of track standards.)
- Strategic Rail Corridor Network (STRACNET) and Defense Connector Lines (December 1998) - http://www.tea.army.mil/DODProg/RND/default.htm

2.3 Design Life

The design life for the new railroad related features and facilities are:

- Embankment: 100 years minimum
- Ballast and subballast: 35 years minimum
- Track structure (rail, ties, and fasteners): 35 years minimum

It is anticipated that facilities will require regular maintenance and some degree of component repairs and replacement over the course of the design life. Additional decisions made on the preferred materials, fabrication, and installation of infrastructure will be made during the Final Design stage based upon AHJ requirements.

Temporary facilities used to accommodate construction of permanent systems are to be designed for a period up to five years. Examples include temporary tracks and facilities during construction.

2.4 Design Speeds

The Corridor design speed is intended to maintain and improve the existing freight and passenger speeds reflective of constraints due to the existing topographic and environmental features. New alignments will meet or exceed FRA Class 3 track design speeds. See *Section* 2.9 for additional design speed information at track turnouts and crossovers along the Corridor.

Horizontal curves are to be designed to the highest speeds possible for mixed traffic based on the design criteria, train performance models, and local conditions. Design speeds are to be established by optimizing the horizontal curve (reducing the degree of curvature).

2.5 Horizontal Geometry

Mainline horizontal track alignments are to be stationed along the centerlines of the existing CSXT alignment. Engineering stationing (ES) increases from south to north. Station equations are to be used to correlate Project ES with CSXT Valuation Maps stationing, CSXT mileposts, and any identifiable bridges and relevant topographic or structural features referenced on the Valuation Maps.

Track horizontal curvature and superelevation will be designed to maximize speed for mixed traffic considering both CSXT and AREMA standards.

All mainline tracks within proximity of the existing Right-of-Way (ROW) are to be designed in accordance with the existing AHJ railroad speeds. Engineering alternatives include meeting or matching the existing speeds throughout the Corridor, with Track 3 and 4 to be designed for a minimum speed of 40 mph for passenger operations and a minimum speed of 25 mph for freight operations on Tracks 1 and 2. Existing sidings are to be assigned stations matching the mainline stations and station equations referencing the Valuation Maps.

2.5.1 TRACK CENTERS

Track centers (distance between the centerlines of two adjacent tracks) for mainline, lead tracks, tangent tracks, and tracks parallel to mainline tracks that are not being relocated or modified will remain at existing track centerline widths. Unless agreed upon within the Comprehensive Rail Agreement, on tracks to be owned and maintained by CSXT, mainline track centers will meet or exceed CSXT's standard track centers of 15 feet. Track centers less than 15 feet will require design exception justification and formal approval by CSXT. The justification must include explanation of extenuating circumstance, limits of the standard deviation (exception), implications of not complying with the CSXT standard, and recommended infrastructure or installations to mitigate the impacts associated with the proposed exception. Exhibit E-4 of the Comprehensive Rail Agreement between CSXT and Virginia Department of Rail and Public Transportation (DRPT) specifies agreed upon Confirmed Track Separation Distances Less Than 15 feet. For the Long Bridge Project, due to the overbuild of Maryland Avenue, reduced track centers of 14 feet between mileposts 111.2 to 111.7 have been approved and will not require design exception justification and additional formal approvals. Corridor safety must be maintained in all circumstances, and in no case will track centers be reduced below their existing minimums in the same block of track.

District of Columbia Codes and Regulations specifies minimum track centers for use in the District, although the CSXT minimums are more restrictive. Track centers will be based on **Table** 2-1 below and in accordance with Virginia Passenger Rail Authority (VPRA) approval or per established agreements (e.g., Exhibit E-4 of the DRPT/CSXT Comprehensive Rail Agreement). Deviations from these values will be in accordance with *Chapter 10*.

TABLE 2-1. MINIMUM TRACK CENTERS.

Track Type	CSXT Minimum	DCMR Minimum
Main	**15 ft**	14 ft
Other Tracks	**14 ft**	14 ft
Other Track Adjacent to Main Tracks	**20 ft**[1]	15 ft

> ***Note:*** *1 – Track centers will follow the DPRT/CSXT Comprehensive Rail Agreement and locations not specifically identified will follow the standards in this table.*

The Long Bridge Project utilized the following typical sections for conceptual evaluation. Refer to *CSXT Standard Drawing 2600* series for additional track configuration details.

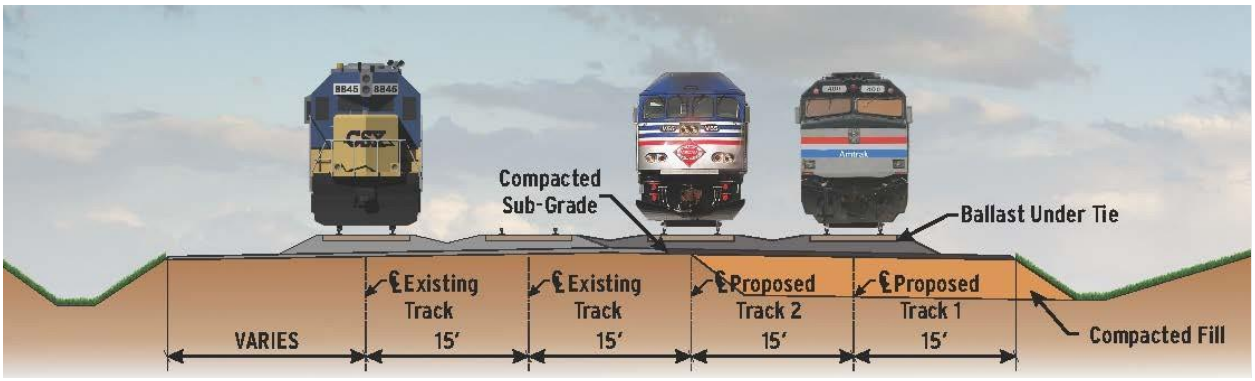

FIGURE 2-1. FOUR TRACK TYPICAL SECTION.

2.5.2 TANGENT ALIGNMENT

In compliance with AREMA, the AHJ's operating preference and passenger railway design best practices, the track geometry must maintain a minimum tangent length between designed track features. For mainline passenger tracks, the desired minimum tangent length (L) between curves can be determined by the following formula:

$$L = 3V$$

Where: L = minimum tangent length, feet
V = passenger design speed through the curve, miles per hour

The tangent length formula is based on the rail car traveling at least two seconds on tangent track between two curves. The preferred and absolute minimum tangent track lengths are reflected in **Table 2-2** for predominate track circumstances. These minimums will be met unless a design exception is formally approved by the AHJ in accordance with *Chapter 10*.

TABLE 2-2. MINIMUM TANGENT LENGTH - MAIN TRACK.

Tangent Location on Mainline Tracks	Minimum Tangent Length (Feet)	
	Preferred	Absolute MINIMUM
Between Curves	3V	200
Between Point of Switches (PS) of Turnouts (TOs)	200	100
Between PS and Curve	200	100
Between PS and Bridge	500	100
Between PS and Last Long Tie of TO	**200**	100

2.5.3 HORIZONTAL CURVE ALIGNMENT

Superelevation

Superelevation (sometimes referred to as cant internationally), is defined as the algebraic height difference in profile elevations between the low rail (curve interior rail) and high rail (curve exterior rail) for a specific track. The height difference is used to counteract, or partially counteract, the lateral forces on a train through a horizontal curve. Additional benefits include distribution of load on the rails, improved ride quality for passenger comfort, and reduced asset wear on the rail and wheel. All mainline curves will be superelevated at a minimum of one half inch. See *CSXT Standard Drawings 2510 and 2511* for further superelevation requirements. For passenger operations, AREMA recommended practices will apply.

Circular Curves

Circular curves will be defined by the chord definition of curvature. Track curvature will be compliant with the host railroad. Any existing curves will be improved to the extent possible within the constraints of the Corridor. Horizontal curvature will be adjusted between parallel tracks to accommodate additional horizontal clearance where possible.

Generally, turnouts will be placed outside of a horizontal curve in accordance with minimum tangent lengths. Single radius horizontal curves with transition spiral curves are preferred. The utilization of compound circular curves and circular curves joined by a transitional spiral will be minimized within the Project limits and if needed, the most restrictive (longest) will be used. Existing curves of these nature will be evaluated for the application of a single circular curve with transitional spiral curves.

Spiral Transition Curves

A clothoid spiral transition curve will be used on mainline tracks to connect tangents to circular curves. Curves associated with a turnout that connect the tangent from frog to a parallel track, or siding, are excluded from transitional spirals. Spirals will be designed to meet or exceed the existing spiral criteria, spirals that do not meet CSXT's requirements will require a design exception and formal approval from the AHJ. Spiral lengths will also be verified by AREMA standards to accommodate increased unbalance from passenger trains.

The graphical configuration and components are reflected in **Figure 2-2** and **Table 2-3**.

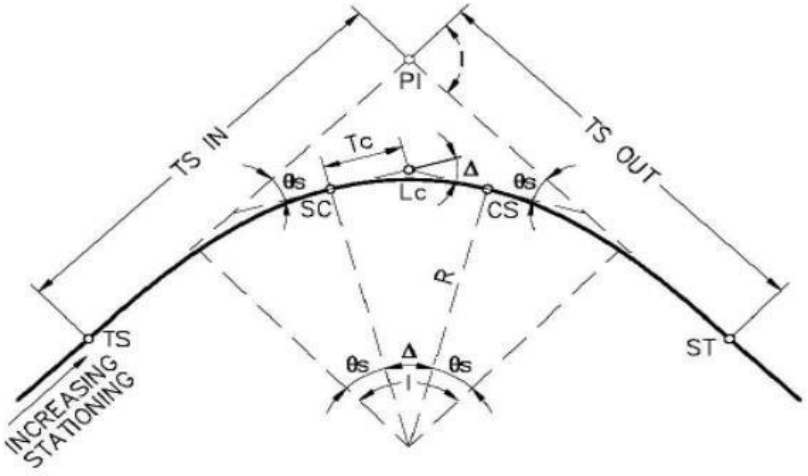

FIGURE 2-2. CIRCULAR CURVE WITH SPIRAL TRANSITION.

Table 2-3. Degree of Curvature.

D_C	Degree of Curvature
I	Total Intersection Angle
Θ_S	Spiral Angle = (L_S D_C) / 200
Δ	Central Angle of Circular Curve = I - 2 Θ_s
R	Radius of Circular Curve
T_C	Tangent Length of Circular Curve = R Tan (Δ/ 2)
L_C	Length of Circular Curve = (Δ/ 180) R
L_S	Length of Spiral
TS	Tangent to Spiral
SC	Spiral to Curve
CS	Curve to Spiral
ST	Spiral to Tangent

All mainline track will be configured with a length of spiral preferred by passenger services for passenger comfort. The length of spiral will be based on the desirable length of spiral stated in *AREMA MRE Chapter 5, Section 3.1* formula, as the longest distance as determined from the following formulas:

1. $L_S = 1.63E_UV$; or $Ls = 1.22E_UV$
2. $L_S = 1.2E_aV$

Where: E_U = unbalanced superelevation
E_a = actual superelevation applied to the curve, inches
V = passenger train design speed, mph

All spirals used on the project will require approval by the AHJ in accordance with *Chapter 10*. The desirable lengths of spiral will be reflected in 31-foot intervals.

For passenger train operations, the active total length of spiral in feet will be defined by the following formula:

$$L_s = 1.46\ Vt$$

Where: V = design speed, mph
t = time required to tilt, seconds

L_s is rounded to the nearest 100 feet (but not less than 100 feet). The criteria determining t is established on a case by case basis dependent on physical constraints along the corridor.

Acknowledging the Project Corridor has a variety of constraints, including the availability of property, historic districts, monumental districts, environmental features, commercial development, and existing retaining walls, the absolute minimum length of spiral will be based on *CSXT Plan 2511* and VRE and Amtrak Recommendations for passenger comfort.

2.6 Vertical Geometry

Vertical geometry will be based on the top of the low rail. Track profile will reflect the existing rail elevation where possible.

Individual track profiles will be developed during continued phases of the Project. Turnouts and switches are to be placed outside the limits of the vertical curve in accordance with minimum tangent lengths displayed in **Table 2-2**.

2.6.1 GRADES

Track grades reflected with the vertical geometry will represent the effective grade of the track. All track grades will be evaluated in accordance with AREMA compensated gradients. The compensation factor will be 0.04 percent per horizontal degree of curvature. The maximum grade allowed without compensated grade is 1.5 percent. Compensated gradients are not to exceed 1.50 percent for new construction without formal approval and an accepted design exception from CSXT. Any deviation will be subject to review and acceptance of the operating railroad with the design exception process detailed in *Chapter 10*.

For mainline track, the desired length of constant track grade between vertical curves will be the greater of either 100 feet or the result of the following formula:

$$L = 3V$$

Where: L = minimum tangent length, feet
V = freight design speed in the area, mph

2.6.2 VERTICAL CURVATURE

All changes in track grades will be connected with a parabolic curve in accordance with *AREMA MRE, Chapter 5, Section 3.6*. Mainline tracks will utilize the following equation for both crest and sag curves.

$$L = \frac{2.15(DV^2)}{A}$$

Where: L = length of vertical curve, feet (rounded up to the next 10 feet, minimum length of 100 feet)

D = Absolute value of the algebraic difference in rates of grades (expressed as a decimal)
V = Speed of freight train, mph
A = vertical acceleration, ft/sec/sec (ft/sec^2)

The recommended vertical accelerations (A) for passenger and freight trains for both crest and sag curve are as follows (**Table 2-4**):

Table 2-4. Recommended Vertical Acceleration.

Train Type	Acceleration
Passenger Train	0.60
Freight Train	0.10

The longest vertical curve length resulting from the vertical accelerations will be applied to the track profile. Vertical lengths will be rounded to the next 10 feet with a minimum length of 100 feet. Special track work must be in accordance with minimum tangent lengths displayed in **Table 2-2**.

2.7 Clearances

Railroad clearances refer to the recommended minimum separation between tracks in both a horizontal and vertical component. Horizontal clearances are references from the track centers to obstructions on either side of the track. Vertical clearances are referenced from the top of rail to the vertical obstruction. In track conditions with superelevation, the vertical clearance is referenced from the high rail. Since the Project does not include station work, clearance requirements associated with pedestrian access are not included.

Railroad clearance standards are defined by *CSXT Standard Plans 2604 and 2605 (s)* and *DCMR, Title 24. Public Space and Safety, Chapter 24-31. Occupational Safety: Railroad Clearances*. These clearances are applicable to all new construction or design, including temporary construction or design. Clearances will also be verified per passenger requirements based on Amtrak and VRE standards for the corridor.

The lateral or horizontal clearance (distance between the track centerline and closest horizontal obstruction) will meet or be greater than CSXT's standard clearance of nine feet unless noted otherwise and/or agreed to within the DRPT/CSXT Comprehensive Rail Agreement and will include considerations for curvature and superelevation. For obstructions that are buildings normally occupied by people or that support a bridge, the lateral track distance will be 25 feet unless protected by a crash wall. Horizontal clearances must be shown from the centerline of track to the nearest obstruction if within 25 feet of the centerline of any track. Additional clearance for curvature and superelevation will be taken into account when determining the horizontal clearance. New tracks with horizontal clearance less than 9 feet to any obstruction including curvature and superelevation (other than buildings or bridge supports where it is 25 feet) will require design exceptions and formal approval by CSXT. The justification must include explanation of the extenuating circumstance, limits of the standard deviation (exception), implications of not complying with the CSXT standard, and recommended infrastructure or installations to mitigate the impacts associated with the proposed exception. Exceptions include reduced clearances between mileposts 111.2 to 111.7 due to the overbuild of Maryland Avenue in accordance with Exhibit E-4 of the DRPT/CSXT Comprehensive Rail Agreement. This

agreement allows a minimum clearance of 7.5 feet from the existing horizontal obstruction and will not require design exception justification and additional formal approvals from CSXT.

DCMR, Title 24. Public Space and Safety, Chapter 24-31. Occupational Safety: Railroad Clearances specifies minimum clearances for use in the District although the CSXT minimums are more restrictive. Lateral clearances will be based on **Table 2-5** below in accordance with VPRA approval and as detailed in the DRPT/CSXT Comprehensive Rail Agreement. Deviations from these values will be in accordance with *Chapter 10* of this BOD.

Table 2-5. Minimum Clearances.

Clearance Type	CSXT Minimum[1]	DCMR Minimum
Lateral Clearance, General	9'-0"	8'-0"
Lateral Clearance, Piers and Abutments, Without Crash Wall	25'-0"	N/A
Signals and Poles	8'-6" minimum	10-6" DESIRED
Overhead	23'-0"	22'-0"
NOTE: 1 - INCLUDING CURVATURE AND SUPERELEVATION		

Vertical roadway clearances are determined using the limited topographical information and track structure design assumptions, as well as design criteria per relevant CSXT references listed in *Section 2.2*. Any deviation from the standards will be subject to review and approval of a formal design exception. The track structure height is determined using the structure depths combined with the following criteria:

TABLE 2-6. TRACK ITEM DEPTHS.

Track Item	Height (ft)
Waterproofing and deck protection	0.10[1]
Ballast	1.00[2]
Conc. Tie + rail seat pad	0.76
Rail (136 RE)	0.61
Notes: 1 - Waterproofing thickness is 80 mils and deck protection thickness is 0.25 inches, therefore the total thickness of waterproofing and deck protection is 0.10 feet. 2 – All structures will be designed for 24 inches of total ballast, 12 inches of initial ballast and 12 inches of future ballast.	

For new structures, vertical clearance from a horizontal plane at the top of the high rail to the nearest overhead obstruction will be at least 23 feet.

2.7.1 BRIDGES

For bridge specific design criteria beyond clearances cited, refer to *Chapter 3, Railroad Bridges and Retaining Wall Structures* of this document. Actual structure depth shall be used to determine vertical clearance.

2.8 Roadbed Section

Track roadbed criteria will be compliant with *CSXT Plan 2601*. The following general criteria is applicable to the track's roadbed section. Any discrepancy between criteria and standards will be approved by DDOT, CSXT, and other federal and local agencies having jurisdictions and compliance to the NEPA documents.

2.8.1 BALLAST DEPTH

The ballast depth will extend not less than 12 inches below the low rail to the track subballast. Ballast depths are to increase proportionally for the full length of the tie in relationship to the track superelevation. All ballast materials are to be compliant with CSXT specifications and originate from a CSXT approved quarry.

2.8.2 SUBBALLAST DEPTH

Subballast depth will be a minimum of 6 inches below the ballast on mainline tracks and sidings. Subballast is to conform with CSXT specifications and is not required on ballast deck bridges.

2.8.3 SHOULDER WIDTH

Ballast shoulder width will extend beyond the end of the tie in accordance with *CSXT Plan 2602*.

2.8.4 TRACK DRAINAGE

All track construction must have drainage and stormwater management facilities designed in accordance with *CSXT Plan 2601 - Roadbed Sections*.

Track requires a decentralized approach to stormwater management because the track is a linear feature with nearly negligible width, as compared to its length, and no centralized location where stormwater BMPs can be constructed. The existing track infrastructure in cut sections generally includes ditches along one or both sides of the track for drainage. These ditches will be reconstructed to conform to the proposed typical track section in order to maintain proper drainage.

Under both existing and proposed conditions, stormwater will be conveyed via overland flow or through a drainage system consisting of underdrains installed in the rail ballast or drainage ditches alongside the tracks. Ditches and underdrains will be required to direct stormwater to safe discharge locations and to keep the ballast dry and stable.

All track construction will meet the specific drainage criteria below:

- Existing drainage patterns will be maintained wherever possible.
- To the maximum extent possible, drainage of the roadbed will be handled by a gravity system.
- Do not drain areas from beyond the track bed through the track structure. Typically, a ditch or subdrain will lie between the track and the adjacent ground area to intercept fines from an adjacent slope which would foul the ballast.
- Track drainage system, including underdrains (subdrains), will be designed to accommodate peak flows produced by a 100-year design storm without the ponding of water against the roadbed.

- Pipes and culverts shall conform to AREMA Recommendations and ASTM Specifications.
- Perforated pipe underdrains will be used in locations where the track corridor is constrained or where the adjacent grading does not allow open channel flow.
- The minimum pipe size for underdrains parallel to the tracks is 12 inch HDPE.
- Underdrains will be bedded in a trench filled with ¾-inch crushed stone wrapped in a geotextile filter fabric. Cleanouts will be spaced no more than 300 feet apart.
- The track underdrain invert will maintain a minimum depth of 4'-0" from the top of rail and its centerline will be at least 6'-6" from the track centerline.
- Underdrains under railroad tracks will be designed for Cooper E-80 loading and will have a minimum cover of 2 feet from bottom of tie to the top of pipe. Segments of underdrain crossing below track will be solid wall pipe, no perforations.

See *Chapter 7, Drainage & Stormwater Management* for additional requirements.

2.9 Special Trackwork

Special trackwork refers to trackwork units that are used for tracks to converge, diverge, or cross each other through turnouts, and crossovers. All special trackwork will be designed according to CSXT standard drawings or to pre-approved standard CSXT supplier drawings.

2.9.1 SPEEDS THROUGH TURNOUTS AND CROSSOVERS

Passenger and freight speeds for turnouts and crossovers are governed by CSXT operating rules including CSXT signal aspects and current CSXT engineering standards. **Table 2-7** shows the speeds for the turnouts and crossovers that are expected as part of the Long Bridge Project. However, a speed less than those shown may be warranted based on the nearby track geometry and final railroad signal design and will be reevaluated by VPRA and CSXT during the final design phase.

TABLE 2-7. TURNOUT DIVERGING SPEEDS.

Turnout Data	Switch Length & Type	Passenger (MPH)	Freight (MPH)
#15	26'–0" Curved	30	30
#20	39'–0" Curved	45	45

2.9.2 TURNOUTS AND CROSSOVERS

All turnouts and crossovers will meet the criteria below:

- All turnouts, including those within a crossover, are intended to be constructed of new 136-RE Continuous Welded Rail (CWR) and concrete ties. Turnouts incorporated into existing timber track or industrial sidings are to be constructed of new 136-RE CWR and timber ties. Turnout components, including switch points, stock rails, closure rails, guard rails, and frog wing rails are to be fabricated from new, high strength HH rail.
- A minimum of 30 feet will be provided from PS to Insulated Joint.
- Crossovers are to be located on parallel tracks only.
- Standard crossovers are preferred to be on 15-feet track centers.

The application of non-standard turnouts and crossovers, such as equilateral turnouts, require approval in accordance with *Chapter 10*. The following situations may warrant non-standard turnouts and crossovers:

- Crossovers in non-parallel tracks; and
- Crossovers with track centers less than 15 feet.

2.10 Track Gauge

The standard track gauge is 4 feet-8.5 inches. Track gauge is measured between the gauge inside of the heads of rails at 5/8 inch below the top of rails.

2.11 Rail

The rail section to be used will be new 136RE Continuous Welded Rail (CWR). Premium rail may be required according with CSXT engineering standards depending on final track geometry alignments, including curvature and expected traffic.

2.12 Rail Anchoring

Rail anchors are to be applied on conventional ballasted track construction utilizing concrete ties, tie plates, and tie clips.

2.13 Tie Plates

Tie plates and fasteners will be double shoulder tie plates with tie clips.

2.14 Ties

2.14.1 CONCRETE TIES

All new mainline track, turnouts, and crossovers construction is intended to utilize concrete ties. In areas where track is existing and to remain, timber ties may be utilized for proposed connections. The following criteria is applicable:

- Concrete tie spacing is 20 inches, center of tie to center of tie, except as noted in CSXT Plans for special trackwork.
- Concrete ties are to be compliant with the type and material specification of CSXT.
- Concrete ties will transition to timber north of the RO Interlocking.
- Typical concrete tie dimensions to be 9 feet long, 10 inches high, and 13 inches wide
- Concrete tie rail seat shall be a flat smooth surface +/- 1/32 inch
- Concrete tie rail seat shall provide a cant of 1 in 40 +/- 5 toward center line of tie unless otherwise specified

2.14.2 TIMBER TIES

The application of timber ties is at the discretion of VPRA and CSXT. Timber ties are to meet the following criteria:

TABLE 2-8. TIMBER TIE DIMENSIONS.

Parameter	Dimension
Length	8.5 feet
Height	7 inches
Width	9 inches

The maximum center of tie to center of tie spacing is 20 inches; the minimum is 18 inches.

2.15 Communications and Signals

The project delivery Contract will coordinate directly with CSXT to develop conceptual and preliminary communications and signals (C&S) designs and agreements. This separate design contract will run concurrently and share a similar timeline with the Long Bridge Project consultant team contract and work efforts. The consultant team will incorporate the C&S design information into the Long Bridge Project as appropriate and will coordinate directly with CSXT and DDOT throughout the Project.

3 Railroad Bridges and Retaining Wall Structures

3.1 Overview

The Long Bridge Project contains a variety of structural elements including undergrade bridges, pedestrian/bicycle bridges, and retaining walls. This chapter provides design criteria for rail related structures, including bridges and retaining walls. *Chapter 4* provides design criteria for pedestrian/bicycle facilities.

American Railway Engineering and Maintenance-of-Way Association (AREMA) Design Criteria will be utilized for structures supporting railroad live loading unless otherwise referenced within this document.

3.1.1 OWNERSHIP

Ownership for bridges is as follows:

- Potomac River Undergrade Bridge — VPRA
- WMATA/I-395 Undergrade Bridge — VRPA
- Ohio Drive SW Undergrade Bridge — VPRA
- Washington Channel Undergrade Bridge — VPRA
- Maine Avenue SW Undergrade Bridge — VPRA

3.1.2 REFERENCES

- AREMA Manual for Railway Engineering (MRE), 2022 Edition
- CSX Transportation (CSXT) Design and Construction Standard Specification Vol. 1, March 1, 2021
- CSXT MWI 2800 Series
- CSX Public Projects Information Manual
- District Department of Transportation (DDOT) Design and Engineering Manual (DEM), January 2019
- DDOT Standard Specifications for Highways and Structures, October 2020
- Virginia Department of Transportation (VDOT) Modifications to the American Association of State Highway and Transportation Officials (AASHTO) Load and Resistance Factor Design (LRFD) Bridge Design Specifications, 8th Edition, 2017
- Note: this reference is only applicable to the Potomac River Undergrade Bridge
- VDOT Manual of the Structure and Bridge Division, Part 2, Design Aids and Typical Details, 2021
- Note: this reference is only applicable to the Potomac River Undergrade Bridge
- AASHTO LRFD Bridge Design Specifications, 9th Edition, 2020
- AASHTO Standard Specifications for Highway Bridges, 17th Edition, 2002
- AASHTO Vessel Collision Design, 2009

- Washington Metropolitan Area Transit Authority (WMATA) Adjacent Construction Project Manual, September 2015
- AASHTO/AWS Bridge Welding Code D1.5, 8th Edition
- AASHTO Guide Specifications for Seismic Isolation Design, 4th Edition
- Virginia Railway Express (VRE) Standards
- Amtrak Standards
- AISC Steel Construction Manual – 13th Edition
- USCG, Bridge Lighting and Other Signals

3.2 Special Requirements

3.2.1 SPAN CONFIGURATION

All spans will be simple spans. Continuous spans are prohibited (CSXT X-A). Piers will generally align with existing substructures and shall maintain existing navigational clearances.

Skewed spans shall be avoided where practical. Where skewed spans are necessary, the skew shall be minimized to the extent practicable. Skewed spans shall be designed such that the dead load counteracts computed live load uplift by a factor of 1.5.

Through plate girders (TPGs) are only permitted for up to two track bridges, except through plate girders will be allowed at Ohio Drive SW and Maine Avenue SW. Intermediate girders are not permitted for double track bridges. Stringers, if required, will frame into floorbeams. All stringers will have top and bottom flanges clipped at an angle not greater than 45 degrees to permit field removal and installation. Intermediate floorbeams will frame into the girder web using double angle connection angles and high strength bolts. (CSXT X-D)

Through plate girder web depths are to be consistent for all spans of the Potomac River Undergrade Bridge. Web depths shall also be consistent for all spans of the WMATA/I-395 Undergrade Bridge.

Concrete superstructures are not permitted over roadways.

3.2.2 DESIGN SPEED

The design maximum allowable speed (MAS) is 60 mph for the purpose of bridge design. Actual speeds may vary. See *Chapter 2, Railroad* for additional speed information.

3.2.3 DESIGN LIFE

Design Service Life.....100 years

3.2.4 DISTRIBUTION OF AXLE LOADS

For the design of ballast deck beams and girders spaced symmetrically about the centerline of tangent track, the axle loads will be distributed equally to all beams or girders whose centroids are within a lateral width equal to the length of tie plus twice the minimum distance from bottom of tie to top of beams or girders. Distribution of loads to transverse floorbeams will be in accordance with AREMA 15 – 1.3.4.2.3. Distribution for loads for other conditions will be determined by a recognized method of structural analysis.

3.2.5 BRIDGE DECK

The rail bridges will use ballasted deck construction.

All bridges will be designed with non-composite interaction between the superstructure and deck. (CSXT V-C)

Concrete deck shall not be used on through girder spans due to unintended composite behavior causing deck cracking.

Steel deck shall be a minimum of one inch thick.

Shear studs are not permitted. (CSXT IX-F1)

Waterproofing membrane shall be spray applied and shall be PPG, Eliminator, or approved equal. The waterproofing membrane shall be a minimum of 80 mils with a minimum 0.25 inch thick integrated ballast mat. If a thicker waterproofing membrane is used, the integrated ballast mat may be optional at the approval of CSXT. Concrete underlayment may be required to slope the ballast mat and waterproofing toward the provided drainage structures.

One foot (1'-0") minimum ballast depth below the tie (measured from top of deck waterproofing to bottom of tie, at the centerline of the low rail) plus an additional one foot (1'-0") for future track reprofiling will be used for calculating dead load on the structure to accommodate future track raises. (CSXT V-D, CSXT IV-B).

Rail and ties will meet criteria specified in *Chapter 2, Railroad*.

Walkways

Three-foot walkways shall be provided along the project corridor as described below:

- One walkway on bridges carrying two tracks;
    - The walkway is preferred on the upstream (track left) side of the Potomac River Undergrade Bridge and the WMATA/I-395 Undergrade Bridge;
    - The walkway may be located on the inside of the girder (on the ballast section) in lieu of an external "catwalk" walkway for the Potomac River Undergrade Bridge and the WMATA/I-395 Undergrade Bridge;
- Two walkways, one on each side of the bridge, on bridges carrying four tracks;
    - The proposed walkways on the Ohio Drive SW and Maine Avenue SW Undergrade bridges may have isolated points with less than 3 feet of width;
- Walkways shall be provided adjacent to retaining walls.

3.2.6 BEARINGS AND BEARING REPLACEMENT CONSIDERATIONS

Bearing stiffeners shall be CJP welded or finish to bear with fillet welds for both top and bottom flanges.

Intermediate stiffeners shall be on both sides of the web (in pairs). They shall be extended to the bottom flange with a tight fit or light driving fit with no weld on the tension flange, except any intermediate stiffeners within a distance of D from the centerline of bearing, which must be fastened to tension flange per AREMA 15-1.7.8e, or any intermediate stiffeners at knee brace locations which shall also be fastened to both flanges.

Anticipated bearing types are described in respective TS&L Reports. Shock pads shall be provided at each bearing. Shock pads shall be ½" thick, 31 ply preformed elastomeric bearing pads conforming to Federal Specifications MIL-C-882C. The shock pads shall be placed between the masonry plate and concrete substructure.

Provisions shall be made for bearing replacements.

Jacking locations shall be provided at each end floorbeam or end diaphragm. Jacking loads for the bearing replacement condition shall accommodate full dead load including future ballast and need not include live load on the bridge. (CSXT X-B, X-D).

3.2.7 TRACK GEOMETRICS AND CLEARANCES

Use MWI 2604 for clearance envelopes.

Navigational clearance over the Potomac River: Any new structures located over the Potomac River are subject to meeting the navigational requirements for the area set by the United States Coast Guard. The minimum vertical clearance has been set at 20 feet above the current mean high water (MHW) elevation of 1.54 per the United States Coast Guard (USCG) Preliminary Navigation Clearance Determination (PNCD) dated March 5th, 2020.

Minimum vertical clearance for undergrade bridges to be replaced will be as follows:

- Potomac River Undergrade Bridge over GWMP Span 14'-6"
- Potomac River Undergrade Bridge Navigational Channel Span 20'-0"
- Potomac River Undergrade Bridge over Ohio Drive SW (West) Span 14'-6"
- WMATA/I-395 Undergrade Bridge over I-395 Span 16'-6"
- Ohio Drive SW Undergrade Bridge 12'-6"
- Washington Channel Undergrade Bridge TBD
- Maine Avenue SW Undergrade Bridge 14'-6"

All construction activities will comply with FAA and MWAA requirements.

Refer to *Section 2.7* of this document for information regarding clearance between track centers.

Crashbeams

Crashbeams will be integrated with steel fascia beam TPGs for Ohio Drive SW (East) and Maine Avenue SW Undergrade Bridges. A superficial fascia beam and barrier system will be provided at these locations to protect main load carrying elements from vehicular impact and meet aesthetics requirements. This beam will be designed to mimic the look of a typical steel TPG which will include a small overlapping gap between the bottom and top section. The bottom section acts as a sacrificial crash beam while the top section carries a walkway with a steel parapet connected to the main load carrying girders. Design will follow MWI 1911 Design and Construction Standard Specifications - Section 070330.

3.2.8 BRIDGE DRAINAGE

- For bridge spans over land, bridge drainage shall be carried off structure through an on-structure drainage system to outfalls at the bridge ends or connection into the track drainage system. For spans of the Potomac River Undergrade Bridge and Washington Channel Undergrade Bridge over water, bridge drainage may be conveyed via on-structure drainage systems to downspouts at pier locations which outfall directly into the water below.
- Free-fall systems that outlet bridge drainage directly onto land or roadways shall not be permitted.
- There are additional retaining wall drainage outlets throughout the corridor which outlet into either drainage structures or surface ditches.

See *Chapter 7, Drainage & Stormwater Management* for additional requirements.

3.2.9 UTILITIES

Below is a comprehensive list of impacted utility owners on a per structure basis for coordination:

- Potomac River Undergrade Bridge
    - CSXT
    - DC Water
    - Dominion Power
    - National Park Service (NPS)
    - Potomac Electric Power Company (PEPCO)
    - Verizon
    - WMATA
- WMATA/I-395 Undergrade Bridge
    - AT&T
    - CSXT
    - DC Water
    - DDOT
    - NPS
    - Verizon
    - WMATA
- Ohio Drive SW Undergrade Bridge
    - CSXT
    - NPS
    - PEPCO
    - Verizon
    - Washington Gas
- Washington Channel Undergrade Bridge

  - AT&T
  - CSXT
  - DDOT
  - Verizon

- Maine Avenue SW Undergrade Bridge

  - AT&T
  - Capital Transit Company
  - CSXT
  - DC Water
  - DDOT
  - General Services Administration (GSA)
  - PEPCO
  - Verizon

See *Chapter 8, Utilities* for additional requirements.

3.2.10 NAVIGATION LIGHTING

Navigation lighting shall be provided for the Potomac River Undergrade Bridge and Potomac River Bike-Ped Bridge, as they are bridges that cross waterways, which support nighttime navigation. Navigation lights are required for display and shall be in accordance with Part 118 Bridge Lighting and Other Signals of Title 33 Navigation and Navigable Waterways, CFR.

Approval of navigation lights and other required signals shall be obtained, prior to construction, from the Coast Guard District Commander (Bridge Office) with jurisdiction over the bridge project area.

3.2.11 COMMUNICATIONS AND SIGNALS

Refer to *Section 2.15* and coordinate with CSXT on communication and signal designs and their respective foundations, and how it will relate with proposed foundations along the project corridor.

3.3 Loads

3.3.1 DEAD LOADS

TABLE 3-1. STRUCTURAL COMPONENTS.

Steel	490 pcf
Normal Weight Reinforced Concrete	150 pcf
Ballast	120 pcf, 12 inch minimum depth beneath tie plus additional future 12 inch depth
Timber	60 pcf

See AREMA 15.1.3.2 for additional items not listed.

A 10 percent increase will be considered as an allowance for the dead load of splice and fill plates, stiffeners, nuts and bolts, welds, and other miscellaneous components during analysis for

all structural steel components. Designer shall verify reinforced concrete unit weight for densely reinforced concrete elements and adjust accordingly.

TABLE 3-2. NON-STRUCTURAL ELEMENTS.

Track rails, inside guard rails and their fastenings (AREMA Chapter 15 Section 1.3.2.b)	200 plf/track
Concrete ties	800 lbs each
Utilities	To be based on specific utilities on each individual bridge
Drainage	To be based on the specific system on each bridge

3.3.2 LIVE LOAD

Superstructure elements will be designed for Cooper E-80 Loading or the Alternate Live Load with full diesel impact, whichever produces the greatest stress, per *AREMA Chapter 15 Section 1.3.3*. Proposed substructure elements will be designed for Cooper E-90 loading at the following locations:

- Ohio Drive SW Undergrade Bridge
- Washington Channel Undergrade Bridge
- Maine Avenue SW Undergrade Bridge

All other undergrade bridge substructure elements and temporary structural elements will be designed for Cooper E-80 loading.

Any structure carrying the Tracks 3 & 4 access road from Ohio Drive SW (West) will be designed for a singular AASHTO HS-20 vehicle.

3.3.3 IMPACT LOADS & ROCKING EFFECT

Full diesel impact loads based on 60 mph will be calculated as per *AREMA Chapter 15 Section 1.3.5*. Impact forces will be considered for strength design and will also contribute to the fatigue stress range with the appropriate fatigue impact factor applied.

Impact forces due to rocking effects will be considered for strength design and will also contribute to the fatigue stress range.

The distribution of rocking loads to members supporting the track will be based on the configuration and spacing of members supporting the track. For live load acting on multiple tracks, force couples will be applied in the manner that will produce the worst-case response.

CENTRIFUGAL FORCE

Centrifugal force based on a 60 mph operating speed will be calculated as per *AREMA Chapter 15 Section 1.3.6*. The sharpest degree of curvature on the span will be used when the span carries multiple tracks. Centrifugal force will be considered for strength design and determining the fatigue stress range.

3.3.4 VESSEL IMPACT

For the purposes of computing vessel impact risk analysis, the Potomac River Undergrade Bridge will be considered "Critical." Design of the pier protection (fender system) adjacent to piers adjacent to the Potomac River Navigation Channel shall be in accordance with AREMA 8-23.

Design of the piers away from the Potomac River Navigation Channel shall be in compliance with AASHTO 2020 Design Specifications 9th Edition and AASHTO Vessel Collision Design 2009.

The vessel data required for bridge design includes type of vessels and size distributions, travel frequencies, typical vessel speeds, and loading conditions. To determine the vessel size distribution at the bridge site, information on both present and projected future vessel traffic is needed. Waterway information including alignment, channel width, currents, depths, and river stages are also needed. *Appendix D* includes current vessel use through the study area.

The vessel impact analysis will be performed based on the findings of the navigational study and scour evaluation study. The combination of vessel impact and scour shall be evaluated for two cases potentially during storm and high-water conditions:

- Minimum impact loads associated with a drifting empty barge breaking loose from its moorings and hitting the bridge. The design barge will be a 300 ton unloaded hopper barge as defined by AREMA or a AASHTO 200 ton barge.
    - The water surface elevation for the design flood shall be used to perform the drifting barge impact risk assessment.
    - The drifting barge impact speed shall be set equal to the estimated design flood event current values at each individual pier location.
    - The drifting barge impact load will be combined with 50 percent of the predicted long-term scour plus 50 percent of the predicted short-term scour.
- Maximum impact loads associated with the design vessel class while transiting the navigation channel under typical waterway conditions.

3.3.5 EFFECT OF SCOUR

The rail bridge substructures in or adjacent to waterways will be designed to safely support the structure subjected to the design scour. Substructures subjected to scour will be designed in accordance with *AREMA Chapter 8* and may include pile foundations, foundations on rock, foundations located below the maximum estimated scour depth, or any other means and provide adequate scour protection. Scour depths shall be checked for the design flood, overtopping flood, and any other events that could produce worse scour following *AREMA Chapter 8 Section 5.6.3*. The worst-case scour shall be designed for. Where it is possible scour cones overlap, the total scour shall be considered. Refer to *Chapter 6* for additional scour considerations.

3.3.6 BUOYANCY

Buoyancy will be considered as it affects the design of either the substructures and foundations.

3.4 Design Method

3.4.1 STEEL DESIGN

Steel superstructures will be designed per AREMA criteria using the Allowable Stress Design Method.

Fracture Critical Members, as defined by AREMA 15 – 1.14.2, shall comply with requirements provided in AREMA 15-1.14. Serviceability criteria such as fatigue and deflection shall comply with AREMA Chapter 15.

3.4.2 SUBSTRUCTURE DESIGN

Concrete substructures, H-piles, and micropiles will be designed per AREMA criteria using the Load Factor Design Method.

All substructure stability design will follow the Allowable Stress Design Method.

Pipe piles and drilled shafts will follow the Allowable Stress Design Method for load calculations and Load Factor Design Method for reinforcing.

Substructure Design will include provisions set forth by *CSXT Criteria for Undergrade Railroad Bridges (CSXT XI)*.

Substructure shall be designed for Vehicular Impact per AASHTO 3.6.5 (CT – 600K) and/or AASHTO 2.3.2.2.1 (Redirect or Absorb) with the following load combinations:

- D+E+CT @150 Allowable – Service Load Design
- 1.0D+1.0E+1.0CT – Load Factor Design

3.4.3 RETAINING WALL AND CRASHWALL DESIGN

Retaining walls shall be designed per AREMA criteria using Allowable Stress Method and the stability requirements outlined in *AREMA 8-5.4*.

Crashwalls shall be detailed per *AREMA 8-2.1.5, CSXT Overhead Bridge Criteria* and *DDOT DEM 16.7*.

3.5 Fatigue

The lowest acceptable fatigue detail category shall be stress category C (10 ksi).

Number of constant stress cycles, N, will be greater than 2,000,000.

The stress range (algebraic difference between maximum and minimum stress in a member subjected to cyclic loading that results in net tension) will be less than the allowable fatigue stress range defined in *AREMA Table 15-1-9* for a number of cycles greater than 2,000,000.

For members receiving load from more than one track, the impact load will be applied on the number of tracks designated in *AREMA Table 15-1-5*.

3.6 Seismic Design

3.6.1 STRUCTURE IMPORTANCE CLASSIFICATION

Immediate Safety: 4.0

Occupancy Factor: 4 (More than 10 Passenger Trains per Day)

Hazardous Material Factor: 4 (minimum value permitted)

Community Life Factor: 4 (maximum value permitted)

Immediate Value: 4.0

Railroad Utilization Factor: 4 (Over 50 million gross tons annual traffic)

Detour Availability Factor: 1.00 (No Detour Available)

Replacement Value: 4.0

Span Length Factor: 3 (Span length between 125 ft and 250 ft)

Bridge Length Factor: 2.0 (over 1,000 ft)

Bridge Height Factor: 0.75 (Less than 20 ft)

Bridge Height Factor: 1.00 (Between 25 and 40 ft)

3.6.2 PERFORMANCE CRITERIA

The performance criteria for each of the limit states listed below are described in *AREMA Chapter 9, Sections 1.3.2* and *1.3.3* and utilizing the USGS Interactive Hazard Tool for B/C Soil classification.

TABLE 3-3. PERFORMANCE CRITERIA.

Limit State	Return Period (Years)	Peak Ground Acceleration (% Gravity)
Serviceability	100	A_{100} = 0.7
Ultimate	475	A_{475} = 2.4
Survivability	2,475	A_{2475} = 6.9

3.6.3 SITE COEFFICIENT

Site Class: Soil Profile as determined by boring exploration and geotechnical analysis and recommendations in accordance with AREMA MRE.

3.6.4 ANALYSIS PROCEDURE

Multi-Modal Analysis Procedure, without soil structure interaction.

Load combinations using the Alternate Method, 100% + 30% procedure.

3.6.5 DETAILING PROVISIONS

Detailing Provisions as per *AREMA 9-1.4.7* will be used where applicable, with the exception that Continuous Welded Rail (CWR) will not be relied upon for redundant load path for seismic forces.

3.6.6 DAMPING ADJUSTMENT FACTOR

The damping adjustment factor will be computed with the values that are given in *AREMA Chapter 9, Table 9-C-1*:

- Concrete: D = 1.00
- Structural Steel: D = 1.18

3.6.7 LOAD COMBINATIONS

Only one track will be loaded with full live load in any seismic load combination, regardless of the number of tracks actually supported by the structure being designed.

3.7 Materials and Equipment

3.7.1 GENERAL

All materials will be in accordance with *CSXT Design and Construction Standard Specifications, Division 7 – Structures*.

3.7.2 CONCRETE

All concrete materials and properties shall be in accordance with CSXT Design and Construction Standard Specifications, Division 7 - Structures.):

3.7.3 STRUCTURAL STEEL

All steel members to be detailed and fabricated to place the rolled direction of the member in the direction of primary stress.

Structural steel will conform to requirements of ASTM A709, Grade 50W (AASHTO M270) unless otherwise noted. Grade HPS 70W requires approval per CSXT 0701252.1B. (AREMA 15.1.2.1)

Steel for miscellaneous secondary elements will conform to the requirements of ASTM A709, Grade 36 (AASHTO M270).

All structural steel will meet Charpy impact test requirements for Zone 2.

Flange-to-web welds shall be complete joint penetration (CJP) per CSXT Public Projects Manual, derivation from this requires CSXT approval.

Plate girder flanges shall not exceed 4 inch thickness.

Weathering steel will be used for all undergrade bridges. Weathering steel shall be unpainted, except as noted otherwise in the plans.

3.7.4 REINFORCING STEEL

All reinforcing steel shall be deformed bars conforming to the requirements of ASTM A615, Grade 60 (AASHTO M31, Grade 60), and shall be hot-dip galvanized conforming to the requirements of ASTM A767, unless otherwise specified. Reinforcing steel shall be fabricated prior to galvanizing.

All reinforcing splices of deformed bars will be achieved by lap splices or galvanized full-mechanical splices, in accordance with AREMA.

#4 reinforcing bars shall be the minimum bar size used in main load carrying members. Reinforcing shall be spaced to meet the requirements of VDOT (Potomac River Undergrade Bridge only), DDOT, AREMA, or CSXT, whichever is more stringent.

Minimum clear cover to reinforcing steel will be as noted below:

Top of deck slab	2 1/2 in
Bottom of deck slab	1 1/2 in
Pier caps (main steel and secondary steel)	3 in
CIP piers and precast pier segments	
External surface	3 in
Internal surface	2 in
Pier footings	3 in
All other principal reinforcement	2 1/2 in
All other stirrups and ties	2 in

Minimum cover for reinforcing steel in concrete pier surfaces exposed to seawater or spray at or below elevation +10 shall be 4 inches.

3.7.5 FASTENERS

All bolts will be 7/8-inch minimum diameter high-strength bolts (unless otherwise specified) conforming to ASTM F3125, Grade A325 (AASHTO M164) Type 3 (slip critical connection Class B) and shall be hot-dip galvanized.

Contact surfaces of bolt parts will meet Class B requirements for Slip Critical Joints in accordance with AREMA specifications.

All bolted connections will use a minimum of three (3) bolts as per AREMA (15.1.5.9.c)

All steel nuts shall conform to ASTM A563 (AASHTO M291), hardened washers shall conform to ASTM F436 (AASHTO M293) and be hot-dip galvanized in accordance with AASHTO A153 (AASHTO M232) unless otherwise specified, and bolts shall be coated after installation. (AREMA 15.1.2.1)

3.7.6 WELDING ELECTRODES

All welding electrodes will conform to the requirements of AASHTO/AWS D1.5. All welding electrodes will have a minimum tensile strength of 70 ksi unless otherwise noted. (DDOT, VDOT, AREMA)

All welds will be subject to non-destructive testing.

Welding of Fracture Critical Members (FCMs) shall be in accordance with Section 12 of AWS D1.5, except as modified in AREMA Chapter 15 Section 1.14 and DDOT Amendments.

3.7.7 ANCHOR RODS AND BOLTS

Anchorage of the superstructure will consist of anchor rods, couplers and anchor bolts as specified by rocking effects. All anchor rods will be swedged and in accordance with ASTM F1554 (AASHTO M314), Grade 55. The anchor rods will be grouted into circumferentially corrugated galvanized steel or plastic sleeves cast in the concrete. Anchor couplers will be capable of developing 150 percent of the minimum yield strength of the anchor bolts or rods. Heavy hex nuts will conform to ASTM A563 (AASHTO M291). Hardened washers will conform to ASTM F436 (AASHTO M293), plate washers will conform to ASTM A709 (AASHTO M270) Grade 36. Anchor rods, bolts, couplers, nuts, and washers will be hot-dip galvanized in accordance with ASTM A153 (AASHTO M232).

3.8 Retaining Walls

3.8.1 GENERAL

Retaining wall systems under consideration include reinforced concrete cantilever walls, soldier pile and lagging walls, and proprietary gravity type retaining walls (T-Walls or comparable prefabricated modular walls). Mechanically stabilized earth retaining systems and sheet pile walls are not permitted for permanent structures(CSXT XI-B2). Sheet pile walls may be used in temporary construction, such as for support of excavation, or for specifically approved permanent applications.

Walls with an exposed height greater than 30 inches will be installed with a fence, handrail, or barrier to prevent workers from falling. Height of fences, handrails, or barrier will meet the minimum requirements of *AREMA 15-8.5*. The wall height shall include additional height for future ballast depth.

Adjacent tracks with more than one foot of elevation difference shall be separated by a wall.

Wall drainage will be provided in accordance with geotechnical and manufacturer's recommendations.

3.8.2 LOADS

Cooper E-90 loads (without impact) will be utilized for live load track surcharge. Live load track surcharge will be applied through fill using a 1H:2V distribution starting from the base of the tie.

Earth pressures from external loads from adjacent structures will be computed using pressure distributions from *AREMA 8-5.3*.

Horizontal earth pressure will be calculated from boring data and the geotechnical analysis and recommendations.

Horizontal and vertical earth pressures will include an additional 1 foot of ballast. (CSXT V-D)

Passive resistance from fill in front of wall will be neglected for design.

3.8.3 EMBANKMENTS

Earth embankments shall have a maximum slope of 2:5 horizontal to 1 vertical (2H:1V) or flatter.

3.9 Foundation Design

3.9.1 GENERAL

Foundations are anticipated to be supported on drilled shafts, steel pipe piles, steel H-piles, micropiles, or as determined by the results of the Supplemental Geotechnical Investigation. Foundations will be designed from boring data and geotechnical analysis and recommendations. Precast concrete driven piles are prohibited. Piers within waterways will be shaped to minimize turbulent flow. The impact of the new foundations on the existing foundations shall be investigated and minimizing such impact shall be considered in foundation selection.

3.9.2 REFERENCES

In addition to those mentioned in *Section 3.1.2*, the following references below apply:

- Unified Facilities Criteria (UFC) Soil Mechanics, UFC 3-220-10N, 2005
- AASHTO Guide Specifications for Seismic Isolation Design, 3rd Edition
- Federal Highway Administration (FHWA) Drilled Shafts: Construction Procedures and Design Methods, FHWA-NHI-18-024, September 2018
- FHWA Design and Construction of Driven Pile Foundations Reference Manual, Volume I and II, FHWA-NHI-16-009, July 2016
- FHWA Geotechnical Engineering Circular No. 4, Ground Anchors and Anchored Systems, FHWA-IF-99-015, 1999
- FHWA Ground Improvement Methods, Volume I and II, FHWA-SA-98-086, 1998
- FHWA Geotechnical Engineering Circular No. 3, Design Guidance: Geotechnical Earthquake Engineering for Highways, Volume I and II, FHWA-SA-97-076 and 077, 1997
- UFC Geotechnical Engineering Procedures for Foundation Design of Buildings and Structures, UFC 3-220-01N, 2005
- FHWA Micropile Design and Construction Reference Manual, FHWA-NHI-05-039, December 2005
- AASHTO Standard Specifications for Highway Bridges, 17th Edition, 2002
    - Note: this reference is for geotechnical design parameters

3.9.3 DESIGN LIFE

Foundations shall be designed for a 100-year service life.

3.9.4 APPROACH SLABS

Approach Slabs are required to support E-80 Loading and will be included as dead load on the foundation. Minimum length of approach slab will be 25 feet along the track alignment.

3.9.5 DRIVEN PILE FOUNDATIONS

Steel piles (pipe, H-piles, taper tube) or treated timber piles will be considered and assessed based on cost, constructability, and adequacy. Timber piles will not be considered in locations where any portion of the pile is within the water table or otherwise exposed to water. Timber piles are prohibited for structures supporting freight traffic.

Design considerations will be given to foundation alternatives including the use of steel piles within District Waters to account for the potential of Microbiologically Influenced Corrosion (MIC). Design consideration to mitigate potential MIC will consist of the following:

- Use of sacrificial steel; and
- Protection systems, such as cathodic protection applied to the steel casing for any left-in-place steel casing with reinforced concrete core.

    - Epoxy coating is permitted for retaining wall foundations, but is prohibited for bridge foundations.
    - Coal tar is prohibited.

The use of battered piles will be considered for structures with lateral loads up to a maximum batter of 3:12 (horizontal:vertical).

Factor of safety shall be 2.25 with dynamic load testing performed.

Within the zone of scour, lateral support will be ignored in determining allowable axial pile capacity in compression. Additional lateral loads due to flow will be applied within the zone of scour.

Negative side friction due to settlement of upper compressive soils will be considered in determining allowable axial pile capacity in compression. Liquefaction induced settlements will only be considered for seismic analysis.

Concrete Filled Pipe Piles

Steel pipe piles may be filled with concrete. Concrete filled pipe piles shall include proper detailing to ensure composite action. If details cannot be included, pipe piles shall be designed as non-composite.

Concrete filled pipe piles within the zone of scour to five feet below the design scour elevation shall be designed to support all applied loads without the steel pipe. In this zone, the pipe pile is considered a form with no structural carrying capacity.

3.9.6 DRILLED SHAFTS

Design of drilled shaft foundations will conform to *AREMA 8-24*.

Within the zone of scour, lateral soil support will be ignored in determining allowable axial pile capacity in compression.

Factor of safety shall be 2.5 for axial capacity.

Negative side friction due to settlement of upper compressive soils will be considered in determining allowable axial pile capacity in compression. Liquefaction induced settlements will only be considered for seismic analysis.

3.9.7 MICROPILES

Requirements related to micropile foundations will conform to *AREMA 8-4.4.6* and *FHWA-NHI-05-039*.

Micropiles are not recommended for any foundations susceptible to scour.

Negative side friction due to settlement of upper compressive soils and liquefaction induced settlements will be considered in determining allowable axial pile capacity in compression.

Factor of safety for axial capacity shall be 2.0 with load testing performed.

4 Pedestrian/Bicycle Facilities

4.1 Overview

The Pedestrian and Bicycle Facilities include at-grade and on-structure facilities in both Virginia and Washington, DC. Primarily, these facilities include two pedestrian-bicycle bridges and the ramps/sidewalks/trails connecting these structures to existing facilities. The following are descriptions of the three main parts of this basis of design section:

Trail Design (Part 4.2): Includes Mount Vernon Trail (MVT, both temporary and permanent trails), as well as geometrics of the pedestrian-bicycle bridge over the Potomac River ("River Bridge"), and its ramps. Trail Design includes all project's shared-use pathways, which are designed to accommodate both bicyclists and pedestrians.

Other Pedestrian Facility Design (Part 4.3): Includes the geometrics of the new pedestrian bridge over Maine Avenue SW ("Maine Avenue Bridge") and the sidewalks along Ohio Drive SW (West) and Maine Avenue SW.

Structural Design of Pedestrian/Bicycle Bridges (Part 4.4): Includes the structural design of the "River Bridge" which spans George Washington Memorial Parkway (GWMP)/MVT/Potomac River/Ohio Drive SW (West) and the "Maine Avenue Bridge" spanning Maine Avenue/Maiden Lane, as well as the ramp, stair, and wall structures connecting to the bridges.

The criteria included herein are project-specific criteria and standard criteria highlights and modifications. Additional criteria and design methods are included within the specified references and structural calculations for individual components.

4.2 Trail Design

4.2.1 REFERENCES

Design specifications used in the Trail Design include the following:

- Americans with Disabilities Act Standards for Accessible Design (ADA)
- District Department of Transportation (DDOT) Design and Engineering Manual (DEM), January 2019
- DDOT Bicycle Facility Design Guide, 2020 (DDOT Bike Guide)
- American Association of State Highway and Transportation Officials (AASHTO) Guide for the Development of Bicycle Facilities, 2012 (AASHTO Bike Guide)
- Advanced Notice of Proposed Rulemaking on Accessibility Guidelines for Shared Use Paths (ANPRM)
- Navigation Study, 2019 (Nav Study)
- Hazard Analysis, 2019
- National Park Service (NPS) Active Transportation Guidebook

Additional documentation is anticipated and may be referenced in subsequent drafts.

4.2.2 DESIGN SPEED

Design speed varies by facility and project area. Design speed is based on the *AASHTO Bike Guide, Section 5.2.4*. Considerations for design speed include the horizontal and vertical geometry of the trail, expected user volume and type, and the overall context of the trail corridor and its surrounding areas.

The following design speeds are used for each project area:

TABLE 4-1. DESIGN SPEED.

Project Area	Design Speed	Notes
MVT	**18 mph**	Standard shared-use path design speed
MVT (temporary)	**12 mph**	A reduced design speed will be used for the temporary trail based on its alignment and expected proximity to active work zones
River Bridge	**18 mph**	Standard shared-use path design speed
River Bridge Ramps	**12 mph**	A reduced speed will be used due to the horizontal alignment and intersections at either ends of the ramps

4.2.3 TRAIL WIDTH

The trail width varies by facility and project area. Citing available guidance and standards, the at-grade trail width for the project is set at a minimum 12 feet of paved width, with 2-foot shoulders on both sides of the trail. The trail width is based on the *AASHTO Bike Guide, Section 5.2.1*. Considerations for width include the existing and expected user volumes, site conditions, and the overall context and functionality of the project area.

A recovery area is defined as a graded shoulder area with a maximum cross-slope of 16.67 percent (1V:6H) that is recoverable in all weather conditions. A recovery area of 5 feet is generally preferred for trails (this preferred recovery area is inclusive of the 2-foot shoulder). At a minimum, a 2-foot shoulder/recovery area will be maintained from the trail's paved edge to any lateral obstructions. Refer to the *AASHTO Bike Guide, Section 5.2.1*, for more detail.

The following tables include the design widths for each project area:

TABLE 4-2. TRAIL WIDTH - AT-GRADE TRAILS.

Project Area	Pavement	Shoulders	Recovery Area	Notes
MVT	**12'-0"**	**2'-0"**	**2'-0" min.** **5'-0" pref.**	Known high user volume shared-use path and available width along project corridor
MVT (temporary)	**10'-0"**	**2'-0"**	**2'-0" min.**	Reduced width proposed given site constraints and desire to slow users along work zones

For the future Anacostia Riverwalk Trail width, see *Section 4.3*. This facility is considered a sidewalk with potential for future development during this phase of design.

The River Bridge represents a standalone structure as it is not a continuation of a trail or sidewalk/sidepath, but rather a connection between a trail and a sidewalk. As such, the required bridge width needs to meet DEM minimum width requirements. *Section 20.9 of the DEM* requires the minimum width between railings to be 12 feet. Based on known and anticipated trail volumes, and site conditions, the rail-to-rail with of the River Bridge will be 14 feet.

TABLE 4-3. TRAIL WIDTH – STRUCTURES.

Project Area	Total Between Railings	Notes
River Bridge	**16'-0"**	Satisfying recommended minimum widths for two-way shared-use paths
River Bridge Ramps	**16'-0"**	Match bridge width

4.2.4 MINIMUM HORIZONTAL CURVE RADIUS

The minimum horizontal curve radii of the proposed trails vary based on the design speed (see **Table 4-1**) and site conditions. In general, a minimum horizontal radius of 27 feet is required for the 12-mph design speed, and a minimum horizontal radius of 60 feet is required for a design speed of 18 mph. *Section 5.2.5 of the AASHTO Bike Guide* shall be referenced for all other details pertaining to horizontal alignment requirements.

4.2.5 CROSS-SLOPE

Shared-use paths must be accessible to all individuals, including those with disabilities. As such, these facilities need to follow ADA Standards and not exceed a cross-slope of 2 percent.

4.2.6 STOPPING SIGHT DISTANCE

Stopping sight distance along a trail is determined by the following factors: travel speed, coefficient of friction, and trail grade. Stopping sight distance will adhere to requirements in the *AASHTO Bike Guide, Section 5.2.8*. The following formula is used to determine stopping sight distance along a trail (Table 5-4 of the *AASHTO Bike Guide*):

U.S. Customary		
$S = \frac{V^2}{30(f \pm G)} + 3.67V$		
where:		
S	=	stopping sight distance (ft)
V	=	velocity (mph)
f	=	coefficient of friction (use 0.16 for a typical bike)
G	=	grade (ft/ft) (rise/run)

FIGURE 4-1. STOPPING SIGHT DISTANCE.

Source: AASHTO Bike Guide, Table 5-4. Minimum Stopping Sight Distance

4.2.7 INTERSECTION SIGHT DISTANCE

The trail along the project corridor will only intersect with other trails and/or pedestrian walkways. As such, guidance provided in *Figure 5-16* within *Section 5.3.2* of the *AASHTO Bike Guide* will be followed.

4.2.8 TRAIL GRADE

Trail longitudinal profile grades will adhere to ADA standards, as trails (also known as shared-use paths) must be accessible to all users. The maximum grade of the trails within the project will not exceed 5 percent. If site conditions constrain compliance with the 5 percent maximum grade, refer to the U.S. Access Board website for current information regarding accessibility provisions.

4.2.9 VERTICAL CURVE

A minimum vertical curve length of 6 feet is required to accommodate the average length of a bicycle. Additional detail for vertical curve design can be found in *Section 5.2.8 of the AASHTO Bike Guide*, including the use of Table 5-5 which establishes the following equation to calculate necessary vertical curve length based on stopping sight distance:

U.S. Customary		
$S < L \quad L = 2S - \frac{200\left(\sqrt{h_1} + \sqrt{h_2}\right)^2}{A}$ $S < L \quad L = 2S - \frac{AS^2}{100\left(\sqrt{2h_1} + \sqrt{2h_2}\right)^2}$		
where:		
L	=	minimum length of vertical curve (ft)
A	=	algebraic grade difference (percent)
S	=	stopping sight distance (ft)
h_1	=	eye height (4.5 ft for a typical bicyclist)
h_2	=	object height (0 ft)

FIGURE 4-2. CREST VERTICAL CURVE LENGTH.

Source: AASHTO Bike Guide, Table 5-5. Length of Crest Vertical Curve to Provide Sight Distance

4.2.10 VERTICAL CLEARANCES

The vertical clearances above the trails to overhead obstructions will be 10 feet minimum per the *AASHTO Bike Guide, Section 5.2.10*. It is assumed that equestrian accommodations are not required on any trails. Furthermore, it is assumed no special overhead clearances are required for maintenance equipment.

The vertical underclearances of the River Bridge will be as follows:

TABLE 4-4. RIVER BRIDGE UNDERCLEARANCE.

Facility Below	Min. Vert. Clearance	Notes
GWMP	**17'-6"**	1'-0" greater than adjacent bridges. ***(Note this is less than the standard 17'-6" in DEM 13.3.1.*)***
MVT	**10'-0"**	Overhead clearance for trail users
Potomac River	**1'-0"** over design storm	Freeboard requirement per DEM 28.4.1, refer to Bridge Hydraulics Section for additional information.
Potomac River (Nav. Channel)	**20'-0"** over mean high water	Per Nav Study Table 1-2

For underclearance of the Maine Avenue Bridge, see *Section 4.3*.

4.2.11 BRIDGE HORIZONTAL CLEARANCE FROM RAILROAD

Chapter 22 of the Draft Environmental Impact Statement (DEIS) states that 25 feet of separation between the River bridge and the railroad bridge structures is required for construction and maintenance over the river. Figure 22-4 of the DEIS (also Figure 2-4 of the Section 106

Programmatic Agreement, Final Environmental Impact Statement (FEIS) Appendix B) shows the River Bridge 25 feet from the railroad bridge, measured from the inside face of the River Bridge railing to the outside face of the railroad bridge's railing.

4.2.12 RAILINGS AND SCREENS

Railings will be used in all locations where there is a 45-degree (1V:1H) or steeper drop-off of greater than 1 foot in height within a horizontal distance of five feet from the edge of trail. Additionally, railings will be used based on trail side slopes per *AASHTO Bike Guide 5.2.1*.

The railings will have a minimum height of 3.5 feet per *DEM 20.3*.

Railing openings will not exceed 6 inches per *AASHTO Bike Guide 5.2.10* and will include a smooth rub rail at 3.5 feet above ground and shall not impede stormwater runoff, per *DEM Chapter 36*.

For railing design forces see *Section 4.3*. Railings on pedestrian/bicycle facilities are not designed for vehicular collision forces.

Screens will be used on the River Bridge over the Potomac River in accordance with the recommendations of the Hazard Analysis and DDOT Standard Drawings. Chain-link fence will not be used per *DEM 20.8*.

4.2.13 ADJACENT ROADWAY OFFSETS AND BARRIERS

The temporary MVT will be separated from the GWMP by a vehicular barrier. Additionally, the temporary MVT will be offset from the vehicular barrier by the greater of the following:

- The design deflection of the barrier
- 2 feet

4.2.14 EMERGENCY VEHICLE ACCESS AND ACCOMMODATIONS

Emergency vehicle access will be provided to the River Bridge per the Hazard Analysis. Access will be provided from both sides of the river, with a clear path accommodating an ambulance with a 42-foot turning radius. Physical barriers will be located to prevent motorized vehicles from entering the River Bridge and ramps, but the barriers will be removeable to allow access by emergency vehicles. The removable barriers will be designed in accordance with the AASHTO Bike Guide.

4.2.15 DRAINAGE

The relocated permanent MVT and the temporary MVT drainage design are to use a minimum cross-slope of **1 percent** per the *AASHTO Bike Guide (Section_5.2.11)*. Special considerations may be necessary where the temporary MVT crosses under the existing railroad bridge and runs between the GWMP and the bridge abutment.

The River Bridge deck drainage over the Potomac River is designed for sheet flow across the deck and off the bridge. A cross-slope and free-draining curb system will be used in coordination with the truss manufacturer.

For the bridge spans over GWMP, the MVT, and Ohio Drive, as well as the bridge ramps, drainage is designed as a closed drainage system with flow across the deck to a curb and down grade to a scupper and downspout. The curb, scupper, downspout components must be coordinated with the truss manufacturer (for truss spans) or deck design (for deck-slab spans).

Refer to *Chapter 7, Drainage and Stormwater Management* for additional information.

4.2.16 SPECIAL CONSIDERATIONS

The River Bridge structure is subject to aesthetic review and approval by various agencies, including but not limited to the Commission of Fine Arts (CFA), National Capital Planning Commission (NCPC), NPS, and the District of Columbia State Historic Preservation Office (DC SHPO). The structures will be designed to meet the approved aesthetics and will comply with the EIS and Section 106.

Advisory, wayfinding, and interpretive signage accommodations will be included in final design.

Deck lighting and navigation lighting will be provided on the River Bridge and are anticipated to be owned and maintained by DDOT.

Navigation lighting, signage, and markings will meet USCG regulations.

Lightning arrestors and grounding plan shall be included in final design.

4.3 Other Pedestrian Facilities Design

4.3.1 REFERENCES

Design specifications used for Other Pedestrian Facilities Design include the following:

- Americans with Disabilities Act Standards for Accessible Design (ADA)
- DDOT Design and Engineering Manual (DEM), January 2019
- AASHTO Guide for the Planning, Design, and Operation of Pedestrian Facilities, 2021 (AASHTO Ped Guide)
- 2010 ADA Standards for Accessible Design (ADAAG)

4.3.2 DESIGN WIDTH

Pedestrian facility design width will vary based on the facility type and location within the project area. Generally, proposed facilities shall tie into existing facilities at a width equal to or greater than the existing facility.

The following table represents pedestrian-specific site locations, and the subsequent minimum and preferred widths for each project area:

TABLE 4-5. DESIGN WIDTH.

Project Area	Design Width	Notes
Maine Avenue Bridge	**8'-0"**	The DEM cites the minimum sidewalk width in this land-use as 8'-0", and the AASHTO Ped Guide confirms the 8'-0" minimum
Maine Avenue Bridge Ramps and Stairs	**8'-0"**	The DEM cites the minimum sidewalk width in this land-use as 8'-0", and the AASHTO Ped Guide confirms the 8'-0" minimum
Maine Avenue sidewalk	**Varies**	Measured face of abutment wall to back of curb. This an over-built sidewalk to match the sidewalk beneath the adjacent structure, with consideration for a future trail (12'-0" trail with 5'-0" buffer from curb could be one future layout, or a barrier could be added for a different layout)
Potomac River Bridge Optional Stairs	**8'-0"**	This inclusion of these optional stairs (at the ramps on either end of the River Bridge) in the design is TBD. 8'-0" matches the AASHTO Ped Guide

4.3.3 SIDEWALK/RAMP GRADE

Sidewalk and ramp grades will adhere to ADA standards and DDOT DEM Section 31.2.1.3. The maximum grade of the trails within the project will be **5 percent**. If site conditions constrain compliance with the 5 percent maximum grade, 8.33 percent grade is acceptable over short distances in accordance with ADAAG 2010. Refer to the U.S. Access Board website for current information regarding accessibility provisions.

4.3.4 VERTICAL CLEARANCES

The vertical clearances above the pedestrian facilities to overhead obstructions will be **10 feet minimum** per *AASHTO Guide for the Planning, Design, and Operation of Pedestrian Facilities*.

The vertical underclearances of the Maine Avenue Bridge will be as follows:

TABLE 4-6. MAINE AVENUE BRIDGE UNDERCLEARANCE.

Facility Below	Min. Vert. Clearance	Notes
Maine Avenue	**17'-6"**	DEM 13.3.1
Maiden Lane	**17'-6"**	DEM 13.3.1

4.3.5 DRAINAGE

Sidewalks will be sloped to match adjacent sidewalks with a minimum cross-slope of 1 percent.

The Maine Avenue Bridge deck drainage (including ramps) is designed for closed drainage across the deck to a curb and down grade to a scupper and downspout. The curb, scupper, downspout components must be coordinated with the truss manufacturer.

Refer to *Chapter 7, Drainage and Stormwater Management* for additional information.

4.4 Structural Design of Pedestrian-Bicycle Bridges

4.4.1 REFERENCES

Design specifications used in the structural design of the pedestrian-bicycle structures include the following:

- DDOT Design and Engineering Manual (DEM), January 2019
- AASHTO LRFD Guide Specification for the Design of Pedestrian Bridges, 2009 2nd Edition with 2015 interims (AASHTO Ped Bridge Guide)
- AASHTO LRFD Bridge Design Specifications (AASHTO Bridge), 9th Edition, 2020
- AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals, 6th Edition, 2013 with 2015, 2019, and 2020 interims (AASHTO Signs)
- AASHTO Guide Specifications for LRFD Seismic Bridge Design, 2011 2nd Edition with 2012, 2014, and 2015 interims (AASHTO Seismic)

Other references that may be included in the structural design of the pedestrian-bicycle structures include the following:

- AASHTO Guide Specifications for Seismic Isolation Design, 2014 4th Edition
- AASHTO/AWS Bridge Welding Code D1.5, 2008
- International Building Codes (IBC)
- Federal Highway Administration (FHWA) Guides

4.4.2 DESIGN METHOD

Structures will be designed in accordance with Load and Resistance Factor Design (LRFD) method.

4.4.3 SPECIAL DESIGN CONSIDERATIONS

- Material specifications and details will comply with the agency approval requirements as they relate to aesthetics. Per the EIS, the Pedestrian-Bicycle bridge over the GWMP, MVT and the Potomac River will consist primarily of prefabricated truss spans.
- Structures will be designed to accommodate all components and attachments, such as screening, drainage, and lights, as applicable.
- Other considerations may include future jacking, construction loads, and maintenance requirements.

4.4.4 DESIGN LIFE

Design service life is 100 years.

4.4.5 DEAD LOAD

The self-weight of the prefabricated trusses will be taken as the largest weight estimate from a minimum of two suppliers plus a 10 percent contingency for the potential to increase during the final design and fabrication of the trusses. For design cases that reduce dead load, the lightest weight estimate without contingency will be considered.

In addition to the self-weight of the truss, dead load of the deck, railings, lighting, and all components and attachments not accounted for in the truss self-weight must be included in the design of the bridge's superstructure, bearings, substructure, and foundations. The components included in the manufacturer's estimated dead load and those calculated by the design engineer must be clearly defined and closely coordinated.

Additional dead load considerations may include future overlay, additional aesthetic features not determined at this phase, and/or future utility allowances (specifications TBD).

4.4.6 LIVE LOADS

Structures will be designed for the greater of truck loading or pedestrian loading *per AASHTO Ped Bridge Guide*. See **Table 4-7**.

Equestrian patch loading for decks will be checked.

No special heavy emergency vehicle (for example fire truck) or heavy maintenance vehicle loading above the *AASHTO Ped Bridge Guide* will be accommodated.

TABLE 4-7. LIVE LOADS.

Live Load	Magnitude	Notes
Pedestrian Loading (PL)	**90 psf (No allowance for reduction)**	Load will be patterned to produce the maximum load effect (*AASHTO Ped Bridge Guide 3.1*)
Vehicle Load (LL)	**H10 Truck**	AASHTO Ped Bridge Guide 3.2

4.4.7 WIND LOADS

Structures will be design for horizontal wind load in accordance with *AASHTO Signs 3.8 and 3.9*, including an Importance Factor of 1.15 per *AASHTO Ped Bridge Guide 3.4*.

Additionally, a concurrent uplift force of 0.020 ksf over the full deck will be applied at the windward quarter point of the deck per *AASHTO Ped Bridge Guide*.

4.4.8 RAILING LOADS

Railings will be designed for pedestrian loads of 0.050 klf vertically, plus 0.50 klf horizontally, plus 0.20 kip concentrated load in any direction per *AASHTO Bridge 13.8.2*.

Railings are not designed for vehicular collision loads.

For railing height and detailing requirements see *Section 4.2*.

Curbs, deck, and/or bridge components supporting railings will be designed and detailed to accommodate the railing loads and transfer those loads into the deck, as applicable.

4.4.9 THERMAL LOADS

Thermal forces and movements will be in accordance with the *DDOT DEM 19.7* and *AASHTO Bridge 3.12.2 and 14.4*.

4.4.10 STREAM PRESSURE AND BUOYANCY LOADS

Bridge and ramp anchor bolts will be designed for stream pressure and buoyancy loads for the design storm elevation and checked for the 100-year storm elevation and in accordance with DDOT DEM.

4.4.11 SEISMIC LOADS

Structures will be designed for seismic loads in accordance with AASHTO Seismic and DDOT DEM.

Soil class, profile, and site parameters shall be based on site specific boring exploration and geotechnical analysis and recommendations.

4.4.12 VEHICULAR COLLISION LOAD

Substructure units and walls within roadway clear zones will be designed for vehicular collision loads in accordance with AASHTO Bridge.

4.4.13 VESSEL COLLISION LOAD

For the navigation channel, an independent fender system will be designed and included as part of the Potomac River Undergrade Bridge. Refer to the Railroad Bridge section for specifications.

For all piers, including those away from the navigation channel, piers, foundations, and superstructures as applicable shall be designed for the minimum empty barge load at mean river velocity, as specified in *AASHTO Bridge 3.14.1*.

4.4.14 DEFLECTIONS AND VIBRATIONS

Bridge deflections due to live loads and wind loads will meet the recommendations of *AASHTO Ped Bridge Guide Sections 5 and 6.*

4.4.15 CONSTRUCTION LOADS

Construction live loads and erection loads will be determined by the final design team.

4.4.16 MATERIALS

Materials will comply with *AASHTO Bridge*, *DDOT DEM,* and *DDOT Standard Specifications for Highways and Structures*.

Concrete cover to reinforcement will follow *DEM Table 13-1*.

Structural steel HSS members shall meet CVN test requirements per DDOT DEM.

The railing and screen material is TBD (stainless or galvanized steel under review).

See plan general notes for additional material specifications.

4.4.17 FOUNDATIONS

Foundations shall be designed based on geotechnical analysis and recommendations in accordance with AASHTO Bridge and DDOT DEM.

4.4.18 RETAINING WALLS

Refer to retaining wall section in *Chapter 3*. With the following exceptions:

The Live Load Surcharge equivalent heigh of soil will be 2 feet for parallel retaining walls and abutments per AASHTO Bridge C3.11.6.4. This section's commentary states that the "traditional value" of 2 feet corresponds to an H10 truck, which is the design live load for these structures.

Mechanically Stabilized Earth (MSE) walls will be allowed adjacent to pedestrian/bicycle bridges only and will be designed for 100-year service life.

5 Roadway

5.1 Project Background

The roadway improvements are limited and based on the approved Operator Signoff Plans developed during the Environmental Impact Statement (EIS) phase. They generally consist of the following proposed and temporary improvements:

- Proposed
    - 14th Street SW off ramp to Maine Avenue SW will be realigned to facilitate the construction of the proposed railroad bridge.
    - Pavement mill and overlay treatments along all roadways where maintenance of traffic layouts modify the existing pavement markings.
- Temporary
    - The temporary George Washington Memorial Parkway (GWMP) median widening to support the temporary median crossover into the proposed construction staging area south of the existing CSX Transportation (CSXT) railroad bridge over the GWMP and the Potomac River.
    - Minor temporary widening of I-395 on-ramp to GWMP for construction access.
    - All other temporary traffic shifts are anticipated to occur within the existing curb lines and edge of existing pavement where the restoration as identified above in the proposed section.

5.2 Safety

Roadway design intentions are to provide a safe and reliable roadway infrastructure attaining the highest level of service within the physical and economical Project constraints. Design goals will be to apply the standard roadway design criteria. Designers are to provide justification for any physical, environmental, or economic constraints preventing standard criteria. Standard criteria deviations are to be collaborated with the Authority Having Jurisdiction (AHJ), and approved by the AHJ, prior to implementing minimum criteria.

The Virginia Passenger Rail Authority (VPRA)and the host railroad (CSXT) reserves the rights to review, approve, deny, and/or issue a permit for all improvements either passing over or under the rail Corridor. Roadway design shall be attentive to rail operation safety, traveling public safety, and the safety of the neighboring communities and commercial businesses.

5.3 Design Criteria

5.3.1 ROADWAY STANDARDS

Roadway designs are to be compliant with the AHJ. AHJ approval is required for alternate or "minimum" design criteria prior to application in accordance with *Chapter 10*. In the absence of a design criteria standard, the designs are to be applicable to the *American Association of*

State Highway and Transportation Officials (AASHTO) Policy on Geometric Design of Highways and Streets, 7th Edition, 2018.

The designs will consider the latest edition of the following:

- District Department of Transportation (DDOT) Design and Engineering Manual (DEM), January 2019
- DDOT Standard Specifications for Highways and Structures, 2013
- AASHTO, A Policy on Geometric Design of Highways and Streets
- AASHTO Roadside Design Guide, 4th Edition 2011
- National Park Service (NPS) Active Transportation Guidebook
- Virginia Department of Transportation (VDOT) Road Design Manual
- Arlington County Design guidance documents

Where the proposed roadway designs are primarily a result of replacing the roadway infrastructure due to construction impacts associated with bridge and railroad infrastructure construction improvements, the intent of the roadway designs is to replace-in-kind the existing roadway conditions and layout.

5.3.2 DESIGN CONTENT

The design content is to be compliant with the AHJ. The following roadway design elements are expected for all designs based on the design stage:

- Layout (Reflecting existing topographic features and proposed features)
- Right-of-way
- Typical Sections
- Traffic signing, lighting, and striping
- Traffic signalization
- Horizontal and vertical alignments
- Vertical profile of primary roadway and relevant connecting roadways
- Drainage structures and networks
- Erosion and sediment control
- Existing and proposed structural improvements (bridges and retaining walls)
- Utility conflicts/relocations
- Cross-sections (50-foot intervals and critical locations)
- Construction phasing and maintenance of traffic during construction

5.4 Maintenance of Traffic

The temporary work zones for the project will be designed in accordance with *Part 6 of the Manual of Uniform Traffic Control Devices (MUTCD), Roadside Design Guide,* and the *D.C. Temporary Traffic Control Manual* to provide for the safe and efficient movement of vehicles, pedestrians, and bicyclists through each phase of construction. On travel ways within VDOT or Virginia locality jurisdiction, work zones will be designed in accordance with the *Virginia Work Area Protect Manual (VWAPM, 2011 Edition, Version 2)*.

5.4.1 ALLOWABLE WORK HOURS

This section will define the allowable work hours and road closures after traffic analysis and coordination with DDOT and NPS is complete during the design build phase of the project.

5.4.2 TEMPORARY CONDITION DESIGN CRITERIA

Temporary conditions vary based on facility and work requirements. Duration of allowable closures will be coordinated with the appropriate agency.

Maintenance of traffic criteria for 14th Street SW/I-395 will be based on Interstate criteria with a design speed of 40 mph. The following requirements will be used for maintenance of traffic:

TABLE 5-1. ALLOWABLE TEMPORARY CONDITION DESIGN CRITERIA – INTERSTATE.

Minimum Number of Lanes	2
Minimum Lane Width	11 feet
Minimum Shoulder Width	0 feet
Minimum Ramp Width	16 feet
Minimum Ramp Shoulder Width	0 feet
Minimum Clear Zone	14 feet

Maintenance of traffic criteria for GWMP will be based on Other Freeway or Expressway criteria with a design speed of 40 mph. The following requirements will be used for maintenance of traffic:

TABLE 5-2. ALLOWABLE TEMPORARY CONDITION DESIGN CRITERIA - GEORGE WASHINGTON MEMORIAL PARKWAY.

Minimum Number of Lanes	1
Minimum Lane Width	11 feet
Minimum Shoulder Width	N/A
Minimum Ramp Width	16 feet
Minimum Ramp Shoulder Width	0 feet
Minimum Clear Zone	14 feet

Maintenance of traffic criteria for Ohio Drive SW will be based on Local Street criteria with a design speed of 25 mph. The following requirements will be used for maintenance of traffic:

TABLE 5-3. ALLOWABLE TEMPORARY CONDITION DESIGN CRITERIA - OHIO DRIVE SW.

Minimum Number of Lanes	1 with temporary flagging or temporary traffic signals
Minimum Lane Width	10 feet
Minimum Shoulder Width	N/A
Minimum Clear Zone	12 feet

Maintenance of traffic criteria for Maine Avenue SW will be based on Principal Arterial criteria with a design speed of 15 mph. The following requirements will be used for maintenance of traffic:

TABLE 5-4. ALLOWABLE TEMPORARY CONDITION DESIGN CRITERIA - MAINE AVENUE SW.

Minimum Number of Lanes	2
Minimum Lane Width	9 feet
Minimum Shoulder Width	N/A
Minimum Clear Zone	12 feet

5.4.3 PEDESTRIAN AND BICYCLE ACCESS

This section will define the minimum sidewalk widths and allowable detours to be determined in coordination with DDOT.

6 Bridge Hydraulics

6.1 References and Resources

A variety of sources were referenced in the design of the Long Bridge Project. These references included design documents developed by the regulatory agencies involved in review and approval of the project, industry accepted references such as the Federal Highway Administration (FHWA) and Hydraulic Engineering Circular (HEC) manuals that provide the foundation of the design, and previous studies of the project area.

6.1.1 REGULATORY APPROVAL

The proposed design of the bridge will go through the approval process from several different entities. These include the Department of Energy and the Environment (DOEE), Federal Emergency Management Agency (FEMA), the United States Coast Guard (USCG), United States Army Corps of Engineers (USACE), National Park Service (NPS), and the District Department of Transportation (DDOT).

6.1.2 DESIGN GUIDELINES

Design guidelines, specifications, and manuals include the following:

- Applicable FHWA HEC manuals
- DDOT Design and Engineering Manual (DEM), January 2019
- Environmental Impact Statement (EIS)

6.1.3 ENVIRONMENTAL IMPACT STATEMENT

Hydraulic design criteria provided herein reference the Environmental Impact Statement (EIS) created through DDOT and the Federal Railroad Administration (FRA) for the Long Bridge project on June 11, 2018. The purpose of the study was to obtain and document information related to present and future navigation uses and the needs of the waterways near the Long Bridge, for the purpose of developing and evaluating alternatives for the Project.

USCG issued a Preliminary Navigation Clearance Determination (PNCD) on March 5th, 2020, specifying a 20-foot minimum vertical clearance for the Navigational Channel of the Proposed Potomac River Structures.

6.2 Data Collection

Information collected for this project includes topographic surveys, existing plans and/or as-builts, previous studies, flood data, and channel characteristics.

6.2.1 SURVEY AND AS-BUILTS

A survey was performed in the vicinity of the bridge, and survey points were collected to create the bathymetry (below water surface elevations) in the surrounding area upstream and downstream of the bridge.

As-built plans of the three bridges just upstream of the rail bridge include the 14th Street bridge titled "Superstructure for New West Highway Bridge Over Potomac River, Vicinity 14th Street" dated 7/14/1959, "New West Highway Bridge and Approaches Over Potomac River, Vicinity of 14th Street" dated 3/11/1964, and "Substructure for New West Highway Bridge Over Potomac River, Vicinity 14th Street" dated 7/14/1959.

6.2.2 EFFECTIVE FEMA STUDY

The current FEMA Flood Insurance Study (FIS) and associated Flood Insurance Rate Map (FIRM) panels of the study area are effective as of September 27, 2010. The FIRM panels that cover the project area are: 1100010018C, 1100010019C, 1100010056C, and 1100010057C. After these documents became effective, additional Letter of Map Revisions (LOMRs) within the study area became effective which include 15-03-2388P-110001 and 20-03-0337P-110001.

6.3 Level of Analysis/Method of Analysis

A "no rise" determination was concluded to incorporate the proposed design. HEC-RAS 6 was used to complete the hydraulic analyses.

6.4 Hydrology

The following sections detail the proposed hydrologic analysis used to calculate the 10-, 50-, 100-, and 500-year storm frequency discharges.

6.4.1 PREVIOUS HYDROLOGIC STUDIES

Hydrologic information is provided in the latest FEMA study of the Potomac River within the project area and is dated September 27, 2010. Riverine Hydrologic Analysis Update was performed to validate the flood levels from the previous study.

For the riverine portions of the Potomac River, the effective FIS is based on a flood frequency analysis of annual peak discharge data collected at USGS gage for the Potomac River near the Washington, DC Little Falls Pumping Station (USGS Station No. 01646500), which is not tidally influenced. The years of data covered are from 1931 – 2020. Flood frequencies are developed using the program PeakFQ and the Bulletin 17B method.

Additional documents include:

- Climate Change Adaptation Plan for the District of Columbia (2015 DOEE) to account for Sea Level Rise (SLR);
- Climate Ready DC (DOEE, 2016);
- DDOT Climate Change Action Plan (DDOT, 2013)

6.4.2 TIDAL HYDROLOGY

For the tidally influenced portions of the Potomac River, the effective hydrology is based on a stage-frequency analysis of measured water-surface elevations recorded at National Ocean Service (NOS) gage no. 8594900, which is located at Haines Point, near the confluence of the Potomac and Anacostia Rivers. The update to the tidal hydrology uses this same location as a

point of analysis. Highest water surface elevations at this location were used to determine the water surface elevations used in the downstream boundary conditions of the hydraulic model.

6.5 Hydraulic Design Criteria

6.5.1 VERTICAL CLEARANCES AND NAVIGATION

Storm surge was considered in the design of the bridge including riverine and coastal surge for the full length of the structures. Both bridges navigational superstructures are above the 100-year event storm surge elevation. The Potomac River Undergrade Bridge and Potomac River Bike-Ped Bridge ramps on both sides meet the 1 foot freeboard DDOT requirement with ramp structures over edges of the river for the 10-year event storm surge. The north end of the ramp for the Bike/Pedestrian Bridge and their fill sections is within the 100-year event, however these volumes are very small relative to the main channel opening.

The USCG is requiring 20 feet above MHW (Elevation 1.54 NAVD88) for the proposed bottom (low chord) of the superstructure elevations for both bridges. The navigation channel spans for both bridges meet this clearance requirement by meeting or exceeding the elevation of 21.54.

6.6 Hydraulic Analysis

The hydraulics of the bridge were evaluated using HEC-RAS version 6 (USACE, 2021). The analysis includes the development of the Duplicate Effective, Existing Conditions, and Proposed Conditions Models.

6.6.1 DUPLICATE EFFECTIVE ANALYSIS

The Effective HEC-RAS Model was created for FEMA as part of the June 1, 2020, LOMR report 20-03-0337P-110001. This hydraulic model became effective on October 19, 2020, for Washington D.C. A duplicate effective model was created from the current effective model in order to conclude a "no-rise" determination for the proposed design..

6.6.2 EXISTING CONDITIONS ANALYSIS

The Existing Conditions model includes the latest available datasets of topography and bathymetry, updating the cross section elevations while maintaining the extent and overbanks of the Effective model. Information added or modified in the Existing Conditions model includes:

- The Yellow Line Metro Bridge geometry
- Two new cross sections for the Potomac-Anacostia junction to account for the widening in the intersection
- Hydrologic revisions
- New boundary conditions to evaluate a combination of scenarios that reflect riverine and coastal influences

A seamless high-resolution topo-bathymetric dataset was assembled from publicly available sources and current in-terrain surveys obtained for the project. This dataset was used in the HEC-RAS hydraulic modeling as well as in the ADCIRC coastal modeling.

Topobathymetry sources:

- LiDAR Topography (USGS), post-Sandy - 2014
- Latest Hydrographic Survey Activity (USACE), 2015-2020
- Lidar and bathymetry, Coastal National Elevation Dataset CoNED (USGS), post-Sandy – 2015
- NCEI Coastal Relief Model (NOAA), 1998
- General Bathymetric Chart of the Oceans GEBCO - open data contributors
- Current terrain survey

Five different resolution topobathymetry DEM's were created for different extents:

- High resolution 1-meter for Washington D.C. including the Potomac riverbed (from Little Falls, MD. to Alexandria, VA.)
- Medium resolution 30-meter DEM for the Lower Potomac River (Downstream from D.C.) to the Chesapeake Bay (Lewisetta, VA.)
- Low resolution 100-meter DEM for the Chesapeake Bay.
- Low resolution 500-meter DEM for the Chesapeake Bay connection with the Atlantic Ocean.
- Coarse Bathymetry for Atlantic Ocean and Gulf of Mexico Bed

6.6.3 PROPOSED ANALYSIS

The Proposed Conditions Model incorporates the Potomac River Undergrade and Bike-Ped bridges and any proposed physical changes within the floodplain near Long Bridge. The model updates the Existing Conditions geometry with the Proposed Conditions geometry and keeps the existing hydrology and boundary conditions.

6.7 Coastal Analysis

6.7.1 PREVIOUS COASTAL STUDIES

Existing coastal studies and observational data include the following:

- North Atlantic Comprehensive Coastal Study (NACCS)
- FEMA coastal studies
- Analyses of National Oceanic and Atmospheric (NOAA) gage data
- Others as appropriate

6.7.2 COASTAL ANALYSIS UPDATE

An analysis of the applicability of data from existing coastal studies was used to develop design criteria and identify the required updates for the coastal analysis.

6.7.3 IMPACT OF STORM SURGE

The impacts of storm surge on design conditions at the bridge site were analyzed by specifying downstream boundary conditions reflective of storm surge at various return intervals (25-, 50-, 100-year for example). The storm surge driven water surface elevations at the downstream boundary were obtained from previous coastal studies or the NOAA observation stations at Haines Point and Lewisetta.

6.7.4 IMPACT OF SEA LEVEL RISE

The impact of sea level rise shall be considered for the project location and incorporated as appropriate into the storm surge estimates discussed in *Section* 6.7.3. NOAA Station #8594900 is within one mile of the Project and provides long-term record of water levels since 1924. The USACE Sea-Level Change Calculator (Version 2021.12) will be used to generate scenarios projecting future changes to sea level to this Station.

6.7.5 COMPOUND FLOODING

Finally, design water surface elevation and currents were obtained by analyzing the HEC-RAS results and quantifying the combined impacts of pluvial and fluvial flooding, and storm surge.

6.8 Scour Analysis and Countermeasures

6.8.1 DESIGN CRITERIA

The latest HEC-18 and HEC-25 guidelines were used to calculate the scour estimates at each structure of the bridge for the 100-year storm event.

6.8.2 METHODOLOGY

Estimation of total scour considers three primary components: (1) Long-term degradation of the riverbed, (2) Contraction scour at the bridge, and (3) Local scour at the piers. Scour evaluations will focus on piers since abutments will be constructed on the overbanks and outside of the main channel. Scour shall be considered for each pier location assuming the proposed ground elevation.

A D50 value of 0.02 millimeters shall be assumed for the scour analysis.

6.9 Hydrodynamic and Wave Loading

6.9.1 DESIGN CRITERIA

Coastal hydrodynamic and wave simulations were carried out to determine the 100-year flood elevations, wave conditions, and currents using the *American Association of State Highway and Transportation Officials (AASHTO) Guide Specifications for Bridges Vulnerable to Coastal Storms (2008)*.

7 Drainage and Stormwater Management

7.1 References

The overall project limits are located in multiple jurisdictions that have unique drainage design requirements and regulations. The following standards and manuals be used as reference for the drainage design in accordance with the specific jurisdiction.

- District Department of Transportation (DDOT) Design and Engineering Manual (DEM), January 2019
- DDOT Standard Drawings
- DC Water Standard Design Guidelines, Drawings, and Specifications
- Virginia Department of Transportation (VDOT) Drainage Manual
- VDOT Road and Bridge Standards
- VDOT Road and Bridge Specifications
- American Association of State Highway and Transportation Officials (AASHTO) Highway Drainage Guidelines
- Federal Highway Administration (FHWA) Hydraulic Engineering Circular-14Hydraulic Design of Energy Dissipators for Culverts and Channels (HEC-14)
- HEC-22 Urban Drainage Design Manual

7.2 Design Criteria

Storm drainage systems will be designed to provide safe roadway and trackbed conditions and adequately convey design flows. The existing storm drain system will be maintained where feasible. Existing survey, utilities, and other information needs to be obtained and confirmed prior to the drainage design. See Chapter 2-Railroad Section 2.8.4-Track Drainage and Chapter 3 Section 3.2.8 -Bridge Drainage for drainage design criteria for proposed track roadbed and bridge structures.

7.2.1 CLOSED DRAINAGE SYSTEMS

Design frequency, sizing, location, and spacing for storm drain system are based on the stormwater drainage calculations, spread, bypass flow, and efficiency requirements for the jurisdiction. Horizontal clearance will be maintained between the proposed drainage system and all underground structures. Culverts and closed drainage systems are designed and sized to accommodate the design flows.

Drainage from bridge superstructures or embankments must not discharge across a railroad right-of-way, National Park Services lands, public property, or private property without property owner approval.

The following criteria applies to the closed drainage system design of the Long Bridge project:

- Design Frequency Highway: 25-year storm event with pipes flowing full

- Design Frequency Railroad: 100-year storm event
- Sag Conditions: Must design for 50-year event for pipes draining to a sag condition
- Minimum Highway Drainage Pipe Size: 18 inches
- Minimum Railroad Drainage Pipe Size: 12 inches
- Basin Connect Pipe Size: 15 inches
- Minimum Pipe Flow Velocity: 3 feet per second
- Minimum Pipe Cover: 3 feet
- Hydraulic Grade Lines: Must not rise above crown of pipe
- Manholes for Highway Drainage: required at each slope/grade change or change in alignment
- Manhole Connections: No more than 3 total pipes allowed entering or leaving
- Maximum Highway Manhole Spacing: 400 feet, connecting pipe must be 50 feet or less

Also, much of the downtown District Columbia area falls within the Combines Sewer Watershed. Additional design criteria apply to those watersheds and sub-watersheds which are regulated by DC Water.

7.2.2 OPEN CHANNEL FLOW

Open channels are designed to provide positive flow that has non-erosive velocities. Open channels shall be designed to meet the following criteria:

- Hydraulic calculations are required for all proposed open channels
- The final channel design must provide 6 inches of freeboard above the design flow elevation
- Channel inverts and top of bank elevations are required for all open channels
- Typical cross sections are required for each reach of open channel
- Channel lining design will be provided for non-erosive velocities
- Channel design shall also incorporate a pilot channel to handle lower flow events

7.2.3 CULVERT DESIGN

Culverts shall be sized to accommodate the following design flows based upon the roadway classification:

Railroad Corridor	100 year storm event
Freeways	50 year storm event
Principal Arterials	50 year storm event
Minor Arterials/Collectors	25 year storm event
Local Streets	10 year storm event

Also, adequate inlet and outfall protection for all culverts will be evaluated and designed in accordance with HEC-14.

7.3 Stormwater Management

Within the Washington, DC area, stormwater retention volume (SWR_V) will be calculated for all major land disturbing activities in accordance with the Department of Energy and the Environment (DOEE) Stormwater Management Guidebook. For most areas of Washington, DC, this retention volume (called SRV) is calculated using a 1.2-inch rainfall event. An additional volume of storage for water quantity control will be required by DOEE to reduce the post development discharge to pre-existing (typically "meadow") conditions. Portions of the Project within the Anacostia Waterfront Development Zone (AWDZ) as defined in the DOEE Stormwater Management Guidebook are subject to additional restrictions as defined in the DOEE Stormwater Management Regulations.

For project areas within Virginia, stormwater quality control and stormwater quantity control will be required in accordance with the Virginia Stormwater Management Handbook.

In accordance with DOEE practice, railroad ballast (both existing and new) is considered impervious because the underlying soil interface typically does not infiltrate. Railroad bridges crossing waterways and locations in Virginia are excluded from this practice. In addition, existing rail lines are eligible for Maximum Extent Practical (MEP) considerations. Underdrain may be considered a detention practice provided a dead storage stone area is located below the invert of the underdrain. Additional coordination is required to establish appropriate stormwater management in ballasted areas the context of this project. Refer to *Chapter 11, Additional Considerations* for additional discussion.

7.3.1 REFERENCES

Proposed stormwater management will be designed in accordance with the latest edition of the following standards and manuals:

- DOEE 2020 Stormwater Management Guidebook
- DDOT Design and Engineering Manual (DEM), January 2019
- DDOT 2014 Green Infrastructure Standards
- DC Water Green Infrastructure Utility Protection Guidelines
- VDOT Drainage Manual
- Virginia Department of Environmental Quality (DEQ) Stormwater Design Specifications

7.3.2 BMP DESIGN CRITERIA

Important considerations for the design of all stormwater management facilities (also known as BMPs) are as follows:

- Any proposed BMP must have soil borings and field infiltration tests within the proposed BMP limits.
- Groundwater levels must be at least 4-feet below the proposed BMP bottom elevation.
- BMP facilities cannot be located within existing floodplain limits.
- BMP facilities must meet certain pollutant removal requirements.

DOEE is also considering changes to their current floodplain regulations with the 500-year event becoming the regulated floodplain rather than the current 100-year floodplain limits. This proposed change will have an impact on any proposed BMP location as well as its design. The proposed regulation changes have not yet been made law but could be in effect at the time the Long Bridge Project goes under construction.

Since the project area consists of the National Park Service (NPS) George Washington Memorial Parkway (GWMP), NPS National Mall and Memorial Parks (NAMA), and DDOT Right-of-Way (ROW), the design criteria for BMP Facilities for these three areas are subject to different review agencies, which follows:

- BMP Facilities in NPS GWMP – Virginia DEQ
- BMP Facilities in NPS NAMA – DC DOEE
- BMP Facilities in DDOT ROW – DC DOEE & DDOT

7.4 Erosion and Sediment Control

Within the District of Columbia and Virginia, Erosion and Sediment Control (ESC) design is required to temporarily protect water resources from sediment pollution and increases in runoff associated with active land disturbance, clearing, and grading activities. Therefore, ESC Plans are required for all portions of a construction project and need to be properly phased to provide the maximum amount of protection to the receiving waterways.

7.4.1 REFERENCES

The latest edition of the following codes and standards specific to ESC design are followed in the development of the ESC plans:

- DOEE 2020 Stormwater Management Guidebook
- DOEE 2017 Erosion and Sediment Control Manual
- DOEE Soil Erosion and Sediment Control Handbook
- DOEE Soil Erosion and Sediment Control General Notes
- Review Checklist for Soil Erosion and Sediment Control Plans
- Virginia Erosion and Sediment Control Handbook
- VDOT Road and Bridge Standards

The project area consists of the NPS George Washington Memorial Parkway (GWMP), NPS National Mall and Memorial Parks (NAMA), and DDOT ROW. The design criteria for these three areas are subject to different review agencies, which are listed as follows:

- ESC in NPS GWMP – Virginia Department of Environmental Quality (DEQ)
- ESC in NPS NAMA – DC Department of Energy and Environment (DOEE)
- ESC in DDOT ROW – DC DOEE and the District Department of Transportation (DDOT)

8 Utilities

Available utility records have been received from the existing utilities owners within the project limit. This phase of design is based on existing utilities records, which will be verified by survey. Existing utilities and owners within the vicinity of the project limits include:

- Railroad owned utilities
- Franchise utilities in the railroad Right-of-Way (ROW)
- District Department of Transportation (DDOT) owned utilities
- DC Water utilities
- National Park Service (NPS) owned utilities
- Washington Metropolitan Area Transit Authority (WMATA) owned utilities
- Dark Fiber (no record, federal/military lines may run within the project area)

TABLE 8-1. UTILITY AGENCIES

Utility Agency	Area
AOC Connect	DC
AT&T Local	DC/VA
AT&T Corporation and AT&T Network Operations	DC
AT&T Core/AT&T Legacy/AT&T Long Distance	DC
Lumen Engineering (Formerly Century Link National)	DC/VA
Comcast	DC/VA
DC Water and DC Clean Rivers	DC
DDOT Signals and Streetlights	DC
Dominion VA Power	VA
Excelon Corp (PEPCO / PEPCO Network Cable)	DC
Fiberlight (Formerly Espire)	DC/VA
Jones Utilities	VA
MWAA	VA
NPS - GWMP	VA
NPS - NAMA	DC
Openband of Virginia	VA
PEPCO	VA
RCN	DC
Sprint / T Mobile	DC
Verizon	DC/VA
Verizon Business (MCI)	DC
Washington Gas	DC/VA
Windstream-KDL	VA
WMATA	DC/VA
X-O Communications (Verizon)	DC
Zayo Group (Formerly Above Net)	DC/VA

8.1 References

The latest edition of the following codes and standards specific to utilities will be followed:

- DDOT Design and Engineering Manual (DEM), January 2019
- ASCE Standard Guidelines for the Collection and Depiction of Existing Subsurface Utility Data
- DC Water Project Design Manual, Volume 3, Linear Asset Design
- DC Water Standard Details and Specifications

8.2 Impacts and Relocation Approach

Any existing utilities impacted by the project will require close coordination to determine where those lines can be relocated to as well as overall sequencing and phasing of the relocation work. Experience indicates that the affected utility owner can take as long as 2-years or more to design and construct any proposed relocations which could impact the overall Long Bridge Project construction schedule.

Also, shall a particular utility need to be relocated, the utility owner will require that utility designation (Quality Level B) and test hole data (Quality Level A) information be provided to them so they can evaluate their relocation options.

Utility relocations as well as new utility systems must be designed to limit impacts to the critical root zone areas of any existing trees. This is an extremely important consideration for both DDOT and NPS.

Finally, the Maine Avenue SW area of the project has other legacy utility items including abandoned foundations, abandoned streetcar (trolley) tracks, and an abandoned GSA steam tunnel which may also be impacted by the project.

9 Landscape Design

Landscape design for this project includes protection and restoration on both the George Washington Memorial Parkway (GWMP) and National Mall and Memorial Parks (NAMA) parkland adjacent to the Potomac River. Section 106 Programmatic Agreement requires two components for planting mitigation resulting from construction activities.

Vegetation Protection Plan Includes areas within the Limits of Disturbance (LOD) wherever vegetation is to be removed, impacted, or protected. Existing vegetation will be surveyed, and specific measures will be outlined to protect trees during temporary and permanent construction activities.

Vegetation Restoration Plan Includes areas within the LOD where vegetation will be replaced to reestablish historic planting plans, while incorporating guidance from historic and recent Cultural Landscape Inventories (CLIs). Plantings are prohibited from the railroad roadbed.

Proposed Landscape Plan Incorporates elements from the Vegetation Protection and Restoration plans, with additional plantings for screening, mitigating potential erosion issues, and compliance with BMPs planting requirements.

9.1 References

Design specifications and mitigation commitments used in the Landscape Protection and Restoration Plans include the following:

- Combined Final Environmental Impact Statement/Record of Decision and Final Section 4(f) Evaluation
- Vegetation at Long Bridge Interim Assessment
- Section 106 Programmatic Agreement
- Virginia Department of Rail and Public Transportation (DRPT)-National Park Service (NPS) Mitigation Agreement

CLIs:

- 2010 Cultural Landscape Inventory for Lady Bird Johnson Park
- 2014 Mount Vernon Memorial Highway - South of Alexandria Cultural Landscape Inventory
- 2016 Theodore Roosevelt Island Cultural Landscape Inventory

GWMP Vegetation Cultural Landscape Report (CLR):

- 2009 Vegetation of the GWMP Central Section (Alexandria to Arlington Memorial Bridge) Vegetation Information (Volumes One and Two)

Historic American Buildings Surveys (HABS) and Historic American Landscapes Surveys (HALS):

- Historic American Engineering Record for Mount Vernon Memorial Highway - George Washington Memorial Parkway portion
- Historic American Landscapes Survey of Mount Vernon Memorial Highway, George Washington Memorial Parkway along Potomac River from McLean to Mount Vernon, VA

Mount Vernon Memorial Highway (MVMH) Cultural Landscape Report:

- Mount Vernon Memorial Highway Cultural Landscape Report – Volume 1 History
- Mount Vernon Memorial Highway Cultural Landscape Report – Volume 2 – Design Documentation

National Register:

- Lyndon Baines Johnson Memorial Grove National Register of Historic Places Registration Form
- George Washington Memorial Parkway National Register of Historic Places Registration Form

National Mall and Memorial Parks (NAMA) CLIs:

- 2008 Constitution Gardens Cultural Landscapes Inventory
- 2017 East Potomac Golf Course Cultural Landscape Inventory
- 2015 Thomas Jefferson Memorial Cultural Landscape Inventory

CLR – Treatment:

- 1999 Lincoln Memorial Grounds Cultural Landscape Report
- NPS Golf Courses Cultural Landscape report and Treatment Guidelines
- 018 Rock Creek and Potomac Parkway, Potomac Waterfront Section Cultural Landscape Report
- 1996 Thomas Jefferson Memorial Landscape Overview
- 2020 Tidal Basin Viewshed Analysis

HABS:

- Hains Point - East Potomac Park Historic American Buildings Survey
- Hains Point - East Potomac Park Historic American Buildings
- West Potomac Park Historic American Buildings Survey

HALS:

- Tidal Basin - West Potomac Park Historic American Landscaping Survey
- Historic American Landscape Survey - 1910 Japanese Flowering Cherry Trees in East Potomac Park

History and Architecture:

- Chappell 1973 West Potomac Park History Historic Resource Study
- East Potomac Park HSR Final 508c 2019
- Lincoln Memorial Historic Structure Assessment Report

National Register:

- National Mall National Register of Historic Places Registration Form

Other References:

- Protecting Historic Trees During Construction. National Center for Preservation Technology and Training, March 2021

9.2 Vegetation Protection Plan

9.2.1 APPROACH

In close collaboration with the National Park Service (NPS), a Vegetation Protection Plan will provide documentation of the site's existing conditions, including existing tree species, caliper, and health. The Vegetation Protection Plan will identify which trees may be impacted by construction activities.

Specifications will indicate protection measures necessary to mitigate construction damage in temporary staging and permanent construction areas. The Vegetation Protection Plan will be provided during the Preliminary Engineering Phase, and further refined through the project.

9.2.2 TREE SURVEYING CRITERIA

During the August 2021 site walk, the NPS confirmed that a 6-inch diameter at breast height (DBH) would be the minimum tree size required to be surveyed. Existing shrubs would be recorded as massings, not individual specimens.

9.2.3 TREE PROTECTION CRITERIA

Tree protection will be recommended based on collaboration with arborist recommendations and NPS tree protection standards. Primary attention will be placed to minimize soil compaction, severing of roots, trunk and limb injury, and limb breakage around all trees in the LOD.

9.2.4 NAMA HEADQUARTERS

During the July 2021 site walk, NAMA staff informed the design team that a historic cherry tree was located near the NPS trailer. Species is Okame Cherry (Prunus 'Okame') near where the temporary construction impacts will occur.

9.2.5 CONSTRUCTION AREA SCREENING

Screening around construction staging areas and planting will be provided as part of the Vegetation Protection Plan, incorporating standard NPS screen fencing.

9.3 Vegetation Restoration Plan

9.3.1 APPROACH

Combining available references, specifically CLIs and CLRs, a Vegetation Restoration Plan will be developed to mitigate trees removed as part of this project. The restoration area for this project will occur within the Project Limits of Work.

9.3.2 RESTORATION PLANTING PALETTE

The proposed plant palette will be based on historic NPS planting plans, drawing on NPS recommended cultivars if alternate species are preferred for availability, disease resistance, or maintenance considerations. The GWMP portion of the project has had three historic plantings plans: 1932, 1965, and 1980s.

9.3.3 MITIGATION RATIO

Per the Section 106 Programmatic Agreement, restoration will be for the same number of caliper inches removed. For example, if three 24-inch trees are removed, then 72 inches of caliper would need to be restored by new tree plantings.

9.4 Proposed Landscape Plan

9.4.1 APPROACH

The Proposed Landscape Plan will incorporate relevant drainage and stormwater designs, including any Best Management Practices (BMP) planting and revegetation to mitigation erosion. The Landscape Plan will be reviewed by the Signatories to the Section 106 Programmatic Agreement, as stipulated in the agreement.

9.4.2 INVASIVE SPECIES MANAGEMENT

The design team will work closely with the NPS to specify an appropriate management strategy for invasive species. Application of herbicide treatment(s), species targeted for removal, and schedule have been coordinated with NPS during multiple meetings.

9.4.3 VEGETATIVE SCREENING

NPS reiterated the importance of viewsheds during each site walk. With vegetation being cleared and new structures being built, there are opportunities to selectively screen or frame views that may have not previously been possible.

10 Approvals and Design Exceptions

10.1 Design Exceptions

The designer is expected to adhere to the practices and criteria specified in the Basis of Design (BOD). The Virginia Passenger Rail Authority (VPRA) and Federal Railroad Administration (FRA) recognize that design exceptions may be required for criteria not met on the National Highway System. These deviations may be necessary for avoidance of environmental impacts or due to physical constraints. These changes must be approved by the Authority Having Jurisdiction (AHJ) prior to implementing the criteria change.

All design exceptions are to be submitted by the design team in writing to VPRA and FRA for distribution to the AHJ. Each variation request will be logged for tracking and distributed to the appropriate AHJ for consideration. Those stakeholders having jurisdiction will provide a written response to the variance request.

The designer is requested to provide adequate information for the exception. Adequate information includes, but is not limited to:

- Applicable BOD Chapter and Section
- Implications of applying BOD criteria
- Rationale and justification for the request and the location(s) and/or length where the exception may apply
- Benefits of exception
- Graphical representation through plan/profile/typical section
- Cost estimate reflecting increases or savings
- Identification of exception regarding the minimum standard and its relevance to the desirable standard
- Identification of effects of the exception to the freight and intercity passenger rail system operations and maintenance, if any, and appropriate potential mitigation measures
- Supporting documentation, including a description of the specific design element and the applicable criteria
- Professional engineer signature and seal of the design engineer of record
- Elements proposed to be constructed or installed to mitigate the risks associated with not constructing the items to applicable standards and that warrant a requested for an exception

The AHJ reserves the right to request additional information to understand the implications of the variance.

10.2 Design Waivers

Design waivers are required for potential for deviations to the technical criteria presented in the BOD or other controlling AHJ criteria that are not considered design exceptions. The designer is requested to provide adequate information for the design waiver request to the AHJ.

11 Additional Considerations

The Basis of Design (BOD) is intended to be a living document. As such, several specific considerations or criteria remain outstanding throughout the document and as listed below.

- In accordance with the Department of Energy and the Environment (DOEE) practice, railroad ballast (both existing and new) is considered to be impervious because the underlying soil interface typically does not infiltrate. However, existing rail lines are considered eligible for Maximum Extent Practical (MEP) considerations and properly designed underdrains may be considered an approved detention practice for water quantity control attenuation. Further coordination regarding final Best Management Practices (BMPs) design and detailing is required to define water quality and quantity criteria.
    - The Virginia Department of Environmental Quality (DEQ) officials considers railroad ballast as pervious on the Virginia side of the project.
- Bridge decks over existing water bodies do not trigger a stormwater obligation. However, DOEE may require mitigation measures to mitigate stream impacts.

As information becomes available and coordination with stakeholders continues, this section may be removed in future drafts.

Appendices

Appendix A - Definitions

Key abbreviations used for terms for this Project are identified in **Table A-1**.

Table A-1. Definitions

ABBREVIATION	DEFINITION
AAR	Association of American Railroads
AASHTO	American Association of State Highway Transportation Officials
AHJ	Authority Having Jurisdiction
AMTRAK	National Railroad Passenger Corporation and Subsidiaries
AREMA	American Railway Engineering and Maintenance-Of-Way Association
BOD	Basis of Design
CFA	Commission of Fine Arts
CFS	Cubic Feet Per Second
CSXT	CSX Transportation
DC SHPO	District of Columbia State Historic Preservation Office
DDOT	District Department of Transportation
DEQ	Virginia Department of Environmental Quality
DHR	Virginia Department of Historic Resources
DOEE	District Department of Energy and the Environment
DRPT	Virginia Department of Rail And Public Transportation
EIS	Environmental Impact Statement
ES	Engineering Stationing
F/S	Feet per Second
FHWA	Federal Highway Administration
FRA	Federal Railroad Administration
FTA	Federal Transit Administration
HEC-18	Hydraulic Engineering Circular No. 18
HEC-RAS	Hydrologic Engineering Center – River Analysis System
HY-8	Culvert Hydraulics Analysis Program
KLF	Kips per Linear Foot
KSI	Kips per Square Inch
LBS	Pounds
MAS	Maximum Allowable Speed
MPH	Miles Per Hour
MP	Mile Post
MRE	Manual for Railway Engineering
MT-1, MT-2, MT-3	Main Track #1, #2 And #3
MUTCD	Manual of Uniform Traffic Control Devices
NCPC	National Capital Planning Commission
NPS	National Park Service
PCF	Pounds per Cubic Foot
PLF	Pounds per Linear Foot
PSF	Pounds per Square Foot
ROW	Right-Of-Way
SCC	Virginia State Corporation Commission, Division of Utility and Railroad Safety

Table A-1. Definitions (Cont.)

ABBREVIATION	DEFINITION
US-ACOE	United States Army Corps of Engineers
VDOT	Virginia Department of Transportation
VRE	Virginia Railway Express
VPRA	Virginia Passenger Rail Authority
WMATA	Washington Metropolitan Area Transit Authority

Appendix B – Permit Tracker

Long Bridge Project - Preliminary Engineering Phase
Permit and Approvals Matrix

Total Permits/Approvals obtained to date =	28
Total Permits/Approvals Required =	163

Long Bridge Reference Number	Regulatory Agency	Jurisdiction	Quantity of Permits/ Approvals Obtained	Quantity of Permits/ Approvals Required	Classification	Issuance	Phase	Permit Activity	Permit Applicability, Timing, and Coordination	Anticipated Review Period	Submission Date	Status (Complete, Started, Pending, Not Started)	Next Steps	Last Update
1	DC Water	District	0	1	Approval	Sheeting and Shoring (Large Plan Review)	Preliminary Engineering		This review may be required if the excavation for any of the proposed improvements (or any temporary works that impart additional loads) impact the existing surrounding water, sewer, and storm drain infrastructure that is to remain.	4 Weeks[1]	-	Not Started	Meet with DC Water and DOB to provide overview of project and discuss ability to advance sheeting and shoring large plan review during PE Phase.	4/24/2022
2	DC Water	District	0	1	Permit	Temporary Discharge Authorization Permit	Preliminary Engineering		This review is required to determine where any discharges from construction dewatering activities should be routed (to the existing surrounding storm drain or sanitary sewer systems) based upon a laboratory analysis of any contaminants present in the existing groundwater.	2 Weeks[1]	-	Not Started	Meet with DC Water to provide overview of project and discuss recommended coordination steps moving forward during PE Phase. Pretreatment of any construction water will be required prior to discharge into any storm drain, sewer, or combined sewer system. Pretreatment requirements will be based upon laboratory testing of the existing groundwater to determine the presence of regulated pollutants.	4/24/2022
3	DDOT	District	0	1	Approval	Public Space Committee Review	Preliminary Engineering		All proposed construction in public space that does not meet DDOT standards must be submitted to DDOT Public Space Committee for review and approval. All non-standard elements within public space may also require a Public Space Maintenance Agreement be drafted and filed with DDOT.	-	-	Not Started	Required for large projects and if DDOT Standards are not being met. Meet with appropriate DDOT staff to provide overview of project	4/24/2022
4	DDOT	District	2	2	Permit	Geotech Permit - Public Space Construction Permit	Preliminary Engineering	Geotechnical Soil Boring	All construction in public right of way (public space) areas must be submitted to DDOT for review and approval. Includes all roadway, driveways, sidewalk, utility, and paving type elements, streetlight systems, traffic signal systems, as well as all streetscape/hardscape related items.	30 Business Days [1]	Sep-21	COMPLETE - DDOT Public Space Construction Permit approved on 4/27/22 for borehole BH15 located on Maiden Lane/Maine Ave SW. COMPLETE - DDOT Public Space Construction Permit approved on 3/7/22 for BH13 & BH 14 located on 14th Street Ramp to Maine Ave.	-	8/2/2022
5	DDOT	District	0	18	Permit	Utility Test Pit Permit - Public Space Construction Permit	Preliminary Engineering	Utility Test Pitting	All construction in public right of way (public space) areas must be submitted to DDOT for review and approval. Includes all roadway, driveways, sidewalk, utility, and paving type elements, streetlight systems, traffic signal systems, as well as all streetscape/hardscape related items.	30 Business Days [1]	-	Not Started	-	10/25/2022
6	DDOT	District	0	1	Permit	Special Tree Removal Permit	Preliminary Engineering		Removal of private property trees between 44 and 99.9 inches in circumference (14.01 - 31.80 inches in diameter) requires a Special Tree Removal Permit.	40 Business Days[1]	-	Not Started	Meet with appropriate DDOT staff to provide overview of project and confirm what can be accomplished during PE Phase.	8/2/2022
7	DDOT	District	1	1	Permit	Survey Permit - Public Space Occupancy Permit #3	Preliminary Engineering	Survey and Mapping	PE Phase design team will coordinate permit process with DDOT staff with technical disciplines providing supporting design and/or application materials.	15 Business Days[1]	May-21	COMPLETE -Survey and mapping fieldwork for Survey Area C. Permit complete with 21 monthly renewals also obtained.	Renew monthly as survey is needed throughout PE Phase.	1/27/2023
8	DDOT	District	1	1	Permit	Survey Permit-Public Space Occupancy Permit #1	Preliminary Engineering	Survey and Mapping	PE Phase design team will coordinate permit process with DDOT staff with technical disciplines providing supporting design and/or application materials.	15 Business Days[1]	May-21	COMPLETE- Survey and mapping fieldwork for Survey Area A. Permit complete with 23 monthly renewals also obtained.	Renew monthly as survey is needed throughout PE Phase.	1/27/2023
9	DDOT	District	1	1	Permit	Survey Permit - Public Space Occupancy Permit #2	Preliminary Engineering	Survey and Mapping	PE Phase design team will coordinate permit process with DDOT staff with technical disciplines providing supporting design and/or application materials.	15 Business Days[1]	May-21	COMPLETE- Survey and mapping fieldwork for Survey Area B. Permit complete with 23 monthly renewals also obtained.	Renew monthly as survey is needed throughout PE Phase.	1/27/2023
10	DDOT	District	3	3	Permit	Geotech Permit - Public Space Occupancy Permit	Preliminary Engineering	Geotechnical Soil Boring	-	15 Days[1]	Sep-21	COMPLETE - DDOT Public Space Occupancy Permit packages approved on 5/26/22 for BH06, BH07, BH08, CPT03 located on I-395/14th St SW. COMPLETE - DDOT Public Space Occupancy Permit packages approved on 4/27/22 for BH15 located on Maiden Lane/Maine Ave. COMPLETE: DDOT Public Space Occupancy Permit packages approved on 3/9/22 for three borings located on 14th street SW ramp to Maine Ave.	-	8/2/2022

Long Bridge Project - Preliminary Engineering Phase
Permit and Approvals Matrix

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11	DDOT	District	0	18	Permit	Utility Test Pit Permit- Public Space Occupancy Permit	Preliminary Engineering	Utility Test Pitting	-	15 Days[1]		Not Started	-	10/25/2022
12	DDOT	District	0	1	Permit	Public Space Permit - Street Tree	Preliminary Engineering		Anyone, whether resident or contractor, who plants, prunes or removes a public street tree within the public right of way must first obtain permission from the Urban Forestry Division (UFD)	30 Days[1]	-	Not Started	Meet with appropriate DDOT staff to provide overview of project and confirm what can be accomplished during PE Phase.	9/8/2022
13	DOB	District	0	1	Approval	Environment Intake Form (EIF) and Environmental Impact Screening Form (EISF)	Preliminary Engineering		Helps applicants and District government agencies determine whether or not a major action, would likely result in significant adverse environmental impacts, during the project's construction or operational phase. The EISF review process provides an orderly and comprehensive procedure that permits the introduction of information tailored to the specific project or actions proposed.	30 Days[1]	-	Not Started	Meet with DOB staff to discuss applicability and process and/or if EIS Phase completed these requirements.	4/24/2022
14	DOB	District	5	5	Permit	Geotech Permit -Soil Boring Permit	Preliminary Engineering	Geotechnical Soil Boring	PE phase data collection	-	Jul-21	COMPLETE -SB permit approved on 8/18/22 for (22) borings located within the Potomac River and Washington Channel (R02 - R23). COMPLETE - DOB SB permit approved on 2/28/22 for four borings on I-395/14th Street SW (BH06, BH07, CPT03, BH08). COMPLETE - DOB SB permit approved on 1/18/22 for one boring on CSX property (BH18). COMPLETE - DOB permit approved on 12/27/21 for BH-04, CPT-04, BH-09, CPT-05, BH-10, BH-11. COMPLETE - DOB permit approved on 7/20/21 for BH03, BH05, CPT01, CPT02.	Pending agency approval for remaining permit to complete borings located within Potomac River and Washington Channel.	10/25/2022
15	DOB	District	1	1	Permit	Utility Test Pit Permit - After Hours Permit	Preliminary Engineering	Utility Test Pitting	Working beyond the authorized construction hours of Monday through Saturday, 7:00am – 7:00pm. This includes work within public space authorized by the District Department of Transportation.	30 Days[1]	Oct-22	COMPLETE - After-hours permit approved on 11/28/2022 to complete (2) test pits (TWTH-TP-01, TWTH-TP-02) during nighttime hours.	After hour permits can only be issued for periods of 30 days. Permit will require support from abutting properties containing sleeping quarters within 500' of work as well as the local ANC should work be located within or adjacent to a residential zone.	12/13/2022
16	DOEE	District	1	1	Approval	Geotech Permit - Water Quality Section 401 Certification	Preliminary Engineering	Geotechnical Soil Boring	As required under Section 401 of the Federal Clean Water Act, DOEE provides Water Quality Certification for draft NPDES permits.	90 - 150 days contingent on EPA and USACE review[1]	Aug-22	COMPLETE - Revision issued 4/11/22 to correct quantity of borings described. Water Quality Section 401 Certification approved on 11/3/2021 for (22) borings within the Potomac River and Washington Channel (R02 - R23). Application for issuance of Section 401 Water Quality Certification for temporary impacts associated with geotechnical soil borings in the Washington Channel and Potomac River.	Submit pre-filing meeting request 30 days prior to submitting certifcation request.	4/24/2022
17	DOEE	District	7	7	Permit	Geotech Permit - Well and Boring Permit	Preliminary Engineering	Geotechnical Soil Boring	-	-	Dec-21	COMPLETE - DOEE Permitting package approved on 6/27/22 for (21) borings located within the Potomac River and (1) within the Washington Channel (R02 - R23) COMPLETE - DOEE package approved on 3/22/22 for BH-15 on Maiden Lane COMPLETE - DOEE package approved on 3/3/22 for borings BH13, BH14 on 14th street SW ramp to Maine Ave. COMPLETE - DOEE package approved on 2/10/22 for borings BH06, BH07, BH08, CPT03 on I-395/14th street SW. COMPLETE - DOEE package approved on 12/27/21 for BH-18 on CSX property. COMPLETE - DOEE package approved on 12/27/21 for BH-04, CPT-04, BH-09, CPT-05, BH-10, BH-11 COMPLETE - DOEE package approved on 7/20/21 for BH03, BH05, CPT01, CPT02 on expedited schedule through coordination with Antonio Yaquian-Luna, DOEE Environmental Protection Specialist and Ki Don Cho, Environmental Engineer.	-	8/2/2022
18	DOEE	District	0	1	Approval	Water Quality Section 401 Certification	Preliminary Engineering		As required under Section 401 of the Federal Clean Water Act, DOEE provides Water Quality Certification for draft NPDES permits.	90 - 180 days contingent on EPA and USACE review[1]		STARTED - Pre-application meeting held on 9/30/22 with DOEE.	Submit pre-filing meeting request 30 days prior to submitting certifcation request.	10/25/2022

Long Bridge Project - Preliminary Engineering Phase
Permit and Approvals Matrix

Long Bridge Reference Number	Regulatory Agency	Jurisdiction	Quantity of Permits/ Approvals Obtained	Quantity of Permits/ Approvals Required	Classification	Issuance	Phase	Permit Activity	Permit Applicability, Timing, and Coordination	Anticipated Review Period	Submission Date	Status (Complete, Started, Pending, Not Started)	Next Steps	Last Update
19	DC SHPO	District	0	1	Approval	Construction Protection Plan and Unanticipated Discoveries Plan	Final Design		Approval required prior to construction.	-	-	Not Started	Meet with DC SHPO during PE Phase to discuss process for incorporating this requirement into Final Design and/or design-build bridging documents.	4/24/2022
20	DDOT	District	0	1	Approval	Right-of-Way (ROW) Certification	Final Design		Certifies that all right-of-way interests have been acquired and all federal and District laws, rules, regulations, and policies have been complied with in acquiring new land and providing relocation assistance to any displaced occupants.	-	-	Not Started	Meet with DDOT during PE Phase to discuss process and ability of advance during PE or incorporate requirements into final design and/or design-build phase.	4/24/2022
21	DDOT	District	0	1	Approval	Public Space Sheeting and Shoring Review	Final Design		Required review by DDOT to assess impacts of excavation on the surrounding public space frontage of a particular project.	30 Business Days[1]	-	Not Started	Meet with appropriate DDOT staff to discuss process for incorporating this requirement into Final Design and/or design-build bridging documents.	4/24/2022
22	DDOT	District	0	1	Permit	Public Right-of-Way Permit	Final Design		Approval required prior to construction.	-	-	Not Started	Meet with DDOT during PE Phase to discuss level of design required for permitting along with opportunities for streamlining consistent with project's anticipated final design and/or design-build schedule.	4/24/2022
23	DDOT	District	0	1	Permit	Retaining Wall Permit	Final Design			30 Business Days[1]	-	Not Started	Meet with appropriate DDOT staff to provide overview of project and to discuss process for incorporating this requirement into Final Design and/or design-build bridging documents.	4/24/2022
24	DOB	District	0	1	Approval	DC Surveyor's Office (DCSO) Building Plat	Final Design		A Building Plat must be created showing the location of all existing major features and proposed improvements on a particular land parcel.	1 Day[1]	-	Not Started	Meet with DOB staff to discuss plans and process along with potential ability to incorporate into PE Phase efforts.	4/24/2022
25	DOB	District	0	1	Permit	B-Civ Permit	Final Design		A Civil (BCIV) Permit allows owners and contractors to submit and get approval for civil drawings for sitework/groundwork (below-grade and at-grade) prior to the application of the main building permit. Reduces the total amount of review time for a project by allowing applicant to secure DOB and critical sister agency (DC Water, DDOE, and DDOT) reviews prior to the submission of the main building permit application or even while the building permit is being reviewed.	30 Days	-	Not Started	Meet with DOB staff to discuss plans and process. DOB will issue B-CIV Permit for all stormwater management and erosion control facilities that are approved by DOEE for the project including on NPS owned lands and any work involving DC Water facilities impacted by the project. DOEE issues "technical approval" of the plans with DOB granting official "approval".	4/24/2022
26	DOB	District	0	1	Permit	Sheeting and Shoring Permit	Final Design		Required for temporary support of excavations.	30 Business Days[1]	-	Not Started	Meet with DOB staff to discuss plans and process along with potential ability to incorporate into PE Phase efforts.	4/24/2022
27	DOB	District	0	1	Permit	Retaining Wall Permit	Final Design		-	30 Business Days[1]	-	Not Started	Meet with DOB staff to discuss plans and process along with potential ability to incorporate into PE Phase efforts.	4/24/2022
28	DOB	District	0	1	Permit	Building Permit	Final Design		Authorization to build according to a specific scope of work, including approved plans. Requires a permit for construction in the District of Columbia. Any modification of permit scope or approved plans must be specifically approved. If needed, request for noise variance would be included in building permit application.	-	-	Not Started	Meet with DOB staff to discuss plans and process.	4/24/2022

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29	DOEE	District	0	1	Approval	Floodplain Review	Final Design		After submitting a building permit application at DOB, for any development project in a Special Flood Hazard Area the reviewing agencies (i.e., DOB, DOEE and HSEMA) will review and approve the permit in accordance with the Floodplain Review Flowchart. The applicant shall address and revise the plan to obtain the approval from all agencies before the building permit can be issued by DOB. DOEE approval superscedes submittal of CLOMR-F to FEMA.	-	-	Not Started	Meet with DOB, DOEE, and HSEMA staff to discuss plans and process.	4/24/2022
30	DOEE	District	0	1	Approval	Stormwater Management Approval	Final Design		The 2013 District of Columbia Stormwater Regulations requires that a Stormwater Retention Volume (SWRV) be calculated for all major land disturbing activities. This volume of water must remain on-site and be infiltrated or harvested for other uses.	30 Days[1]	-	Not Started	Meet with DOEE staff to discuss plans and process	4/24/2022
31	DOEE	District	0	1	Approval	Erosion and Sediment Control Approval	Final Design		Erosion and Sediment Control (ESC) Plans for all Construction s must be prepared and submitted to DOEE in accordance with their current guidelines and standards.	30 Days[1]	-	Not Started	Meet with DOEE staff to discuss plans and process for incorporating into Final Design and/or design-build bridging documents.	4/24/2022
32	DOEE	District	0	1	Approval	Stormwater Covenants	Final Design		Once the final stormwater management design is approved by DOEE, a maintenance covenant must be prepared and submitted to DOEE and the DC Office of the Attorney General (OAG) for review and approval. Upon approval, the covenant must then be recorded at the DC Office of Tax and Revenue, Recorder of Deeds.	-	-	Not Started	Meet with DOEE staff to discuss plans and process for incorporating into Final Design and/or design-build bridging documents.	4/24/2022
33	WMATA	District	0	1	Approval	Adjacent Construction Approval	Final Design		WMATA reveiws plans for projects adjacent to, on, over, or under WMATA property and joint development projects to ensure that WMATA facilities and operations are not damaged or affected by the proposed project and WMATA operations are not impacted during and after the proposed project construction.	-	-	Not Started	Meet with WMATA at project milestones to review plans for construction over and adjacent to Yellow Line.	4/24/2022
34	DOB	District	0	1	Approval	Special Inspections	Construction		Required monitoring of critical structure materials that are required by the DOB-amended IBC.	-	-	Not Started	Meet with DOB staff to discuss plans and process.	4/24/2022
35	DOB	District	0	1	Approval	Weights and Measures	Construction		Required registration and inspection of contractor hopper scales to ensure concrete, sand, gravel, and asphalt mixtures are measured correctly.	-	-	Not Started	Meet with DOB staff to discuss plans and process.	4/24/2022
36	DOB	District	0	1	Permit	After Hours Permit	Construction		Working beyond the authorized construction hours of Monday through Saturday, 7:00am – 7:00pm. This includes work within public space authorized by the District Department of Transportation.	30 Days[1]	-	Not Started	Meet with DOB staff to discuss plans and process. After hour permits can only be issued for periods of 30 days. Permit will require support from abutting properties containing sleeping quarters within 500' of work as well as the local ANC should work be located within or adjacent to a residential zone.	4/24/2022
37	DOB	District	0	1	Permit	Fence Permit	Construction		Required for the installation of new fencing on private property. Protection fencing may be required in some areas.	-	-	Not Started	Meet with DOB staff to discuss plans and process.	4/24/2022
38	DDOT	District	0	1	Permit	Public Space Occupancy Permit	Construction		Companion permit to DDOT Public Space Permit - Construction. Typically the responsibility of the construction contractor. Includes preparation and maintenance of traffic plans (both vehicular and pedestrian) for any lane, street, or sidewalk closures required to facilitate construction.	30 Days[1]	-	Not Started	Meet with appropriate DDOT staff during PE Phase to provide overview of project and define clear requirements for Construction.	4/24/2022

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39	DDOT	District	0	1	Permit	Public Space Construction Permit	Construction		All construction in public right of way (public space) areas must be submitted to DDOT for review and approval. Includes all roadway, driveways, sidewalk, utility, and paving type elements, streetlight systems, traffic signal systems, as well as all streetscape/hardscape related items.	30 Days[1]	-	Not Started	Meet with appropriate DDOT staff during PE Phase to provide overview of project and define clear requirements for Construction.	4/24/2022
40	DOEE	District	0	1	Approval	Voluntary Cleanup Program Application	Construction		If contaminated soils are present in DC, then a separate Voluntary Cleanup Program (VCP) will need to be drafted and submitted to DOEE for the handling of these materials.	-	-	Not Started	Meet with DOEE staff to discuss plans and process	4/24/2022
41	Property Owners	District	0	1	Approval	Rights-of-Entry for temporary access	Construction		Required for temporary construction access and staging on federal or private property.	-	-	Not Started	Meet with property owners throughout PE process as needed	4/24/2022
42	CFA	Federal	0	1	Approval	Design Approval	Preliminary Engineering		Design approvals required during design	-	-	PENDING - VPRA attended (10) staff consultations with CFA and held a separate info-item presentation with the commission.	-Concept Approval obtained 7/21/22 (15% Plans) -Combined Preliminary & Final Approval (30% Plans) -VPRA to host final staff consultation with NCPC and CFA	10/25/2022
43	NCPC	Federal	0	1	Approval	Design Approval	Preliminary Engineering		Design approvals required during design	-	-	PENDING - VPRA attended (5) staff consultations with NCPC.	-Concept Approval for project limits on NPS land received from NCPC on 7/07/22. (15% Plans). concept approval for project limits outside of NPS lands is scheduled to be received at NCPC's December meeting. -Combined Preliminary & Final Approval (30% Plans)	10/25/2022
44	NPS	Federal	0	1	Approval	Use of Parkland	Preliminary Engineering		Authorization will be needed to allow the conveyance and/or permanent use of NPS land for the Project.	-	-	This issue is being addressed by VPRA and NPS leadership; it is anticipated the required property rights will be acquired through the application of the Long Bridge Act of 2020.	-	4/24/2022
45	NPS	Federal	2	2	Permit	Survey Permit: Special Use Permit	Preliminary Engineering	Survey and Mapping		2 weeks[2]	Oct-21	COMPLETE- NAMA SUP amendment package approved on 11/30/22 for date extension for NAMA survey activities. COMPLETE - GWMP amendment package approved on 6/14/22 for date extension for GWMP survey activities.	-	8/2/2022
46	NPS	Federal	3	3	Permit	Geotech Permit: Special Use Permit	Preliminary Engineering	Geotechnical Soil Boring	Permit required for use of park land for construction activities, vehicular access, staging, and material laydown areas.	2 weeks[2]	Sep-21	COMPLETE: NPS Nat'l Capital Area SUP permit application approved ON 6/27/22 for (22) borings within the Potomac River and Washington Channel. COMPLETE: NAMA SUP amended on 1/18/22 to include 10 remaining boreholes in NAMA. COMPLETE: NAMA approved Special Use Permit on 10/13/21 for boreholes, BH03, BH05, CPT01, CPT02. COMPLETE: GWMP SUP amended on 2/28/22 to include BH-17. COMPLETE: GWMP approved Special Use Permit on 9/30/21 for boreholes BH01, BH02, R01.	- Amend SUP applications as needed for survey/geotechnical/other work to support PE. - Discuss with NPS timing of permit applications for construction activities	8/2/2022
47	NPS	Federal	0	50	Permit	Utility Test Pit Permit: Special Use Permit	Preliminary Engineering	Utility Test Pitting	Permit required for use of park land for construction activities, vehicular access, staging, and material laydown areas.	2 weeks[2]	Oct-22	PENDING: NPS GWMP SUP permit application submitted on 10/11/22 for (4) test pit locations (TP01 - TP04) within GWMP.	- Coordinate with impacted utility owners - Coordinate with NPS NAMA and NPS GWMP.	10/25/2022
48	NPS	Federal	0	1	Permit	Riverbed Permit	Preliminary Engineering		Permit required for activities that may impact the proprietary interests of the United States in the existing bed of the Potomac River within the original boundaries of the District of Columbia, except for that portion of the bed lying within the pierhead line on the District of Columbia side of the river.	-	-	STARTED - Pre-application meeting held on 9/30 with NPS.	Discuss with NPS timing of permit application for construction activities.	10/26/2022
49	NPS	Federal	0	1	Permit	Permit for Archaeological Investigations	Preliminary Engineering		Permit required prior to any archaeological studies on parkland by non-NPS personnel.	-	-	Not Started	Review areas of high archaeological potential and construction plans to determine if archaeological studies are necessary.	4/24/2022

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Permit and Approvals Matrix

Long Bridge Reference Number	Regulatory Agency	Jurisdiction	Quantity of Permits/ Approvals Obtained	Quantity of Permits/ Approvals Required	Classification	Issuance	Phase	Permit Activity	Permit Applicability, Timing, and Coordination	Anticipated Review Period	Submission Date	Status (Complete, Started, Pending, Not Started)	Next Steps	Last Update
50	NPS, DC SHPO, DHR	Federal	0	1	Approval	Construction Protection Plan and Unanticipated Discoveries Plan	Preliminary Engineering		Approval required prior to construction.	-	-	Not Started	Incorporate requirement into design-build package.	4/24/2022
51	USACE, DOEE	Federal	1	1	Permit	Geotech Permit -Joint Permit Application of Nationwide Permit #6	Preliminary Engineering		Must be issued prior to survey activities, such as core sampling, seismic exploratory operations, plugging of seismic shot holes and other exploratory-type bore holes, exploratory trenching, soil surveys, sampling, sample plots or transects for wetland delineations, and historic resources surveys.	60 days for minor permits; 120 days for individual permits[1]	Aug-22	COMPLETE- Authorization letter issued 12/6/2021 to complete (21) soil borings within the Potomac River and (1) within the Washington Channel.	-	4/24/2022
52	USACE, VDEQ, DOEE	Federal	0	1	Permit	Joint Permit Application of Nationwide Permit #15	Preliminary Engineering		Must be issued prior to construction activities that would impact wetlands or waters of the U.S. JPA includes application for a Virginia Water Protection Permit, which serves as Virginia's 401 certification program for Section 404 permits.	60 days for minor permits; 120 days for individual permits[1]	-	STARTED - Pre-application meeting held on 9/30 with USACE.	- Meet with agencies to discuss level of design required for permitting/ appropriate timing of application - Confirm Nationwide permit assumption. - Public notice initiating a 15-30-day public comment period will be issued within 15 days of receiving all the required information.	10/25/2022
53	USCG	Federal	0	1	Permit	Bridge Permit	Preliminary Engineering		USCG issued a preliminary public notice requesting navigational information from mariners in September 2019. USCG made a Preliminary Navigation Clearance Determination based on the Navigation Study and information from mariners in March 2020. Formal Bridge Permit Application to be submitted at Final Design.	-	-	STARTED - Pre-application meeting held on 9/30, however USCG did not attend.	USCG to hold call with USACE based on pre-application meeting to determine lead agency jurisdiction and permitting.	4/24/2022
54	EPA	Federal	0	1	Permit	National Pollutant Discharge Elimination System (NPDES) Permit	Final Design		Required for construction activities that disturb one acre or more. Requires preparation of a stormwater pollution prevention plan during Construction (note that EPA issues all NPDES permits for the District of Columbia – in Virginia permits are issued by VDEQ).	-	-	Not Started	Meet with EPA to discuss level of design required for permitting/ appropriate timing of application.	4/24/2022
55	EPA, DOEE, VDEQ	Federal	0	1	Approval	Stormwater Pollution Prevention Plan and Notice of Intent	Final Design		Preliminary Stormwater Pollution Prevention Plan (SWPPP) prepared during Final Design. Prior to the start of construction, selected contractor must prepare SWPPP. Plan must address how pollution would be controlled with respect to all construction activities, management of fuel, hazardous materials, daily cleanup procedures, and other housekeeping measure necessary to maintain a clean construction site.	-	-	Not Started	Prior to the start of construction, selected contractor must prepare a Stormwater Pollution Prevention Plan (SWPPP). Incorporate requirement into design-build package.	4/24/2022
56	FEMA	Federal	0	1	Approval	Conditional Letter of Map Revisions Based-On Fill (CLOMR-F)	Final Design		Verifies proposed impacts in the 100- year floodplain do not increase flood elevations by an allowable amount. Initial determination during Final Design with final LOMR after construction based on as built conditions. DOEE and Arlington County approval precedes submission to FEMA.	-	-	Not Started	Meet with FEMA to discuss level of design required/ appropriate timing of application	4/24/2022
57	NPS	Federal	0	1	Permit	Right-of-Way Permit	Final Design		Permit required if Project necessitates the relocation of certain public utilities and power and communication facilities within or onto NPS lands.	6 Months[2]	-	Not Started	- Identify whether utilities on NPS lands will be affected by project - Discuss with NPS timing of permit application for construction activities	4/24/2022
58	USACE	Federal	0	1	Approval	Section 408 Review	Final Design		To be initiated during Project Final Design . Must be issued prior to construction.	-	-	STARTED - Pre-application meeting held on 9/30 with USACE.	Meet with USACE to discuss level of design required for permitting/ appropriate timing of application.	4/24/2022
59	FAA	Federal	0	1	Approval	Notice of Proposed Construction or Alteration	Construction		Notice must be filed at least 45 days prior to beginning construction.	-	-	Not Started	-Meet with FAA to discuss level of design required for permitting/ appropriate timing of application -Must submit completed FAA Form 7460-1 at least 45 days before the start date of the proposed construction or the date an application for a construction permit is filed, whichever is earliest.	4/24/2022

Long Bridge Project - Preliminary Engineering Phase
Permit and Approvals Matrix

Long Bridge Reference Number	Regulatory Agency	Jurisdiction	Quantity of Permits/ Approvals Obtained	Quantity of Permits/ Approvals Required	Classification	Issuance	Phase	Permit Activity	Permit Applicability, Timing, and Coordination	Anticipated Review Period	Submission Date	Status (Complete, Started, Pending, Not Started)	Next Steps	Last Update
60	FEMA	Federal	0	1	Approval	Letter of Map Revision (LOMR-F) Based-On Fill	Construction		Verifies proposed impacts in the 100- year floodplain do not increase flood elevations by an allowable amount. Initial determination during Final Design with final LOMR after construction based on as built conditions.	-	-	Not Started	Meet with FEMA to discuss level of design required/ appropriate timing of application.	4/24/2022
61	NPS	Federal	0	1	Permit	Construction Permit	Construction		Construction permits are required for performing any construction related activity on Park land which is not under an official construction contract with the National Park Service. This includes, but is not limited to, the following: building of temporary or permanent structures or monuments, constructing or upgrading of road and bridges.	-	-	Not Started	Meet with NPS staff to discuss plans and process.	4/24/2022
62	Arlington County	Virginia	0	1	Permit	Floodplain Development Permit	Final Design		Required for any development within the floodplain. Arlington County approval supersedes submittal of CLOMR-F to FEMA.	-	-	Not Started	Meet with Arlington County Department of Environmental Services to provide overview of project/discuss permit process & requirements.	4/24/2022
63	VDEQ	Virginia	0	1	Permit	Virginia Pollutant Discharge Elimination System (VPDES) Permit - General Permit for Discharge from Construction Activities Stormwater Pollution Prevention Plan	Final Design		Required for construction activities that disturb one or more acres. Requires preparation of a Stormwater Pollution Prevention Plan (SWPPP) during final design.	-	-	Not Started	- Meet with VDEQ to discuss level of design required for permitting/ appropriate timing of application - Incorporate requirements into design-build package.	4/24/2022
64	VDEQ	Virginia	0	1	Permit	Virginia Water Protection (VWP) Permit	Final Design		Serves as Virginia's 401 certification for Section 404 permits. State law requires VWP permit be obtained before disturbing a wetland or stream by clearing, filling, excavating, draining, or ditching. Application is made through the Joint Permit Application Process for concurrent Federal and state project review.	-	-	STARTED - Pre-application meeting held on 9/30 with VDEQ.	Meet with VDEQ to discuss level of design required for permitting/ appropriate timing of application.	10/25/2022

1. Anticipated review timeline is an estimated timeframe in which the applicant may expect to receive a response from the reviewer and is established by the review agency. Agency established review timelines are not mandated in most cases and permit issuance timelines may vary based on factors such as agency responsiveness, initiation of comment response periods, the need for interagency coordination, and project complexity.

2. Anticipated review timeline is an estimated timeframe in which the applicant may expect to receive a response from the reviewer and is established based on prior project experience in the absence of a target timeline provided by the review agency. Permit issuance timelines may vary based on factors such as agency responsiveness, initiation of comment response periods, the need for interagency coordination, and project complexity.

Long Bridge Project
Anticipated Virginia Permits

LONG BRIDGE PROJECT
A Transforming Rail in Virginia Project

Final Design Phase		
Permit	**Agency**	**Comments**
Joint Permit Application of Nationwide Permit #15	USACE, VDEQ, DOEE	- Meet with agencies to discuss level of design required for permitting/ appropriate timing of application - Confirm Nationwide permit assumption
Virginia Pollutant Discharge Elimination System (VPDES) Permit - General Permit for Discharge from Construction Activities Stormwater Pollution Prevention Plan	VDEQ	- Meet with VDEQ to discuss level of design required for permitting/ appropriate timing of application - Incorporate requirements into design-build package
Virginia Water Protection (VWP) Permit	VDEQ	- Meet with VDEQ to discuss level of design required for permitting/ appropriate timing of application
Floodplain Development Permit	Arlington County	- Meet with Arlington County Department of Environmental Services to provide overview of project/discuss permit process & requirements

***4 permits are required in the State of Virginia**

Long Bridge Project
Anticipated Federal Permits

LONG BRIDGE PROJECT
A Transforming Rail in Virginia Project

Preliminary Engineering Phase

Permit	Agency	Comments
Use of Parkland	NPS	This issue is being addressed by DRPT and NPS leadership; it is anticipated the required property rights will be acquired through legislation.
Special Use Permit	NPS	-Awaiting NPS NAMA approval of the Special Use Permit to access their lands for the first 4 boreholes. -SUP applications in process for survey/geotechnical/other work to support PE. -Discuss with NPS timing of permit applications for construction activities
Riverbed Permit	NPS	- Discuss with NPS timing of permit application for construction activities
Permit for Archaeological Investigations	NPS	Review areas of high archaeological potential and construction plans to determine if archaeological studies are necessary
Design Approval	NCPC	-Concept Approval (15% Plans) -Combined Preliminary & Final Approval (30% Plans) -DRPT to meet with NCPC and CFA to confirm process
Design Approval	CFA	-Concept Approval (15% Plans) -Combined Preliminary & Final Approval (30% Plans) -DRPT to meet with NCPC and CFA to confirm process

Final Design Phase

Permit	Agency	Comments
Right-of-Way Permit	NPS	- Identify whether utilities on NPS lands will be affected by project - Discuss with NPS timing of permit application for construction activities
Bridge Permit	USCG	- Meet with USCG to discuss level of design required for permitting/ opportunities for streamlining
Section 408 Review	USACE	- Meet with USACE to discuss level of design required for permitting/ appropriate timing of application
Joint Permit Application of Nationwide Permit #15	USACE, VDEQ, DOEE	- Meet with agencies to discuss level of design required for permitting/ appropriate timing of application - Confirm Nationwide permit assumption
National Pollutant Discharge Elimination System (NPDES) Permit	EPA	- Meet with EPA to discuss level of design required for permitting/ appropriate timing of application
Conditional Letter of Map Revisions Based-On Fill (CLOMR-F)	FEMA	- Meet with FEMA to discuss level of design required/ appropriate timing of application
Letter of Map Revision (LOMR-F) Based-On Fill	FEMA	- Meet with FEMA to discuss level of design required/ appropriate timing of application
Joint Permit Application of Nationwide Permit #15	USACE, VDEQ, DOEE	- Meet with agencies to discuss level of design required for permitting/ appropriate timing of application - Confirm Nationwide permit assumption
Construction Protection Plan and Unanticipated Discoveries Plan	NPS, DC SHPO, DHR	Incorporate requirement into design-build package

Long Bridge Project
Anticipated Federal Permits

LONG BRIDGE PROJECT
A Transforming Rail in Virginia Project

Construction Phase		
Permit	**Agency**	**Comments**
Notice of Proposed Construction or Alteration	FAA	- Meet with FAA to discuss level of design required for permitting/ appropriate timing of application
Construction Permit	NPS	Meet with NPS staff to discuss plans and process.

Note: The precise timing for the rest of the permits will be more definitive for Preliminary Engineering after the survey for the Project is completed in August 2021.

***17 federal permits are required.**

Ref: 39258.00
8/30/2021

Long Bridge Project
Anticipated District of Columbia Permits

LONG BRIDGE PROJECT
A Transforming Rail in Virginia Project

Note: To-date, during the first four months of the PE Phase, representatives from DDOT, DOEE, DCRA have been extremely responsive and collaborative in providing permitting support to complete ground survey and geotehnical borings on land in the Potomac River and Washington Channel. Federal permits in the District have been obtained but are not listed in this District-focused chart. During the NEPA phase, the Project team cleared all preliminary determinations and approvals needed for federal permits with US Army Corps of Engineers, the US Coast Guard, and other federal agencies with jurisdiction, setting the stage for successful completion of the standard permitting process when federal permits are requird prior to, during and at the conclusion of Project construction.

Preliminary Engineering Phase

Permit	Agency	Comments
Public Space Permit #1 - Area A - survey and mapping fieldwork	DDOT	COMPLETE - permit obtained May 2021 on expedited schedule as requested by Tiffany Tenbrook, DDOT Surface Permitting Manager.
Public Space Permit #2 - Area B - survey and mapping fieldwork	DDOT	COMPLETE - permit obtained May 2021 on expedited schedule as requested by Tiffany Tenbrook, DDOT Surface Permitting Manager.
Public Space Permit #3 - Area C - survey and mapping fieldwork	DDOT	COMPLETE - permit obtained May 2021 on expedited schedule as requested by Tiffany Tenbrook, DDOT Surface Permitting Manager.
Technical Approval of first phase of soil boring fieldwork	DOEE	COMPLETE - technical approval is pre-cursor to receipt of DCRA actual permit approval and was obtained July 2021 on expedited schedule through coordination with Antonio Yaquian-Luna, DOEE Environmental Protection Specialist and Ki Don Cho, Environmental Engineer.
Permit for first phase of soil boring fieldwork	DCRA	COMPLETE - Received DCRA permit approval. Awaiting NPS NAMA approval of the Special Use Permit to access their lands for the first 4 boreholes.
Soil Borings Permit	DDOT	We're in discussions with DDOT PSRD and IPMD on soil boring activities in DDOT public space with formal submission anticipated the week of July 26, 2021.
Water Quality Section 401 Certification	DOEE	7/21/21 UPDATE: Application sent to DRPT for signature. Application for issuance of Section 401 Water Quality Certification for temporary impacts associated with geotechnical soil borings in the Washington Channel and Potomac River.
Temporary Discharge Authorization Permit	DC Water	Meet with DC Water to provide overview of project and discuss recommended coordination steps moving forward during PE Phase. Pretreatment of any construction water will be required prior to discharge into any storm drain, sewer, or combined sewer system. Pretreatment requirements will be based upon laboratory testing of the existing groundwater to determine the presence of regulated pollutants.
Sheeting and Shoring (Large Plan Review)	DC Water	Meet with DC Water and DCRA to provide overview of project and discuss ability to advance sheeting and shoring large plan review during PE Phase.
Availability Letter (Large Plan Review)	DC Water	Meet with DC Water to provide overview of project and discuss recommended coordination steps moving forward during PE Phase.
Public Space Permit - Construction	DDOT	Meet with appropriate DDOT staff to provide overview of project and discuss details of public space permit.
Public Space Committee Review	DDOT	Only required if DDOT Standards are not being met. Meet with appropriate DDOT staff to provide overview of project
Special Tree Removal Permit	DDOT	Meet with appropriate DDOT staff to provide overview of project and confirm what can be accomplished during PE Phase.
Stormwater Management Approval	DOEE	Meet with DOEE staff to discuss plans and process
Voluntary Cleanup Program Application	DOEE	Meet with DOEE staff to discuss plans and process
Environment Intake Form (EIF) and Environmental Impact Screening Form (EISF)	DCRA	Meet with DCRA staff to discuss applicability and process and/or if EIS Phase completed these requirements.

Note: The precise timing for the rest of the permits will be more definitive for Preliminary Engineering after the survey for the Project is completed in August 2021.

***31 permits are required in the District.**

Long Bridge Project
Anticipated District of Columbia Permits

LONG BRIDGE PROJECT
A Transforming Rail in Virginia Project

Note: To-date, during the first four months of the PE Phase, representatives from DDOT, DOEE, DCRA have been extremely responsive and collaborative in providing permitting support to complete ground survey and geotehnical borings on land in the Potomac River and Washington Channel. Federal permits in the District have been obtained but are not listed in this District-focused chart. During the NEPA phase, the Project team cleared all preliminary determinations and approvals needed for federal permits with US Army Corps of Engineers, the US Coast Guard, and other federal agencies with jurisdiction, setting the stage for successful completion of the standard permitting process when federal permits are requird prior to, during and at the conclusion of Project construction.

Final Design Phase

Permit	Agency	Comments
Construction Protection Plan and Unanticipated Discoveries Plan	DC SHPO	Meet with DC SHPO during PE Phase to discuss process for incorporating this requirement into final design phase and/or design-build bridging documents.
Public Right-of-Way Permit	DDOT	Meet with DDOT during PE Phase to discuss level of design required for permitting along with opportunities for streamlining consistent with project's anticipated final design and/or design-build schedule.
Right-of-Way (ROW) Certification	DDOT	Meet with DDOT during PE Phase to discuss process and ability of advance during PE or incorporate requirements into final design and/or design-build phase.
Public Space Sheeting and Shoring Review	DDOT	Meet with appropriate DDOT staff to discuss process for incorporating this requirement into final design phase and/or design-build bridging documents.
Public Space Street Tree Permit	DDOT	Meet with appropriate DDOT staff to provide overview of project and to discuss process for incorporating this requirement into final design phase and/or design-build bridging documents.
Erosion and Sediment Control Approval	DOEE	Meet with DOEE staff to discuss plans and process for incorporating into final design phase and/or design-build bridging documents.
Stormwater Covenants	DOEE	Meet with DOEE staff to discuss plans and process for incorporating into final design phase and/or design-build bridging documents.
Floodplain Review	DCRA	Meet with DCRA, DOEE, and HSEMA staff to discuss plans and process.
B-Civ Permit	DCRA	Meet with DCRA staff to discuss plans and process. DCRA will issue B-CIV Permit for all stormwater management and erosion control facilities that are approved by DOEE for the project including on NPS owned lands and any work involving DC Water facilities impacted by the project. DOEE issues "technical approval" of the plans with DCRA granting official "approval".
DC Surveyor's Office (DCSO) Building Plat	DCRA	Meet with DCRA staff to discuss plans and process along with potential ability to incorporate into PE Phase efforts.
Joint Permit Application of Nationwide Permit #15	USACE, VDEQ, DOEE	- Meet with agencies to discuss level of design required for permitting/ appropriate timing of application - Confirm Nationwide permit assumption

Construction Phase

Permit	Agency	Comments
Public Space Permit - Occupancy	DDOT	Meet with appropriate DDOT staff during PE Phase to provide overview of project and define clear requirements for construction phase.
Stormwater Pollution Prevention Plan and Notice of Intent	DOEE	Prior to the start of construction, selected contractor must prepare a Stormwater Pollution Prevention Plan (SWPPP). Incorporate requirement into design-build package.
After-Hours Permit	DCRA	Meet with DCRA staff to discuss plans and process. After hour permits can only be issued for periods of 30 days.
Fence Permit	DCRA	Meet with DCRA staff to discuss plans and process.
Weights and Measures Permit	DCRA	Meet with DCRA staff to discuss plans and process.
Special Inspections	DCRA	Meet with DCRA staff to discuss plans and process.

Appendix C – EIS BOD

Long Bridge Project

Basis of Design

Technical Criteria for Conceptual Engineering

May 5, 2020

District Department of Transportation

U.S. Department of Transportation
Federal Railroad Administration

Basis of Design

Technical Criteria for Conceptual Engineering

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Appendix

1.0 Introduction

The Long Bridge Project consists of potential improvements to the Long Bridge and related railroad infrastructure located between the Rosslyn (RO) Interlocking near Long Bridge Park in Arlington, Virginia and the L'Enfant (LE) Interlocking near 10th Street SW in Washington, DC (see **Figure 1-1**). The Long Bridge Corridor is currently owned and operated by CSX Transportation (CSXT), a Class I freight railroad. In addition to CSXT freight, the Corridor is utilized by Amtrak and the Virginia Railway Express (VRE).

As part of the project, a series of improvements along the 1.8-mile Corridor are evaluated to increase the current two-track capacity to four-tracks for use by both freight and passenger rail service. The proposed improvements along the Corridor include, but are not limited to, the following:

- Adding two new tracks adjacent the existing two-track alignment
- Adding a new two-track bridge upstream of the existing Long Bridge for a four-track crossing
- Retaining the existing two-track Long Bridge over the Potomac River
- Corridor-wide upgrades to track, signal, and interlockings
- New and replacement bridges along the Corridor to achieve four-track capacity
- New retaining walls along the Corridor to minimize impacts and facilitate phasing

This Basis of Design (BOD) Report was prepared to document supporting technical criteria utilized in the development of the Project's Conceptual Engineering plans. Additional railroad capacity documentation was developed outside of the BOD to evaluate the implications of various stakeholder improvements on railroad capacity within the Project limits. Those stakeholders included CSXT, Amtrak, VRE, and the Virginia Department of Rail and Public Transportation (DRPT).

The BOD is applicable only to areas where new construction or major reconfiguration is anticipated to occur. Where major improvements are not required, existing tracks are exempt from the design criteria as well as the approvals and design exception process in Section 8 of this document. It is anticipated that portions of the existing track may need to be modified or upgraded for improved rail geometrics as well as to be included in modifications to the signal system.

The purpose of the BOD is to provide an overview of the technical criteria for Conceptual Engineering of the Long Bridge Corridor, with southern limits starting at the RO Interlocking and extending north to the L'Enfant Interlocking. The BOD has been closely coordinated and developed with input from the major project stakeholders, including the District Department of Transportation (DDOT); Federal Railroad Administration (FRA); DRPT; CSXT; Amtrak; and VRE. The Project Sponsor for preliminary and final design, construction, future infrastructure and corridor ownership is DRPT. Maintenance responsibilities have yet to be determined. Project stakeholders have agreed that all rail improvements will be conceptually designed consistent with CSXT design standards; FRA standards; and as described in the American Railway Engineering and Maintenance-of-Way Association (AREMA) Manual for Railway Engineering. Additional information on the proposed bridge over the Potomac River is provided in the *Long Bridge Project EIS Structures Study Report*.

This BOD is considered a living document that will be updated at the Preliminary Engineering phase based upon additional input and decisions made in project development. The primary goal of this version of the BOD is to provide sufficient technical criteria to complete conceptual design of the

Preferred Alternative in support of the Environmental Impact Statement. The BOD will be updated once the Preferred Alternative is advanced to Preliminary Design.

1.1. Definitions

All definitions used in this document are in accordance with those used in AREMA MRE. Key abbreviations used for terms for this Project are identified in **Table 1-1**.

Table 1-1 | Key Abbreviations

ABBREVIATION	DEFINITION
AAR	ASSOCIATION OF AMERICAN RAILROADS
AASHTO	AMERICAN ASSOCIATION OF STATE HIGHWAY TRANSPORTATION
AHJ	AUTHORITY HAVING JURISDICTION
AMTRAK	NATIONAL RAILROAD PASSENGER CORPORATION AND SUBSIDIARIES
AREMA	AMERICAN RAILWAY ENGINEERING AND MAINTENANCE-OF-WAY
BOD	BASIS OF DESIGN
CFA	COMMISSION OF FINE ARTS
CFS	CUBIC FEET PER SECOND
CSXT	CSX TRANSPORTATION
DC-SHPO	DISTRICT OF COLUMBIA STATE HISTORIC PRESERVATION OFFICE
DDOT	DISTRICT DEPARTMENT OF TRANSPORTATION
DRPT	VIRGINIA DEPARTMENT OF RAIL AND PUBLIC TRANSPORTATION
ES	ENGINEERING STATIONING
F/S	FEET PER SECOND
FHWA	FEDERAL HIGHWAY ADMINISTRATION
FRA	FEDERAL RAILROAD ADMINISTRATION
HEC-18	HYDRAULIC ENGINEERING CIRCULAR NO. 18
HEC-RAS	HYDROLOGIC ENGINEERING CENTER – RIVER ANALYSIS SYSTEM
HY-8	CULVERT HYDRAULICS ANALYSIS PROGRAM
MAS	MAXIMUM ALLOWABLE SPEED
MPH	MILES PER HOUR
MP	MILE POST
MRE	AREMA M*CFS*
MT-1, MT-2, MT-3	MAIN TRACK #1, #2 AND #3
MUTCD	MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES
NCPC	NATIONAL CAPITAL PLANNING COMMISSION
NPS	NATIONAL PARK SERVICE
ROW	RIGHT-OF-WAY
SCC	VIRGINIA STATE CORPORATION COMMISSION, DIVISION OF UTILITY AND RAILROAD SAFETY
US-ACOE	UNITED STATES ARMY CORPS OF ENGINEERS
VDOT	VIRGINIA DEPARTMENT OF TRANSPORTATION
VRE	VIRGINIA RAILWAY EXPRESS

1.2. Concept Engineering Limits

The Concept Engineering Limits extend approximately 1.8 miles within the RF&P Subdivision (previously the Richmond, Fredericksburg and Potomac Railroad) of the CSXT Baltimore Division (see **Figure 1-1).** The Preliminary Engineering Limits extend from L'Enfant (LE) Interlocking near milepost (MP) CPF 111.5 in the District of Columbia to the Rosslyn (RO) Interlocking at MP CPF 110.1 in Arlington, Virginia. The Concept Engineering Limits northern terminus adjoins the proposed station capacity improvements to the VRE L'Enfant Station; and the Concept Engineering Limits southern terminus in Arlington adjoins the northern limits of DRPT's Washington, D.C. to Richmond segment of the Southeast High-Speed Rail corridor (DC2RVA).

The Study Area is surrounded by diverse land uses between the District and Arlington County, Virginia, including local and national parks, residential mixed use, and commercial development. These land uses constrain the operational considerations. In general, the Project intent is to increase the number of tracks recommended by the capacity modeling over the Potomac River and into the District. Operational speeds will be maintained within the narrow railroad Corridor. The Concept Engineering Limits include multiple transportation structures. Capacity increases will impact the configuration of six (6) existing undergrade bridges and one existing overgrade viaduct within the Corridor:

- CSXT bridge over George Washington Memorial Parkway (Unknown)
- CSXT Long Bridge over Potomac River, Mount Vernon Trail, and Ohio Drive SW (DDOT Br #510)
- CSXT bridge over Ohio Drive SW (DDOT Br # 512)
- CSXT bridge over Interstate 395/695 (DDOT Br # 1135)
- CSXT bridge over Washington Channel (DDOT Br #513)
- CSXT bridge over Maine Avenue SW (DDOT Br # 514)
- Republic Properties Maryland Avenue SW viaduct over CSXT (Unknown)

In addition, there will be a new CSXT bridge over the WMATA Yellow Line Tunnel; the pedestrian bridge over Maine Avenue that connects the Mandarin hotel and the SW Riverfront will need to be replaced or reconfigured; new signal bridges will be incorporated along the Corridor; and retaining walls will be used throughout the Corridor.

Figure 1-1 | Long Bridge Project Limits

1.3. Project Approach

The BOD Report documents the initial design standards applied to the engineering concept design. Additional criteria, definitions, and specifications are expected to be added during the development of the preliminary design, final design and construction documents. These modifications should be approved through a technical process based on sound engineering judgment, practice and economics. A general review process is described in Section 8.

Key Project development principles reflected in the BOD include the following:

- All mainline tracks will be designed to meet or exceed the maximum allowable speeds through the project area.
- All mainline tracks will be designed to meet or exceed the existing minimum vertical clearances at overhead bridges (Plate H clearance).
- On tracks to be owned and maintained by CSXT, mainline track centers shall meet or be wider than CSXT's standard track centers of 15 feet. Track centers less than 15 feet will require design exceptions and formal approval by CXST.
- On tracks to be owned and maintained by CSXT, lateral clearances shall meet or be greater than CSXT's standards clearance of 18 feet. Lateral track distances less than 18 feet will require design exceptions and formal approval by CXST.
- Preliminary design is not to preclude future electrification along the passenger tracks.
- Both new and existing mainline tracks shall be designed for resiliency, redundancy, interoperability, and connectivity between all passenger and freight service.
- Utilization of ongoing and previously completed studies, concept development, and rail improvement designs in the Corridor to the extent feasible and practicable.

1.4. Planning Considerations

1.4.1. Operational Capacity

The Project objective is to provide additional long-term railroad capacity and to improve the reliability of railroad service through the Long Bridge Corridor. Capacity increases are needed to meet projected demand for passenger and freight rail services of stakeholders; improve operational flexibility and resiliency; and provide redundancy for this critical link in the local, regional, and national railroad network. To increase capacity, the 2-track Corridor is to be updated to 4-tracks through this project area. Capacity improvements were focused on obtaining one or more of the following objectives:

- Improved travel time;
- Increase and/or improve reliability and resiliency;
- Provide flexibility to recover during periods of higher demand and service delays, including track maintenance(resiliency);
- Increase in frequency of service;
- Increase in length of train/consistency; and
- Additional infrastructure to support improvements listed above.

1.4.2. National Environmental Policy Act

The Long Bridge Project traverses through various historic areas, the viewshed of the Monumental Core of the District, private and federal properties, and environmentally sensitive areas. These features will require evaluation under the National Environmental Policy Act (NEPA) to avoid or mitigate the potential impacts. The evaluation must reflect the various influences the Project could have on these resources. Evaluation criteria will include, but is not limited to, the following considerations:

- Stakeholder, cooperating agencies, participating agencies, and public input on the various alternatives;
- Focus on minimizing impacts to adjacent private and federal properties;
- Focus on minimizing environmental impacts;
- Influences on visual view shed, noise mitigation, and aesthetic improvements;
- Improvements to railroad operational benefits and safety;
- Constructability of the proposed improvements; and
- Compatibility of proposed improvements with regional planning efforts.

1.5. Utilization of Standards

The design will include the use of applicable agency standard drawings, materials, and specifications for applicable improvements within the Authority Having Jurisdiction (AHJ). The utilization of standard practices and materials promotes understanding of the intended improvements with the benefit of expediting the design and construction.

All new railroad equipment and track materials must conform to current and applicable CSXT standards or criteria (track owner/host railroad standards), AREMA guidelines, or approved industry standards. Roadway equipment and materials must conform to the appropriate AHJ: either Arlington County, National Park Service (NPS), DDOT, FHWA, Coast Guard, US-ACOE, DC-SHPO, or other impacted party. Refer to section 3.0 Roadway below for additional information.

1.6. Topographic Survey

The Project covers topographic features in both the District and the Commonwealth of Virginia. The horizontal and vertical project control was established in accordance with the Maryland State Plane Coordinate System with a vertical datum based on NAD83.

The topographic survey was collected to identify the physical improvements and terrain features within the Project area. Topographic features were obtained from aerial mapping flown in July 2013 and December 2015 and field verified from publicly accessible points along the Corridor. Detail surveying of structural features (railroad bridges, roadway bridges, tunnels, and drainage culverts) were excluded until selection of the preferred alternative.

Topographic features were identified within a 150-foot boundary centered over the CSXT Corridor, extending from the southern limit of Four Mile Run (near MP CPF 108) in Virginia to the northern limit of the VRE L'Enfant Station (near MP CPF 112) in the District. These features include, but are not limited to, the track, retaining walls, railroad and roadway bridge superstructure outlines, vegetation, roadways, railroad signal equipment, and identifiable above and below grade utilities. Utilities shall be verified with

individual utility owners prior to construction. One-foot contours were developed from terrain elevations.

1.7. Constructability

Maintaining existing, or minimizing impacts to, roadway and railroad operations is required for making the infrastructure improvements. Lane restrictions for George Washington Memorial Parkway, I-395, Maine Avenue SW, Ohio Drive SW, and connecting side roads are to be limited to off-peak hours only for structural improvements. All roadway/lane closures will need to be coordinated and approved by their respective AHJ. MOT plans will also need to be approved by the AHJ.

Railroad operations, including both freight and passenger, are to be maintained during construction. Construction staging will include maintaining two operational tracks at all times to minimize delays to both freight and passenger services. Design development will require collaboration of staging and operation resources required of the host railroad, CSXT, and the passenger services utilizing the infrastructure. The following conditions are to be incorporated into the development of the construction staging for all existing and temporary tracks:

- The availability of track closures will be very limited and determined at the discretion of CSXT, working in cooperation with Amtrak and VRE. Track closures will be limited to the short off-peak service hours and on weekends and only when approved by CSXT, Amtrak, and VRE.
- Temporary track closures shall be scheduled and coordinated with CSXT, Amtrak, and VRE. Temporary track closures and the use of temporary tracks to maintain operations shall be considered on a case-by-case basis.
- Speed of temporary tracks shall be designed according to current CSXT timetable speeds or as approved by CSXT in coordination with Amtrak and VRE.

2.0 Railroad

Railroad geometric design is to be developed to provide safe, economical, and efficient freight and passenger service along the rail Corridor. The geometric design configurations must be developed to mutually maintain the operation and rolling stock stability for both freight and passenger operations.

The design criteria within the BOD reflects a combination of accepted and recommended engineering practices utilized by CSXT, Amtrak and VRE, as well as those contained in the AREMA Manual for Railway Engineering (MRE).

2.1. Safety

Safety of freight and passenger operations, freight and passenger employees, and the public above, under, and adjacent to the railroad Corridor represents the critical priority of the design. Railroad safety promotion and regulation is governed by FRA's Office of Railroad Safety, which includes FRA Track Safety Standards – 49 CFR Part 213. As the operator of the railroad Corridor, CSXT reserves the right to review and approve proposed railroad improvements.

The Long Bridge Project assumes that each alternative will maintain the existing posted speeds for freight and passenger trains along the existing railroad Corridor. If speeds are proposed to be increased by the Project due to improved geometry, FRA regulations require preparation of a system safety plan.

2.2. Design Codes, Manuals, Standards, Specifications, and regulatory Requirements

The design parameters for the conceptual design originated with the engineering and operating standards of CSXT. The following additional agency criteria was reviewed for more restrictive criteria or general compliance:

- AREMA Manual for Railway Engineering 2018 Edition
- Applicable FRA safety requirements
- Federal laws
- District of Columbia general laws
- Commonwealth of Virginia general laws

For preliminary and final design documents, the latest edition of the code, regulation, standard, and specification applicable to the Project in effect on the day of engineering Notice-to-Proceed (NTP) is applicable to the Project design. Revisions to code, regulation, standard and specification made during engineering design are to be presented to DDOT, CSXT, or the AHJ and approved prior to incorporating revisions.

This BOD is based on industry standards, governmental regulations, AREMA recommended practices, and railroad standards. The following publications and documents current references for Conceptual Engineering:

- CSXT Engineering and Operating Standards (in effect as of September 15, 2016)
- CSXT Public Projects Information Manual (Rev. July 2017)

- CSXT Design & Construction Standard Specifications – Pipeline Occupancies (Rev. June 5, 2018)
- CSXT Design & Construction Standard Specifications for the Design and Construction of Private Sidetracks (September 15, 2016)
- AREMA MRE 2018 Edition
- FRA Track and Rail and Infrastructure Integrity Compliance Manual (in effect as of January 2017)
- FRA Railroad Corridor Transportation Plans Guidelines (July 2005)
- D.C. Municipal Regulations, Chapter 24-31. OCCUPATIONAL SAFETY: RAILROAD CLEARANCES, Title 24. PUBLIC SPACE AND SAFETY.
- U.S. Code of Federal Regulations
- Absolute maximum/minimum values for any track design element shall comply with 49 CFR 213 for the applicable class of track. [On CSXT-owned and maintained track, CSXT will not allow any proposed track design element that does not comply with FRA class of track standards.]
- Strategic Rail Corridor Network (STRACNET) and Defense Connector Lines (December 1998) - http://www.tea.army.mil/DODProg/RND/default.htm

2.3. Design Life

The design life for the new railroad related features and facilities are:

- Embankment: 50 years minimum
- Ballast and subballast: 10 years minimum
- Track structure (rail, ties, and fasteners): 35 years minimum
- Structures: 100 years minimum

It is anticipated that facilities will require regular maintenance and some degree of component repairs and replacement over the course of the design life. Additional decisions made on the preferred materials, fabrication, and installation of infrastructure will be made during the Final Design stage based upon Project Sponsor requirements.

Temporary facilities used to accommodate construction of permanent systems are to be designed for a period up to five years. Examples include temporary tracks and facilities during construction.

2.4. Design Loading

The track system design is to be based on a Cooper E-90 loading for bridges intended primarily for CSXT freight operations in accordance with the CSXT Criteria for Ballast Deck Railroad Bridges. Bridges intended primarily for passenger operations will be based on Cooper E-80 loading in accordance with the AREMA MRE but the Maximum Rating will be checked for conformance to the E-90 loading specified by CSXT.

2.5. Design Speeds

The Corridor design speed is intended to maintain and improve the existing freight and passenger speeds reflective of the existing topographic and environmental features constraints. New alignments shall meet or exceed FRA Class 3 track design speeds. See Section 2.6 for additional design speed information at track turnouts and crossovers along the Corridor.

Horizontal curves are to be designed to the highest speeds possible for mixed traffic based on the design criteria, train performance models, and local conditions. Passenger train design speeds are to be established using the following procedure:

- Optimization of horizontal curve (reduce the degree of curvature)

2.6. Horizontal Geometry

On tracks to be owned and maintained by CSXT, track horizontal curvature and superelevation shall be designed to maximize speed for mixed traffic per CSXT standards. Mainline horizontal track alignments are to be stationed along the centerlines of the existing CSXT alignment. Engineering stationing (ES) increases from south to north. Station equations are to be used to correlate Project ES with Valuation Maps stationing, CSXT mileposts, and any identifiable bridges and relevant topographic or structures features referenced on the Valuation Maps.

All mainline tracks within proximity of the existing ROW are to be designed in accordance with the existing host railroad timetables. Engineering alternatives include meeting or matching the existing speeds throughout the Corridor, with alignments to be designed for a minimum speed of 30 mph for passenger operations and a minimum speed of 25 mph for freight operations. Existing sidings are to be assigned stations matching the mainline stations and station equations referencing the Valuation Maps.

2.6.1. Track Centers

Track centers (distance between the centerlines of two adjacent tracks) for mainline, lead tracks, tangent tracks, and tracks parallel to mainline tracks that are not being relocated or modified will remain at existing track centerline widths. On tracks to be owned and maintained by CSXT, mainline track centers shall meet or exceed CSXT's standard track centers of 15 feet. Track centers less than 15 feet will require design exception justification and formal approval by CSXT. The justification must include explanation of extenuating circumstance, limits of the standard deviation (exception), implications of not complying with the CSXT standard, and recommended infrastructure or installations to mitigate the impacts associated with the proposed exception. Corridor safety must be maintained in all circumstances, and in no case will track centers be reduced below their existing minimums in the same block of track.

District of Columbia Codes and Regulations specifies minimum track centers for use in the District, although the CSXT minimums are more restrictive. District limits may become relevant if CSXT grants exceptions to their standards. DDOT has an internal process for adjusting the DCMR requirements if needed as well through a separate design exception process. All other agencies that will issue permits and have jurisdiction for review and approval of the changes, including compliance to NEPA documents. Virginia has no regulations affecting railroad track centers.

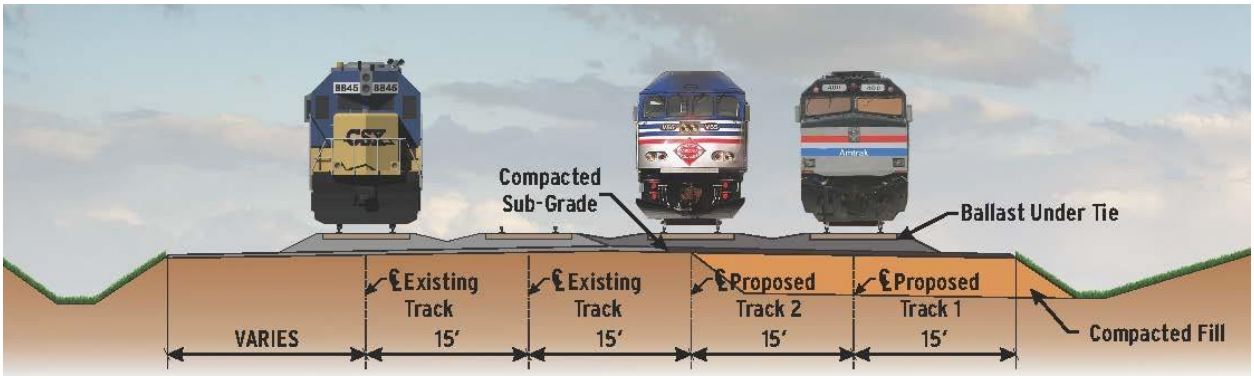
See **Table 2-1** for minimum track centers. Deviations from these values will be in accordance with Section 8.

Table 2-1 | Minimum Track Centers

TRACK TYPE	CSXT MINIMUM	DCMR MINIMUM
MAIN	15'-0"	**14'-0"**
OTHER TRACKS	14'-0"	**14'-0"**
CONGESTED YARDS	N/A	**13'-6"**
OTHER TRACK ADJACENT TO MAIN TRACKS	**15'-0"**	**15'-0"**

The Long Bridge Project utilized the following typical sections for conceptual evaluation. Refer to CSXT Standard Drawing 2600 series for additional track configuration details (see **Appendix A**).

Figure 2-1 | Four Track Typical Section



2.6.2. Tangent Alignment

In compliance with AREMA, the host railroads operating preference and passenger railway design best practices, the track geometry must maintain a minimum tangent length between designed track features. For mainline passenger tracks, the desired minimum tangent length (L) between curves can be determined by the following formula:

$$L = 3V$$

Where: L = minimum tangent length, feet

V = freight design speed through the curve, feet per second

The tangent length formula is based on the rail car traveling at least two seconds on tangent track between two curves. The preferred and absolute minimum tangent track lengths are reflected in **Table 2-2** for predominate track circumstances. These minimums will be met unless a design exception is formally approved by stakeholders.

Table 2-2 | Minimum Tangent Length - Main Track

TANGENT LOCATION ON MAINLINE TRACKS	MINIMUM TANGENT LENGTH (FEET) Preferred	Absolute
BETWEEN CURVES	3V	200
BETWEEN POINT OF SWITCHES (PS) OF TURNOUTS (TOS)	200	100
BETWEEN PS AND CURVE	200	100
BETWEEN PS AND PLATFORM	200	100
BETWEEN PS AND GRADE CROSSING	200	100
BETWEEN PS AND BRIDGE	500	100
BETWEEN PS AND LAST LONG TIE OF TO	200	100
BETWEEN CURVE AND PLATFORM	100	80
BETWEEN CURVE AND GRADE CROSSING	100	80

2.6.3. Horizontal Curve Alignment

Superelevation

Superelevation (sometime referred to as cant internationally), is defined as the algebraic height difference in profile elevations between the low rail (curve interior rail) and high rail (curve exterior rail) for a specific track. The height difference is used to counteract, or partially counteract, the lateral forces on a train through a horizontal curve. Additional benefits include distribution of load on the rails, improved ride quality for passenger comfort, and reduced asset wear on the rail and wheel. See CSXT's Standard Drawings 2510 and 2511 for superelevation requirements.

Circular Curves

Circular curves will be defined by the chord definition of curvature. Track curvature will be compliant with the host railroad. Any existing curves will be improved to the extent possible within the constraints of the Corridor. Horizontal curvature will be adjusted between parallel tracks to accommodate additional horizontal clearance where possible.

Generally, turnouts will be placed outside of a horizontal curve in accordance with minimum tangent lengths. Single radius horizontal curves with transition spiral curves are preferred. The utilization of compound circular curves and circular curves joined by a transitional spiral will be minimized within the Project limits. Existing curves of these nature will be evaluated for the application of a single circular curve with transitional spiral curves.

Spiral Transition Curves

A clothoid spiral transition curve will be used on mainline tracks to connect tangents to circular curves. Curves associated with a turnout that connect the tangent from frog to a parallel track, or siding, are excluded from transitional spirals. Spirals will be designed to meet or exceed the existing spiral criteria, spirals that do not meet CSXT's requirements will require a design exception and formal approval from the host railroad.

The graphical configuration and components are reflected in **Figure 2-2** and **Table2-3.**

Figure 2-2 | Circular Curve with Spiral Transition

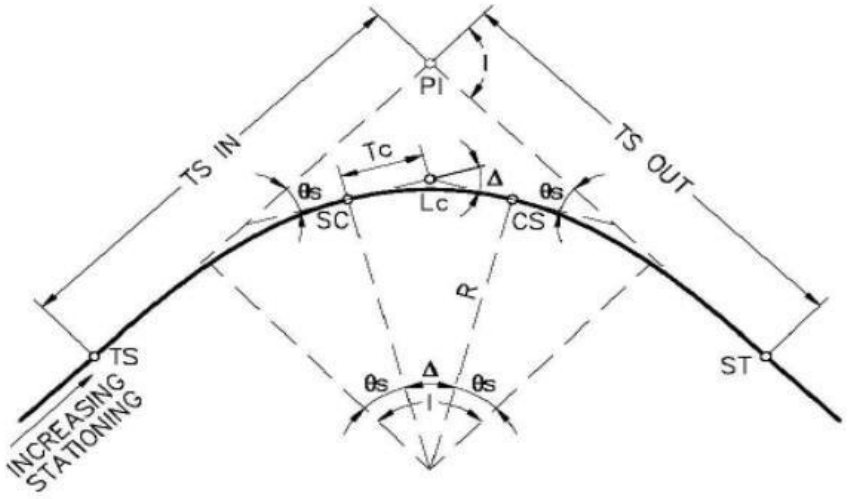


Table 2-3 | Degree of Curvature

D_C	Degree of Curvature
I	Total Intersection Angle
ΘS	Spiral Angle = (L_s D_c) / 200
Δ	Central Angle of Circular Curve = I - 2 Θ_S
R	Radius of Circular Curve
T_C	Tangent Length of Circular Curve = R Tan (Δ/ 2)
L_C	Length of Circular Curve = (Δ/ 180) R
L_S	Length of Spiral
TS	Tangent to Spiral
SC	Spiral to Curve
CS	Curve to Spiral
ST	Spiral to Tangent

All mainline track will be configured with a length of spiral preferred by passenger services for passenger comfort. The length of spiral will be based on the desirable length of spiral stated in AREMA MRE Chapter 5, Section 3.1 formula, as the longest distance as determined from the following formulas:

1. $L_s = 1.63E_uV$; or $L_s = 1.22E_uV$*
2. $L_s = 1.2E_aV$

* Spiral length $L_s = 1.22E_uV$ requires approval in accordance with Chapter 5 of AREMA MRE.

Where: E_u = unbalanced superelevation

E_a = actual superelevation applied to the curve, inches
V = passenger train design speed, mph

The calculated length of spiral will require approval by the host railroad in accordance with Section 8. The desirable lengths of spiral will be reflected in 31 feet intervals.

For passenger train operations, the active total length of spiral in feet shall be defined by the following formula:

$$Ls = 1.46\ Vt$$

Where V is the speed in mph; t is the time required to tilt (in seconds); and Ls is rounded to the nearest 100 feet (but not less than 100 feet).

Acknowledging the Project Corridor has a variety of constraints, including the availability of property, historic districts, monumental districts, environmental features, commercial development, and existing retaining walls, the absolute minimum length of spiral will be based on CSXT Plan 2511 and VRE and Amtrak Recommendations for passenger comfort (see **Appendix A**).

2.7. Vertical Geometry

Vertical geometry will be based on the top of the low rail. Track profile will reflect the existing rail elevation where possible. Due to the limitation of topographic information, the existing vertical alignments developed during concept engineering are reflective of the existing ground line without adjustments for rail height. These assumed alignments are to be revised with improved topographic survey information. Vertical elevations will be modified to obtain waterway and roadway clearances with all associated structural improvements.

Concept vertical geometry will be reflective of all tracks within the profile unless otherwise noted on the profile. Individual track profiles are to be developed during continued phases of the Project. Turnouts and switches are to be placed outside the limits of the vertical curve in accordance with minimum tangent lengths displayed in **Table 2-2**.

2.7.1. Grades

Track grades reflected with the vertical geometry will represent the effective grade of the track. All track grades will be evaluated in accordance with AREMA compensated gradients. The compensation factor will be 0.04 percent per horizontal degree of curvature. Compensated gradients are not to exceed 1.25 percent for new construction without formal approval and an accepted design exception from the host railroad. Any deviation shall be subject to review and acceptance of the operating railroad with a design exception process requirement.

For mainline track, the desired length of constant track grade between vertical curves will be the greater of either 100 feet or the result of the following formula:

$$L = 3V$$

Where:
L = minimum tangent length, feet
V = freight design speed in the area, mph

2.7.2. Vertical Curvature

All changes in track grades will be connected with a parabolic curve in accordance with AREMA MRE, Chapter 5, Section 3.6. Mainline tracks will utilize the following equation for both crest and sag curves.

$$L = \frac{2.15(D \times V^2)}{A}$$

Where:

L = length of vertical curve, feet (rounded up to the next 10 feet, minimum length of 100 feet)

D = Absolute value of the algebraic difference in rates of grades (expressed as a decimal)

V = Speed of freight train, mph

A = vertical acceleration, ft/sec/sec (ft/sec^2)

The recommended vertical accelerations (A) for passenger and freight trains for both crest and sag curve are as follows (**Table 2-4**):

Table 2-4 | Recommended Vertical Acceleration

TRAIN TYPE	ACCELERATION (FT / SEC^2)
PASSENGER TRAIN	0.60
FREIGHT TRAIN	0.10

The longest vertical curve length resulting from the vertical accelerations will be applied to the track profile. Vertical lengths will be rounded to the next 10 feet with a minimum length of 100 feet. Special track work must be in accordance with minimum tangent lengths displayed in **Table 2-2**.

2.8. Clearances

Railroad clearances refer to the recommended minimum separation between tracks in both a horizontal and vertical component. Horizontal clearances are references from the track centers to obstructions on either side of the track. Vertical clearances are referenced from the top of rail to the vertical obstruction. In track conditions with superelevation, the vertical clearance is referenced from the high rail.

Railroad clearance standards are defined by CSXT's Standard Plans 2604 and 2605 (see **Appendix A**). These clearances are applicable to all new construction or design; including temporary construction or design.

On tracks to be owned and maintained by CSXT, the lateral or horizontal clearance (distance between the track centerline and closest horizontal obstruction) shall meet or be greater than CSXT's standard clearance of 18 feet. For obstructions that are buildings normally occupied by people or that support a bridge, the lateral track distance shall be 25 feet unless protected by a crash wall. Horizontal clearances must be shown from the centerline of track to the nearest obstruction if within 25 feet of the centerline

of any track. Superelevation shall be taken into account when determining the horizontal clearance. New tracks with horizontal clearance less than 9 feet to any obstruction (other than buildings or bridge supports where it is 25 ft.) will require design exceptions and formal approval by CSXT. The justification must include explanation of the extenuating circumstance, limits of the standard deviation (exception), implications of not complying with the CSXT standard, and recommended infrastructure or installations to mitigate the impacts associated with the proposed exception.

DCMR, Title 24. Public Space and Safety, Chapter 24-31. Occupational Safety: Railroad Clearances specifies minimum clearances for use in the District although the CSXT minimums are more restrictive. District limits may become relevant if CSXT grants exceptions to their standards. Design criteria shall be satisfied to the approval of DDOT and the Federal Agency having jurisdiction. Virginia has no regulations affecting railroad clearances.

See **Table 2-5** for minimum clearances. Deviations from these values will be in accordance with Section 8 of this BOD.

Table 2-5 | Minimum Clearances

CLEARANCE TYPE	CSXT MINIMUM	DCMR
LATERAL CLEARANCE, GENERAL	**9'-0"**	**8'-0"**
LATERAL CLEARANCE, PIERS AND ABUTMENTS, WITHOUT CRASH WALL	**25'-0"**	**N/A**
SIGNALS AND POLES	**8'-6" minimum**	**10-6" DESIRED**
OVERHEAD	**23'-0"**	**22'-0"**

Vertical roadway clearances are determined using the limited topographical information and track structure design assumptions, as well as design criteria per CSXT's *2017 Public Project Information Manual*. Any deviation from the standards will be subject to review and approval of a formal design exception. The track structure height is determined using the structure depths combined with the following criteria:

Table 2-6 | Track Item Depths

Track Item	Height (ft)
Waterproofing and deck protection	0.10
Ballast	1.00
Conc. Tie + rail seat pad	0.76
Rail (136 RE)	0.61

For new structures, vertical clearance from a horizontal plane at the top of the high rail to the nearest overhead obstruction shall have at least 24'-3" vertical clearance to accommodate potential future electrification of the Corridor. Power lines shall be a minimum of 27'-0" above the plane of the top of rails and the distance shall be increased for higher voltages per the National Electrical Safety Code (NESC).

2.8.1. Bridges

CSXT's *Public Projects Information Manual* provides the minimum requirements for overhead bridges. The manual establishes the expectations for maintaining safe and continuous passage of all rail traffic during and after bridge maintenance, rehabilitation or new construction. CSXT and the AHJ over the bridge have approval authority for construction plans, construction methodology, and clearance requirements.

In addition to CSXT requirements, the AHJ may have increased horizontal clearance requirements. The horizontal clearance of pier or abutments must meet or exceed the existing horizontal clearance with 25 feet from track centerline preferred. Clearances less than 25 will require a design exception. Structural features within 25 feet of track center must be protected with a crashwall compliant with AREMA MRE Chapter 8, Part 2, Section 2.1.5, VDOT Volume V, Part 2, File No. 06.06, or DDOT Design and Engineering Manual.

Structural inspections, bridge evaluations, and load ratings are conducted regularly by CSXT, VDOT, DDOT, and other bridge owners in accordance with federal and state requirements. Concept development and preliminary engineering for the Long Bridge Project are to be based on a review of existing bridge plans, inspection reports or information made available by the owner.

2.9. Roadbed Section

Track roadbed criteria will be compliant with CSXT Plan 2601 (see **Appendix A**). The following general criteria is applicable to the track's roadbed section. Any discrepancy between criteria and standards shall be approved by DDOT, CSXT, and other federal and local agencies having jurisdictions and compliance to the NEPA documents.

2.9.1. Ballast Depth

The ballast depth will extend not less than 12 inches below the lowest point of a timber or concrete tie to the track subballast for the full length of the tie and shoulders. Ballast depths are to increase proportionally for the full length of the tie in relationship to the track superelevation. All ballast materials are to be compliant with CSXT specifications and originate from a CSXT approved quarry.

2.9.2. Subballast Depth

Subballast depth will be a minimum of 6 inches below the ballast on mainline tracks and sidings. Subballast is to conform with CSXT specifications and is not required on ballast deck bridges.

2.9.3. Shoulder Width

Ballast shoulder width will extend beyond the end of the tie in accordance with CSXT Plan 2602 (see **Appendix A**).

2.10. Special Trackwork

Special trackwork refers to trackwork units that are used for tracks to converge, diverge, or cross each other through turnouts, and crossovers. On tracks to be owned and maintained by CSXT, all special trackwork will be designed according to CSXT standard drawings or to pre-approved standard CSXT supplier drawings.

2.10.1. Speeds Through Turnouts and Crossovers

On tracks to be owned and maintained by CSXT, passenger and freight speeds for turnouts and crossovers are governed by CSXT operating rules including CSXT signal aspects and current CSXT engineering standards. **Table 2-6** shows the speeds for the turnouts and crossovers that are expected as part of the Long Bridge Project. However, a speed less than those shown may be warranted based on the nearby track geometry and final railroad signal design and will be reevaluated by CSXT during the final design phase.

Table 2-7 | Turnout Diverging Speeds

TURNOUT DATA	SWITCH LENGTH & TYPE	PASSENGER (MPH)	FREIGHT (MPH)
#15	26'–0" Curved	30	30
#20	39'–0" CURVED	45	45

2.10.2. Turnouts and Crossovers

On tracks to be owned and maintained by CSXT, all turnouts and crossovers will be Nos. 15 or 20 according with CSXT standard drawings or pre-approved CSXT supplier drawings.

- All turnouts, including those within a crossover, are intended to be constructed of new 136-RE CWR and concrete ties. Turnouts incorporated into existing timber track or industrial sidings are to be constructed of new 136-RE CWR and timber ties. Turnout components, including switch points, stock rails, closure rails, guard rails, and frog wing rails are to be fabricated from new, high strength HH rail.
- 100 feet minimum from PS to the edge of road crossings (including sidewalks)
- 50 feet minimum from PS to Insulated Joint
- Crossovers are to be located in parallel tracks only
- Standard crossovers are preferred to be on 15-feet track centers

The application of non-standard turnouts and crossovers, such as equilateral turnouts, require approval in accordance with Section 8. The following situation may warrant non-standard turnouts and crossovers:

- Crossovers in non-parallel tracks
- Crossovers with track centers less than 15 feet
- Crossovers with track centers more than 25 feet

2.11. Track Gauge

The standard track gauge is 4 feet 8 1/2 inches. Track gauge is measured between the gauge sides of the heads of rails at 5/8 inch below the top of rails.

2.12. Rail

On tracks to be owned and maintained by CSXT, the rail section to be used will be new 136RE Continuous Welded Rail (CWR) per CSXT standards. Premium rail may be required according with CSXT engineering standards depending on final track geometry alignments, including curvature and expected traffic.

2.13. Rail Anchoring

Rail anchors are to be applied on conventional ballasted track construction utilizing timber ties, tie plates, and track spikes. Current CSXT standards establish the applicable details. Rail anchors are not used with concrete ties.

2.14. Tie Plates

On tracks to be owned and maintained by CSXT, tie plates and fasteners shall comply with CSXT standards, and be subject to CSXT approval.

2.15. Ties

2.15.1. Concrete Ties

All new mainline track, turnouts, and crossovers construction is intended to utilize concrete ties. The following criteria is applicable:

- Concrete tie spacing is 20 inches, center of tie to center of tie, except as noted in CSXT Plans for special trackwork.
- Concrete ties are to be compliant with the type and material specification of CSXT.

2.15.2. Timber Ties

The application of timber ties is at the discretion of CSXT. Timber ties are to compliant with current CSXT standards and achieve the following criteria:

Table 2-8 | Timber Tie Dimensions

Length	8.5 feet
Height	7 inches
Width	9 inches

The maximum center of tie to center of tie spacing is 20 inches; the minimum is 18 inches.

2.16. Signals and Communications

The project delivery Contract will coordinate directly with CSXT to develop conceptual and preliminary signals and communications (S&C) designs and agreements. This separate design contract will run concurrently and share a similar timeline with the Long Bridge Project consultant team contract and work efforts. The consultant team will incorporate the S&C design information into the Long Bridge Project as appropriate and will coordinate directly with CSXT and DDOT throughout the Project.

On tracks to be owned and maintained by CSXT, CSXT will prepare preliminary and final S&C designs pursuant its existing system design standards, operating rules, and standard signal aspects. Signal route and aspect charts, including proposed design speeds, will be provided by CSXT for review by FRA.

3.0 Roadway

Roadway design are to be compliant with the AHJ. In Virginia, roadway designs are to comply with standard procedures, practices, and specifications of either Arlington County or VDOT. Within the District, roadway designs and approval are to be compliant with the procedures, practices and specifications of DDOT, FHWA, NPS, DOEE, DC-SHPO, the Commission of Fine Arts (CFA), and the National Capital Planning Commission (NCPC) and other agencies with approval authority.

3.1. Definitions

All definitions used in this document are in accordance with those used in DDOT, VDOT, FHWA, and AASHTO references.

3.2. Safety

Roadway design intentions are to provide a safe and reliable roadway infrastructure attaining the highest level of service within the physical and economical Project constraints. Design goals will be to apply the standard roadway design criteria. Designers are to provide justification for any physical, environmental, or economic constraints preventing standard criteria. Standard criteria deviations are to be collaborated with the AHJ, and approved by the AHJ, prior to implementing minimum criteria.

The host railroad (CSXT) reserves the rights to review, approve, deny, and/or issue a permit for all improvements either passing over or under the rail Corridor. Roadway designers are encouraged to be attentive to rail operation safety, traveling public safety, and the safety of the neighboring communities and commercial businesses.

3.3. Criteria

3.3.1. Roadway Standards

Roadway designs are to be compliant with the AHJ. In situations with multiple design standards or policies, the more restrictive of the design criteria will be applicable. AHJ approval is required for alternate or “minimum” design criteria prior to application. In the absence of a design criteria standards, the designs are to be applicable to the AASHTO *Policy on Geometric Design of Highways and Streets, 6th Edition, 2011*.

3.3.2. Design Content

The design content is to be compliant with the AHJ. The following roadway design elements are expected for all designs based on the design stage:

- Layout (Reflecting existing topographic features and proposed features)
- Right-of-way
- Typical Sections
- Traffic signing, lighting, and striping
- Horizontal and vertical alignments
- Vertical profile of primary roadway and relevant connecting roadways

- Drainage structures and networks
- Existing and proposed structural improvements (bridges and retaining walls)
- Utility conflicts/relocations
- Cross-sections (50-foot intervals and critical locations)
- Construction phasing and maintenance of traffic during construction

3.3.3. Pedestrian/Bike Paths/Trails

All bicycle/pedestrian paths/trails parallel to the rail Corridor are subject to the review and approval of the host railroad. A bicycle/pedestrian connection is being evaluated as a potential mitigation component of the Long Bridge Project and design criteria will be detailed separately from this Basis of Design.

In accordance with the CSXT *Public Projects Information Manual*, all bicycle/pedestrian paths/trails requiring to cross the Corridor are to be grade-separated. Crossing criteria will be compliant with the AHJ. Any barriers (including fences, wall, or other restrictive design options to prevent public access to the tracks) are to be located outside the host railroad ROW. Any deviations will come at the discretion of the host railroad.

4.0 Drainage, Hydrology, and Hydraulics

Drainage, hydrology, and hydraulic designs are expected to be developed at various Project phases, vary with required information, and be compliant with the AHJ. Designs developed during preliminary engineering are to be developed to an adequate level to effectively evaluate the impacts of the proposed improvements on the Potomac River, jurisdictional stormwater management requirements, ROW implications, and ascertain Project cost. Designs are expected to be completed during Final design and permitting phases to validate preliminary design assumptions and obtain the jurisdictional approval.

Hydrologic and hydraulic floodway analysis for the substructure requirements associated with Long Bridge are to be in compliance with 44 CFR 60.3(c)(10), unless state or local jurisdictions have a more stringent floodplain management criteria. All proposed improvements are expected to have no increase in the established FEMA floodplain boundaries.

Since the Long Bridge Project intends to utilize federal funds, the Project must comply with federal environmental requirements. In addition, drainage, hydrology, and hydraulic designs are expected to be compliant with any more restrictive requirements of the AHJ. Railroad drainage areas are to be designed in accordance with the host railroad's standards and specifications and/or AREMA MRE. Likewise, all other drainage areas are to be compliant with the applicable AHJ.

Railroad ditch dimensions will be compliant with CSXT Plan 2601 to the extent possible based on physical or environmental constraints. Culverts conveying water under the tracks are to be adequately designed to avoid impounding water at the inlet to avoid either impacts adjacent to properties or saturation of the track subballast based on a 100-year storm event. Drainage ditches and structures conveying railroad stormwater are preferred to be located within the host railroad ROW to facilitate maintenance.

For the Project, major drainage structures are considered as those structures equal to, or greater than, box culverts 6 feet by 6 feet or culverts greater than 6 feet in diameter. These structures are to be analyzed and sized during the preliminary engineering. All other structures are considered minor structures and represented on preliminary engineering plans. Minor structures are to be designed during the final design phase unless the structure is considered a significant contributor to the constructability of a designed portion of the Project.

5.0 Bridges and Structures

The Long Bridge Project contains a variety of structural features. These features include under-grade bridges, overhead bridges, tunnels, retaining walls, and major drainage structures. These structures will have multiple criteria from overlapping AHJ. In the situation of similar criteria, the more restrictive criteria will have precedence. Minimum horizontal and vertical clearance shall match or exceed existing conditions and will be discussed with each bridge and roadway owner prior to advancing preliminary engineering. Existing and proposed vertical clearances are clearly defined in the conceptual engineering plans.

In general, all structures, including retaining walls, within the host railroad ROW are to be compliant with the practices of the host railroad (CSXT). Designs are to adhere to the requirements of the latest version of *CSXT Criteria for Overhead Bridges*, *CSXT Criteria for Ballast Deck Railroad Bridges*, and AREMA criteria. Overhead bridges for roadways and paths are subject to the applicable AHJ criteria. A risk-based design approach, including a cost-benefit relation analysis, shall be considered when selecting the appropriate seismic loading design criteria to be reviewed approved by the AHJ.

All structural construction phasing is to be based on maintaining train operations on two tracks and uninterrupted roadway circulation during construction. Temporary outage of tracks and roadway is permissible with approval from host railroad and AHJs, respectfully. Additional consideration shall be made to the existing foundations of the Long Bridge. Adequate separation is to be provided to construct a new bridge without influencing the existing bridges or tunnel per the WMATA *Adjacent Construction Project Manual*, including the existing WMATA Yellow Line bridge and tunnel.

Any new structures located over the Potomac River are subject to meeting the navigational requirements for the area set by the United States Coast Guard. Additional information provided in the *Long Bridge Project EIS Navigational Study.*

6.0 Right-of-Way

The graphical representation of the Right-of-Way (ROW) will be developed utilizing publicly available information and confirmed against the ROW information obtained from the Long Bridge Study Phase 1 Final report. Additional survey information in Arlington County, Virginia and within the District have also been obtained and surface contours developed for the surrounding Long Bridge Corridor. All survey information obtained will be used to verify the existing elevations and ROW information. The existing ROW limits will be obtained from the following sources:

- Washington DC Atlas and Recorder of Deeds GIS Database;
- DDOT ROW Section; and
- Department of Consumer and Regulatory Affairs Office of the DC Surveyor.

ROW impacts limits are to be evaluated based on the either proposed grading limits or structural features supporting the railroad and roadways. Permanent and limits of temporary easements that will be required for the construction access, phasing, staging areas, etc. are to be determined during the final design engineering phase.

7.0 Utilities

New or relocated utility crossings below the trackbed are subject to the review and approval of the host railroad, DDOT, NPS, FHWA, DC Water, and DC-DOEE. Identification of utilities shall be completed per ASCE Standard Guidelines for the Collection and Depiction of Existing Subsurface Utility Data (Level C); DC Water, DDOT, NPS, and FHWA utility guidelines and manuals. All designs are to be compliant with the latest versions of *CSXT Public Projects Information Manual, CSXT Design & Construction Standard Specifications for Pipeline Occupancies, CSXT Design & Construction Standard Specifications for Wireline Occupancies,* and Chapter 1, Part 5 of AREMA MRE. In addition to the standard practices and specifications of the utility service, the more conservative of the following practices are to be applicable unless approved otherwise by the host railroad:

- Use protective casing pipe for all utility line crossings beneath main line tracks;
- Casing pipe can be omitted for non-pressure sewer located in branch or industrial line tracks with approval of host railroad;
- Casing pipe and joints shall be leak proof and capable of withstanding a minimum railway load of Cooper E-90; or
- Steel casing shall have minimum yield strength of 35,000 PSI.

8.0 Approvals and Design Exceptions

The designer is expected to adhere to the practices and criteria specified in the BOD. DDOT and FRA recognize the potential for deviations to the technical criteria presented in the BOD. These deviations may be necessary for avoidance of environmental constraints and physical constraints. These changes must be approved by the AHJ prior to implementing the criteria change.

All design exceptions are to be submitted by the design team in writing to DDOT and FRA for distribution to the AHJ. Each variation request will be logged for tracking and distributed to the appropriate AHJ for consideration. Those stakeholders having jurisdiction will provide a written response to the variance request.

The designer is requested to provide adequate information for the exception. Adequate information includes, but is not limited to:

- Applicable BOD section;
- Implications of applying BOD criteria;
- Rationale and justification for the request and the location(s) and/or length where the exception may apply
- Benefits of exception;
- Graphical representation through plan/profile/typical section;
- Order-of-Magnitude cost estimate reflecting increases or savings;
- Identification of exception with regard to the minimum standard and its relevance to the desirable standard;
- Identification of effects of the exception to the freight and intercity passenger rail system operations and maintenance, if any, and appropriate potential mitigation measures;
- Supporting documentation, including a description of the specific design element and the applicable criteria; and
- Professional engineer signature and seal of the design engineer of record.
- Elements proposed to be constructed or installed to mitigate the risks associated with not constructing the items to applicable standards and that warrant a requested for an exception.

The AHJ reserves the right to request additional information to understand the implications of the variance.

APPENDIX:

CSXT *Public Projects Information Manual* (Rev. July 2017)

CSXT *Design & Construction Standard Specifications – Pipeline Occupancies* (Rev. June 5, 2018)

CSXT *Design & Construction Standard Specifications for the Design and Construction of Private Sidetracks* (September 15, 2016)

FRA *Railroad Corridor Transportation Plans Guidelines* (July 2005)

CSXT *Standard Plans* (2213-2218, 2224-2225, 2508, 2510-2511, 2516, 2521-2522, 2524, 2527, 2601-2605, 2611-2612)

CSXT MWI 703-07 Rail Anchoring Policy

CSXT Standard Clearances for Overhead Structures

WMATA *Adjacent Construction Project Manual*

Appendix D – FEIS Navigation Study

LONG BRIDGE PROJECT

Connecting North and South Through our Nation's Capita

Long Bridge Capacity Expansion Project

Navigation Study

August 2, 2019

District Department of Transportation

U.S. Department of Transportation
Federal Railroad Administration

Long Bridge Capacity Expansion Project

Navigation Study

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Glossary

List of terms found in the Navigation Study.

Depth: The distance from the surface of the water to the riverbed.

14th Street Bridge Complex: A collection of five bridges in close proximity, crossing the west bank of the Potomac River near Long Bridge Park and the George Washington Memorial Parkway in Arlington, Virginia to the east bank at East Potomac Park in the District. The Complex includes three highway bridges (George Mason Memorial Bridge, Rochambeau Memorial Bridge, and Arland D. Williams Jr. Memorial Bridge), one Metrorail bridge (Charles R. Fenwick Bridge), and one railroad bridge (Long Bridge).

Horizontal Clearance: The lateral distance between bridge piers.

Mean High Water: The average of the high water tidal heights observed.

Mean Low Water: The average of the low water tidal heights observed.

Navigation Channel: A passage in a stretch of water where the sea or riverbed has been deepened to allow access to large vessels.

Scour: The removal of sediment by hydrodynamic forces from around bridge abutments or piers where water flows are normally increased.

Sounding: The action or process of measuring the depth of the sea or other body of water.

Vertical Clearance: The vertical drop distance from the bottom of the bridge overpass structure down to the water surface beneath the bridge span.

1.0 Introduction

The Federal Railroad Administration (FRA) is working jointly with the District Department of Transportation (DDOT) on the Long Bridge Capacity Enhancement Project (the "Project") over the Potomac River, which has been underway since 2017. FRA and DDOT are leading the planning of the Project in cooperation with the Virginia Department of Rail and Public Transportation (DRPT) who will be the construction sponsor for the Project.

FRA and DDOT are studying an additional and separate bridge crossing north of the existing Long Bridge railroad bridge (located at River mile 109.8) over the Potomac River and related railroad infrastructure located within the 14th Street Bridge complex of highway and transit bridge crossings in the District of Columbia.[1] The purpose of this report is present information related to the Project, and present and future navigation in the Potomac River with the proposed Project, to support a formal Preliminary Determination of Navigation Clearance from the United States Coast Guard (USCG).

1.1. Project Purpose, Description and Study Method

FRA and DDOT are proponents for the Project, which is intended to increase the number of railroad tracks that cross the Potomac River from the two-track bridge that has existed at River mile 109.8 since 1904. The purpose of the Project is to provide additional long-term railroad capacity and to improve the reliability of railroad service through the Long Bridge Corridor.[2] Train volumes are projected to increase as shown in **Table 1-1.** The Project would provide the capacity to accommodate this projected growth.

Table 1-1 | Current and Projected Train Volumes

Train Operator	Current # Trains per Day	2040 # Trains per Day	Percent Increase
VRE	34	92	171%
MARC	0	8	New
Amtrak/DC2RVA	24	44	83%
CSXT	18	42	133%
Norfolk Southern	0	6	New
TOTAL	**76**	**192**	**153%**

[1] The proper name of RO Interlocking is "RO." It is not an acronym.

[2] Railroad reliability is the continuity of correct service. Reliability can be divided into two related concepts, regularity and punctuality. Regularity is the variation in headways, while punctuality relates to the deviation from the scheduled arrival and departure times. Service reliability is a key factor affecting the traveling public's choice of transportation mode and in efficient, cost-effective transportation of freight.

Multiple bridges are under design over the Potomac River, north of the existing Long Bridge. Two options for a new Potomac River railroad bridge crossing are being examined: Action Alternative A - Keep the existing Long Bridge and construct a separate two-track railroad bridge north of the existing Long Bridge structure at River mile 109.81; and Action Alternative B - Replace the existing Long Bridge with a new two track railroad bridge at river mile 109.8 and construct a separate two-track railroad bridge north of the proposed replacement bridge at River mile 109.81. The Project also includes a new pedestrian and bicycle bridge at River mile 109.82. The locations and proposed clearances for the bridges are provided in **Table 1-2**.

Table 1-2 | Proposed Bridges

Proposed Project Action Alternatives Railroad Bridges	
***Action Alternative A**	**Action Alternative B**
River mile 109.8: Keep Existing Long Bridge two-track railroad bridge **River mile 109.81:** Construct new, separate two – track railroad bridge **Proposed Navigational Clearance:** 20-feet (new bridge) **Proposed Horizontal Navigational Clearance**: 100-feet (new and old bridges)	**River mile 109.8:** Replace existing Long Bridge two-track railroad bridge with new two-track railroad bridge **River mile 109.81:** Construct new, separate two-track railroad bridge **Proposed Navigational Clearance:** 20-feet **Proposed Horizontal Navigational Clearance:** 100-feet
Proposed Bike-Pedestrian Bridge	
River mile 109.82: Construct new, separate bike-pedestrian bridge **Proposed Navigational Clearance:** 20-feet **Proposed Horizontal Navigational Clearance:** 100-feet	

***Action Alternative A is the preferred design for the Project.**

Action Alternative A is the preferred Project alternative. The vertical clearance would be the same under each alternative, however Action Alternative A would not replace the existing bridge. The horizontal clearance space for the navigation channel for all proposed project bridges is 100 feet, drawings depicting the clearances for both bridges are located in **Appendix A**. **Figure 1-1** depicts the location of the Project and **Figures 1-2** and **1-3** show the proposed configuration of Project bridges.

Data and information for the Long Bridge Navigation Study were collected through:

- Discussions with local marinas and boat owners (Refer to Appendix B: Records of Communication);
- Contacting commercial operators that utilize the waterways Refer to Appendix B: Records of Communication and Appendix C: Records of Outreach);
- Feedback received from Mariners about the project through five public meetings; and
- A review of available existing plans and drawings.

1.2. Study Area for the Long Bridge Project Navigation Study

The Study Area for the Long Bridge Project Navigation Study is shown in **Figure 1-1**. The overall Long Bridge Project Study Area is shown as an inset. The northernmost point of the Navigation Study Area is the Three Sisters Islands geological feature within the Potomac River, north of the Francis Scott Key Bridge. The Study Area encompasses the Potomac River south to Belle Haven Marina in Virginia and the Anacostia River to just east of the 11th Street Bridge. Large vessels generally cannot navigate upstream of the Three Sisters Islands and the 11th Street Bridge, due to the narrowing of the rivers and shallow depths. Belle Haven Marina is approximately seven miles south of the Long Bridge, to the south of the Woodrow Wilson Bridge.

Figure 1-1 | Long Bridge Navigation Study Area Map and Proposed Project Bridges

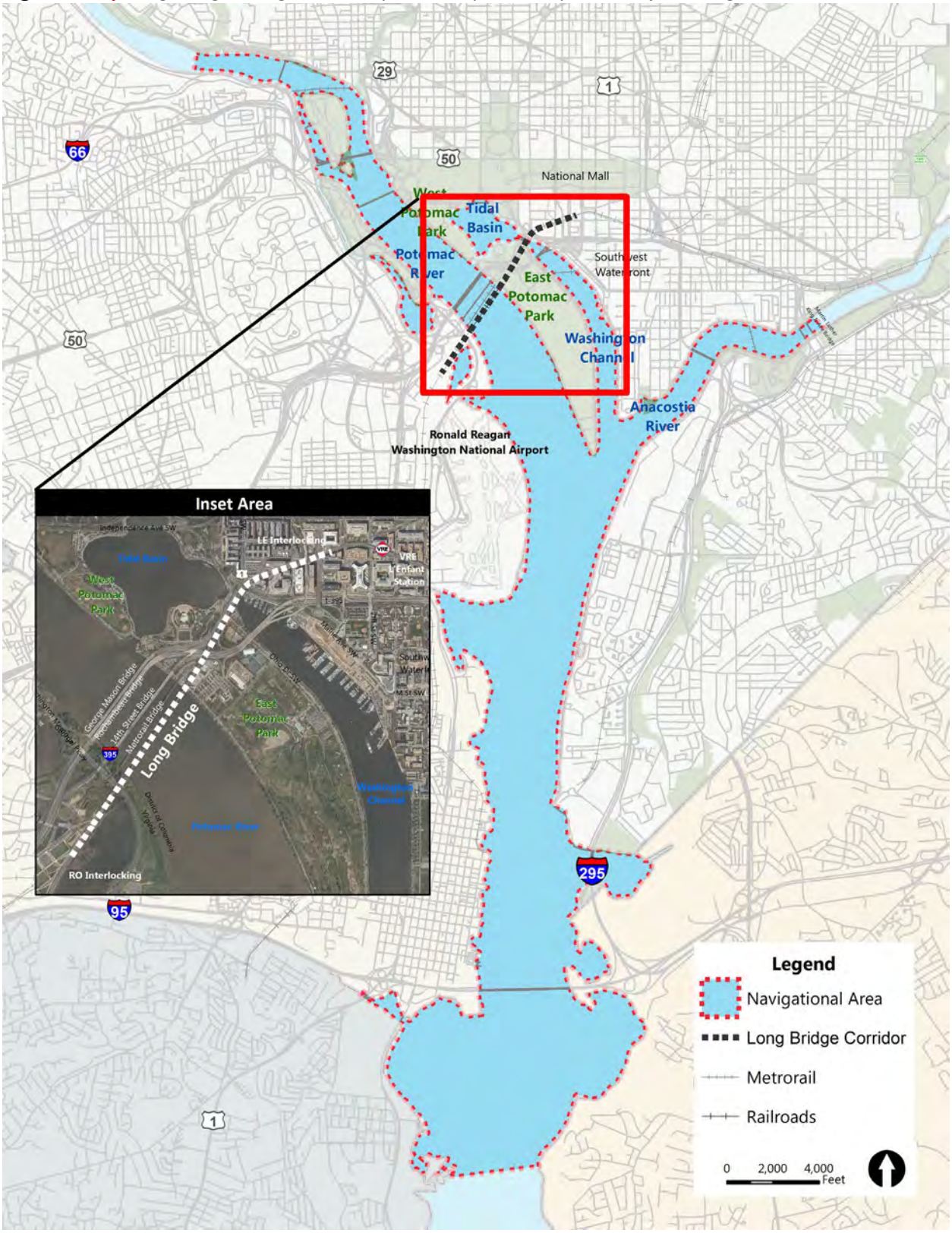


Figure 1-2 | Action Alternatives

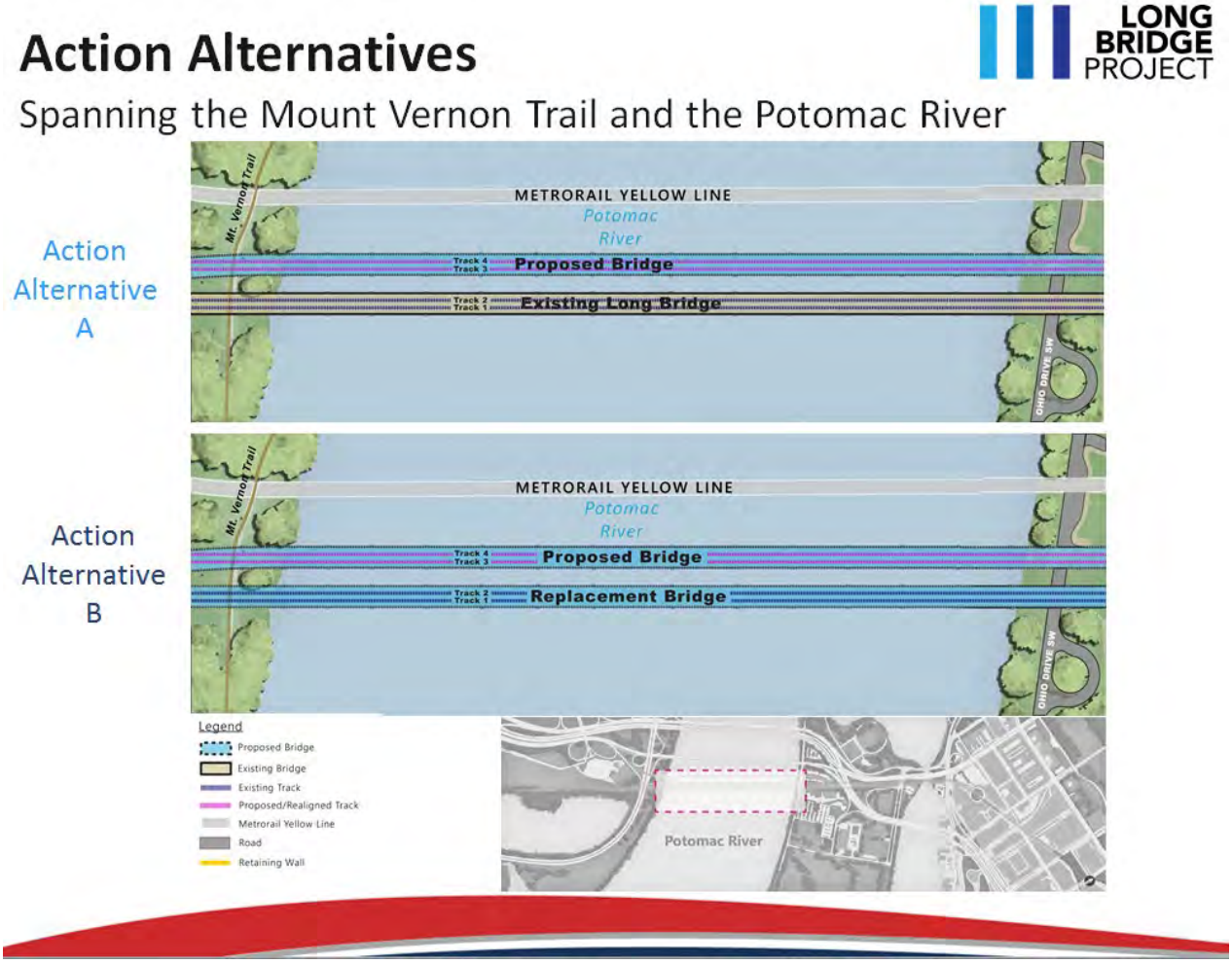
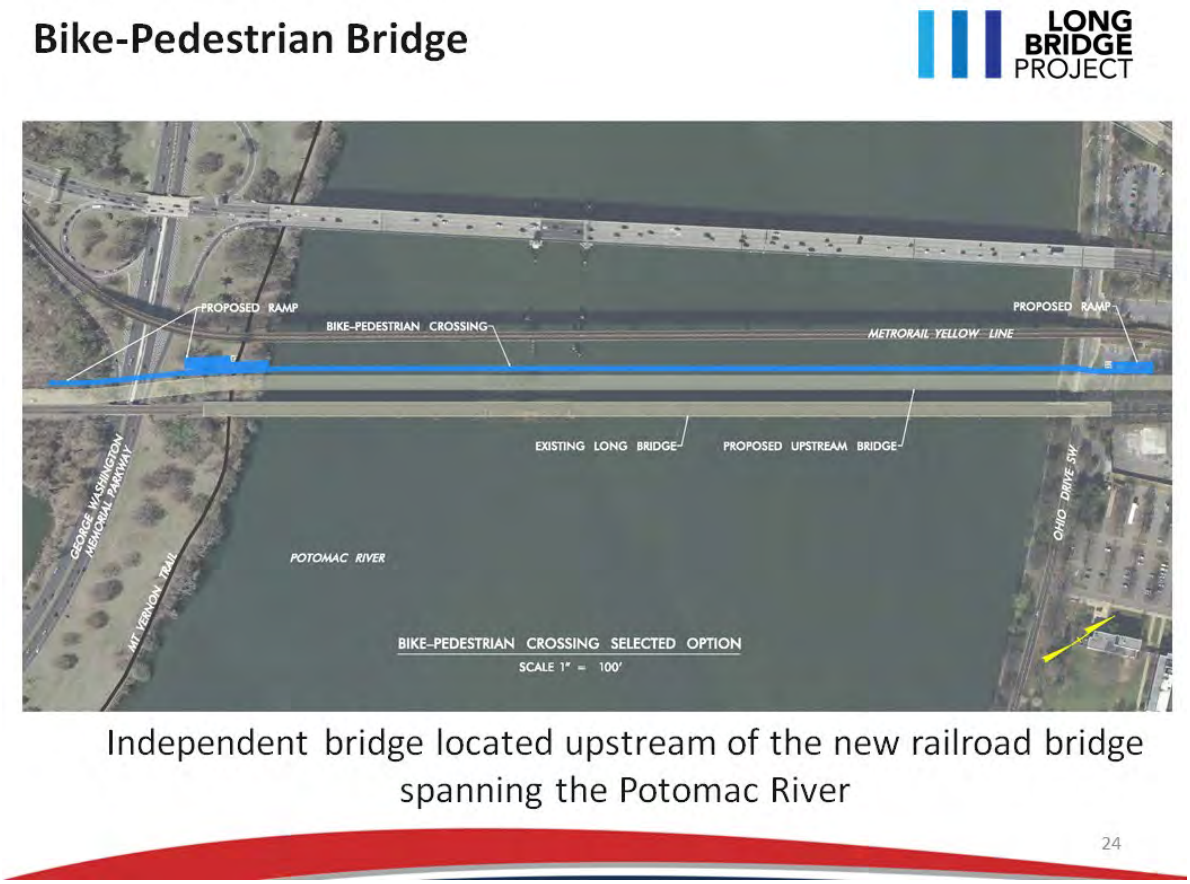


Figure 1-3 | Bike-Pedestrian Bridge (in blue)



2.0 Existing Structure Information

The Long Bridge is one of five bridges that span the Potomac River in the 14th Street complex of bridges between the Commonwealth of Virginia and the District of Columbia. All five bridges are located between River miles 109.8 and 111.0. All bridges listed below are fixed structures.

The five bridges in the 14th Street bridge complex and their location are listed below.

- Long Bridge (River mile 109.8)
- Charles R. Fenwick Bridge (River mile 109.85)
- Arland D. Williams, Junior. Bridge (River mile 109.9)
- Rochambeau Memorial Bridge (River mile 109.98)
- George Mason Memorial Bridge (River mile 110.0)[3]

A brief history and orientation about the past use of movable spans (drawbridges) in the 14th Street complex of bridges over the Potomac River and additional detail for Long Bridge follows.

Potomac River Movable Draw Bridge History

All bridges that are located on the Potomac River within the Project Area and navigable waterway are currently fixed spans of various structure types. Three bridges in the Project Area were constructed as draw bridges, but were fixed over the navigation channel after July 1962. As published in the Federal Register on July 28, 1962, "Pursuant to the provisions of Section 5 of the River and Harbor Act of 1894 (28 Stat. 362; 33 U.S.C. 499), §203.325 governing the operation of drawbridges across the Potomac River at Washington, D.C. is hereby amended in its entirety to permit the drawbridge to remain in a closed position…as follows: "The draws of the bridges need not be opened for the passage of vessels." [4] [5]

Three of the four drawbridges still exist that crossed the Potomac River at that time: Arlington Memorial Bridge (River mile 111.0), Arland D. Williams, Junior Bridge (River mile 110.0, formerly known as the new 14th Street Highway Bridge), and Long Bridge (River mile 109.8, formerly known as the Pennsylvania Railroad Bridge). After the close regulation was established, the operating infrastructure for the drawbridges was removed by the owners and operators. Long Bridge and the other draw bridges over the Potomac River were set in the fixed position and no longer have the proper infrastructure to open for additional navigation clearance.

Prior to the July 1962 close regulation and when bridges were closed to marine traffic, the Long Bridge structure was the lowest bridge structure for more than 61 years. During this period when the navigational channel was accessible for taller vessels through draw bridge access, regulations existed to

[3] The River miles are based on information found in Exhibit B, and are approximate estimates on River Mile locations for: Charles R. Fenwick Bridge, Rochambeau Memorial Bridge, and George Mason Memorial Bridge.

[4] "Title 33 – Navigation and Navigable Waters: Part 203 – Bridge Regulations: Potomac River at Washington, D.C." 27 Federal Register 7411 (July 28, 1962).

[5] Recorded today in 33 C.F.R 117.255

govern bridge opening and to restrict the heights of vessels that traveled through the Potomac River on a frequent basis. When taller vessels required opening of the 14th street bridge complex, they were required to give six (6) hours advance notice to the owners or agencies controlling each operable bridge. As seen in **Exhibit B**, an amendment to the regulatory order of the above referenced section 203.325 of US Army Corps regulations implementing the River and Harbor Act 28 Stat. 362; 33 U.S.C. 499, for operational requirements for Potomac River at Washington, D.C. drawbridges, is an operational regulation amendment that restricted vessel heights to 16.8' for "Habitual Boaters", as written below.

> 203.325(k) Habitual Users.
>
> Any vessel desiring to pass any of the bridges as often as once a day for 10 days in any 30-day period will be regarded as an habitual user of the waterway within the meaning of this paragraph. Such vessels should be so constructed that stacks, masts, and flagstaffs may be lowered to permit their passage under the closed bridge. The draws shall not be required to open to permit passage of vessels habitually using waterways which have stacks, masts, or flagstaffs exceeding a height of 16.8 feet above the water line, and which, in the opinion of the District Engineer, can through structural modifications, be made capable of clearing the closed bridges.

The 16.8 feet vessel restriction, while no longer actively enforced by a Harbor Master, is still true of the vessels that pass underneath the bridges in the Project limits today; Long Bridge has been the limiting navigation clearance factor for vessel passage in the Potomac River for 115 years. The height restriction that was enforced prior to 1962 and the existing 18' mean high water vertical clearance under the now fixed swing truss of Long Bridge.

Long Bridge Structure

The current Long Bridge was constructed in 1904 over the Potomac River is a two-track railroad bridge, located at River mile 109.8. The bridge is owned and maintained by CSX Transportation (CSXT) and carries railroad traffic operated by CSXT, Amtrak, and Virginia Railway Express (VRE). The existing Long Bridge structure underwent a rehabilitation in October 2016 and is in proper condition for railroad purposes. CSXT has stated that the structure of Long Bridge is sufficient to meet the needs of their freight for the foreseeable future.

In 1942, the bridge was substantially modified to support additional weight that was required by World War II efforts. At that time, the truss spans, with the exception of the central swing truss span, were replaced with new supporting girders and new piers were placed between the original piers. The swing truss is located over the navigation channel and was fixed to a close position after 1962. The operator house and swing truss components have since been removed from the bridge, and it is no longer an operable draw bridge.

Long Bridge is comprised of 22 through girder spans and fixed a double span swivel swing truss for a total of 24 spans over the Potomac River, totaling 2,529 feet. The operational house and components of the swing span have been removed or welded shut; the bridge has operated as a fixed bridge since the 1960s. The current Long Bridge infrastructure contains elements of the 1904 bridge (the swing span and twelve piers) and of the 1942 bridge (the girder spans and eleven piers). The through girder spans vary from 85 to 108 feet in length and the swing truss span measures 280 feet in total length.[6]

2.1. Navigation Clearances

The Navigational Clearance for the Potomac River in the Project area has been dependent upon the Long Bridge since 1904; the current navigational clearance is 18'. The Long Bridge is labeled as a "fixed bridge," on NOAA Nautical Chart US12285 because of a 1962 regulation amendment that allowed the drawbridge to remain closed. As published in the Federal Register on July 28, 1962, "Pursuant to the provisions of Section 5 of the River and Harbor Act of 1894 (28 Stat. 362; 33 U.S.C. 499), §203.325 governing the operation of drawbridges across the Potomac River at Washington, D.C. is hereby amended in its entirety to permit the drawbridge to remain in a closed position…as follows: "The draws of the bridges need not be opened for the passage of vessels."[7]

Historic Bridge Clearance Information (taken from Exhibit B)

Bridges (River Mile Location)	Bridge Type	Mean Low Water	Mean High Water
Pennsylvania Railroad Bridge (now Long Bridge, River mile 109.8)	Swing	21.1'	18.2'
14th Street Highway Bridge (now Arnald D. Williams, Junior Bridge, River mile 109.9)	Bascule (Draw Bridge)	27.5'	24.6'
Arlington Memorial Bridge (River mile 111.0)	Bascule (Draw Bridge)	33.6'	30.7'

[6] District Department of Transportation. March 15, 2013. *Long Bridge Study: Bridge Design Workshop.*

[7] "Title 33 – Navigation and Navigable Waters: Part 203 – Bridge Regulations: Potomac River at Washington, D.C." 27 Federal Register 7411 (July 28, 1962).

Since its construction, the existing Long Bridge vertical clearance above mean high water has remained 18 feet at the navigation channel underneath the fixed swing truss, as shown on National Oceanic and Atmospheric Administration (NOAA) Nautical Chart US12285.[8] The historic documentation as published in the Federal Register on December 16, 1955, documented the existing bridge operations and the mean water clearances underneath the existing bridges, which were all draw bridges; the vertical clearances of the three fixed draw bridges that remain across the Potomac River are listed in the chart below and their names now are identified next to them. As built drawings of the 14th Street Bridge highway bridge Complex show navigational clearance heights (**Appendix G**).

The "Pennsylvania Railroad Bridge" is the existing Long Bridge, whose Mean Low Water was 21.1' and Mean High Water is 18.2'. The most recent documentation of the navigation channel and clearances is from the Washington Metropolitan Area Transit Authority (WMATA) As-Built Condition drawings for the L'Enfant – Pentagon (Charles R. Fenwick Bridge) Crossing (**Appendix D**), which at mean low water documented that the vertical clearance of the Long Bridge is 22 feet.

The horizontal clearance of the Long Bridge is 100 feet wide on the 1901 Long Bridge record drawings (**Appendix E**). The last opening of the swing truss occurred in 1969.[9] The Long Bridge is identified as a "fixed bridge," on NOAA Nautical Chart US12285 and does not open to allow vessels taller than the minimum clearance to navigate upstream on the Potomac River.

2.2. Navigation Channel

As shown in **Figure 2-1**, the Navigational Channel Depth in the Project area, in the 14th Street Bridge complex, ranges between 9 and 23 feet, depending on water height. The Federal navigation channel (the Virginia Channel) is maintained by the United States Army Corps of Engineers (USACE) and runs through the Potomac River underneath the fixed swing truss span of the Long Bridge and Arland D. Williams Junior Memorial Bridge, and north and south spans the other fixed bridge spans of the other bridges in the 14th Street Bridge Complex.[10] The navigational channel north of the Francis Scott Key Bridge and the Three Sisters Islands geological feature, the upper Potomac River becomes non-navigable for larger vessels as the navigable channel becomes narrow and rocky and limits the vessel operations within the Study Area (**Figure 2-2)**.

The NOAA Nautical Chart US12285 identifies the shallowest depth within the channel under the Long Bridge as approximately 11 feet, as measured at mean low water from the surface of the water to the riverbed. The USACE 2015 Condition Study took soundings at mean low water and identified navigational depths within the Virginia Channel ranging from 9 to 15 feet upstream and downstream of

[8] National Oceanic and Atmospheric Administration. 42nd Edition, August 2015. Cleared through December 30, 2017. Last correction: December 15, 2017. *Nautical Chart: US12285.*

[9] District Department of Transportation. January 2015. *Long Bridge Study.*

[10] The Washington Channel is parallel to the Virginia Channel and does not extend under the Long Bridge into the Tidal Basin.

the 14th Street Bridge Complex, as shown in **Figures 2-3** and **2-4**.[11] In areas underneath the Long Bridge, the channel reaches depths of up to 23 feet because of scour.

The horizontal width of the navigation channel varies by bridge and all Potomac River bridges are listed in **Table 2-1**; underneath the Long Bridge, the horizontal width is 100 feet. The horizontal widths of the proposed bridges in the project are consistent with the existing Long Bridge horizontal width and are also 100 feet, as depicted in **Table 2-1**.

2.3. Existing Bridges within Study Area

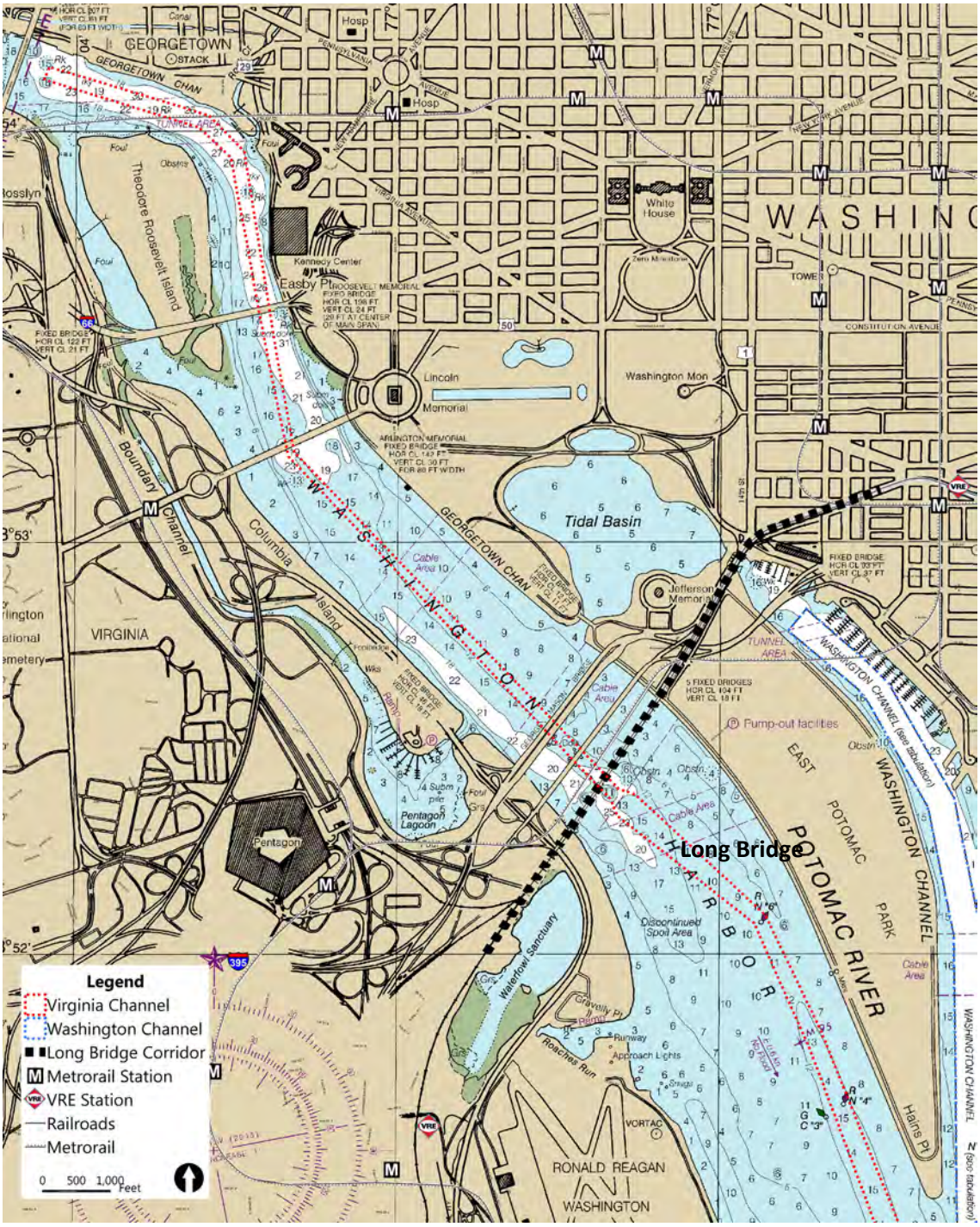
Including the bridges discussed above, there are 18 existing bridges in the Study Area on both the Potomac and Anacostia Rivers and on the Washington Channel, the bridges and their locations are shown in **Figure 2-5**. The names, types, and clearances of the bridges on the Potomac River at mean high water, as documented in NOAA nautical chart US12285, detailed in **Table 2-1**. Historic photos of the 14th Street bridge complex in the 1950s-1980s are depicted in **Appendix F.**

On the Potomac River, there are 10 existing bridges in the Study Area. The National Park Service (NPS) owns and/or controls the river bottom and land forming both banks of the Potomac River, including ownership of the Arlington Memorial Bridge. Five (5) of these bridges are part of the 14th Street bridge Complex: The George Mason Memorial Bridge, Rochambeau Memorial Bridge, Arland D. Williams Jr. Memorial Bridge, Charles R. Fenwick Bridge and Long Bridge.

All bridges on the Potomac River were constructed in different decades during the 20th Century. It should be noted that the topographical landscape of each bridge landing and use of each bridge contributed greatly to the requirements of the height of each bridge. The topography of the landing areas has changed significantly over time because of adjacent construction of the National Parks, National Defense, and public infrastructure projects. It should be noted that all of the landings in the 14th Street Bridge Complex are constructed on fill, and as outlined above, the 115 year old Long Bridge is the oldest bridge in the Complex, and thus, its landings were constructed on the near-original grade of the topography on the Arlington County, Virginia landing and along the District of Columbia side. As a result, the bridge height is four or more feet lower than those of the newer constructed bridges for highway use and the Metrorail use, that are capable of enduring steeper grade changes than railroads.

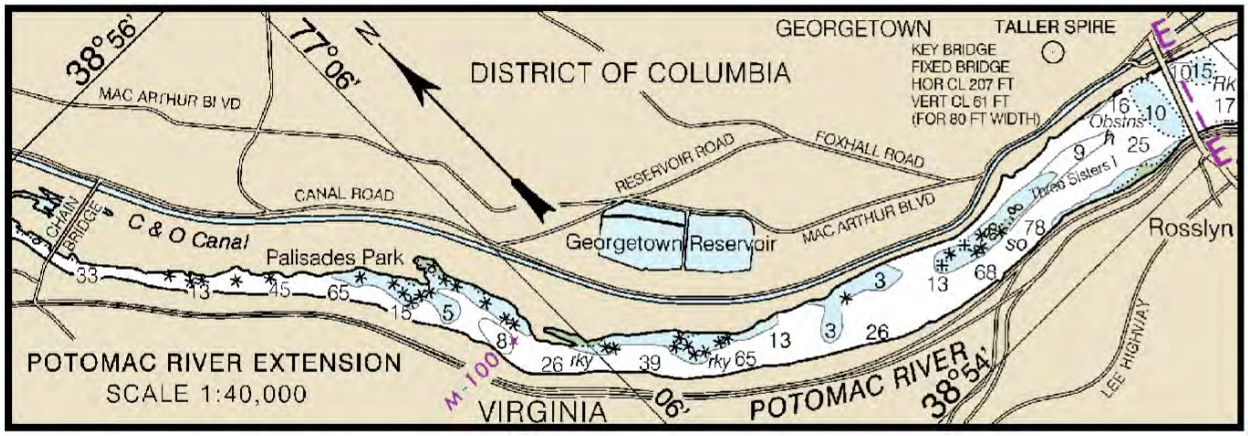
[11] United States Army Corps of Engineers, Baltimore District. November 2015. Washington, D.C. & Virginia Condition Survey: Anacostia Channel, Washington Harbor, Potomac River.

Figure 2-1 | Potomac River Depths, with Virginia Channel Identified



Source: NOAA Nautical Chart US12285 and USACE 2015 Condition Survey

Figure 2-2 | Nautical Chart of the Potomac River Upstream of the Francis Scott Key Bridge

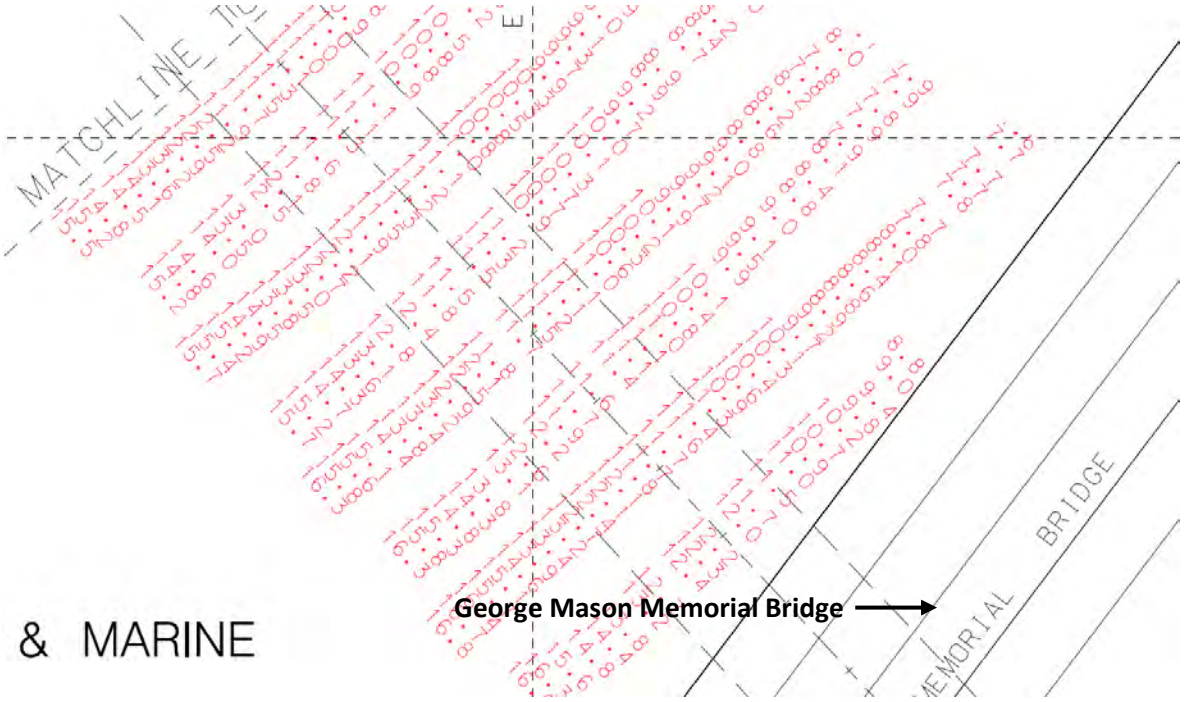


Source: NOAA Nautical Chart US12285

Figure 2-3 | Sounding Depths in the Virginia Channel Downstream of Long Bridge

Source: USACE 2015 Condition Survey

Figure 2-4 | Sounding Depths in the Virginia Channel Upstream of George Mason Memorial Bridge



Source: USACE 2015 Condition Survey

Table 2-1 | Potomac River Bridge Specifications Documented on NOAA Nautical Chart US12285

Bridge	Bridge Type	Horizontal Clearance
Francis Scott Key Bridge	Fixed Bridge	207 feet
Theodore Roosevelt Bridge	Fixed Bridge	198 feet (east of Theodore Roosevelt Island)
Arlington Memorial Bridge	Fixed Bridge[12]	142 feet
Humpback Bridge[13]	Fixed Bridge	46 feet
George Mason Memorial Bridge	Fixed Bridge	104 feet
Rochambeau Memorial Bridge[14]	Fixed Bridge	104 feet
Arland D. Williams Jr. Memorial Bridge[15]	Fixed Bridge	104 feet
Charles R. Fenwick Bridge (Metrorail Yellow Line)	Fixed Bridge	104 feet
Long Bridge	Fixed Bridge[16]	100 feet[17]
Woodrow Wilson Bridge	Bascule Bridge	175 feet

[12] The Arlington Memorial Bridge was constructed as a bascule bridge but the drawbridge was last opened in February 1961 and is classified by NOAA on nautical charts as a fixed span bridge.

[13] The Humpback Bridge divides the Pentagon Lagoon Yacht Basin and the Potomac River between Columbia Island and eastern Arlington, Virginia.

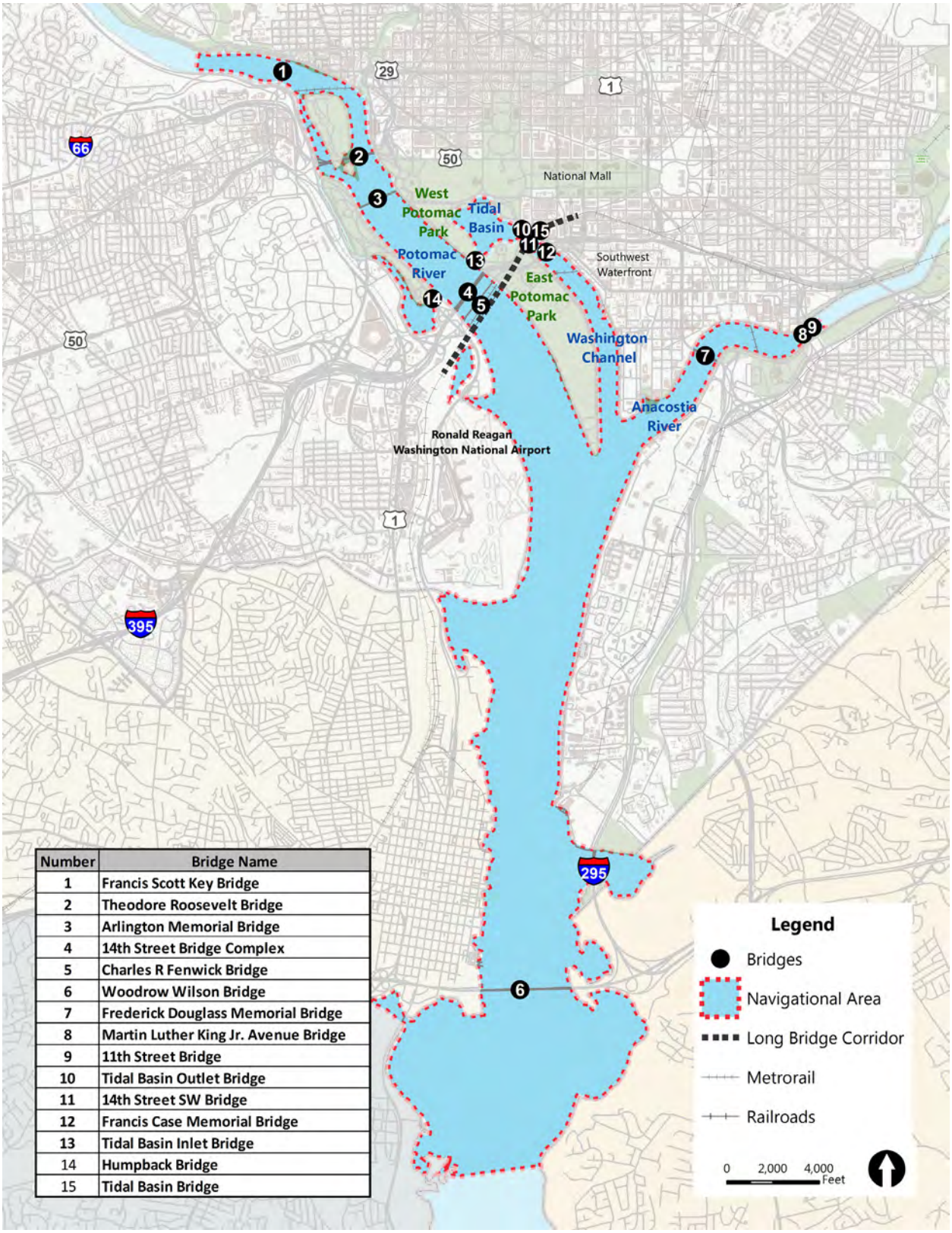
[14] The Rochambeau Memorial Bridge was previously known as the "Center Bridge."

[15] The Arland D. Williams Jr. Memorial Bridge was previously known as the "Rochambeau Memorial Bridge."

[16] The last known opening of the Long Bridge swing truss was March 3, 1969. The Long Bridge is listed as a "fixed bridge" on NOAA Nautical Chart US12285.

[17] As documented in the Long Bridge 1901 Record Drawing (Appendix E).

Figure 2-5 | Bridges within the Study Area

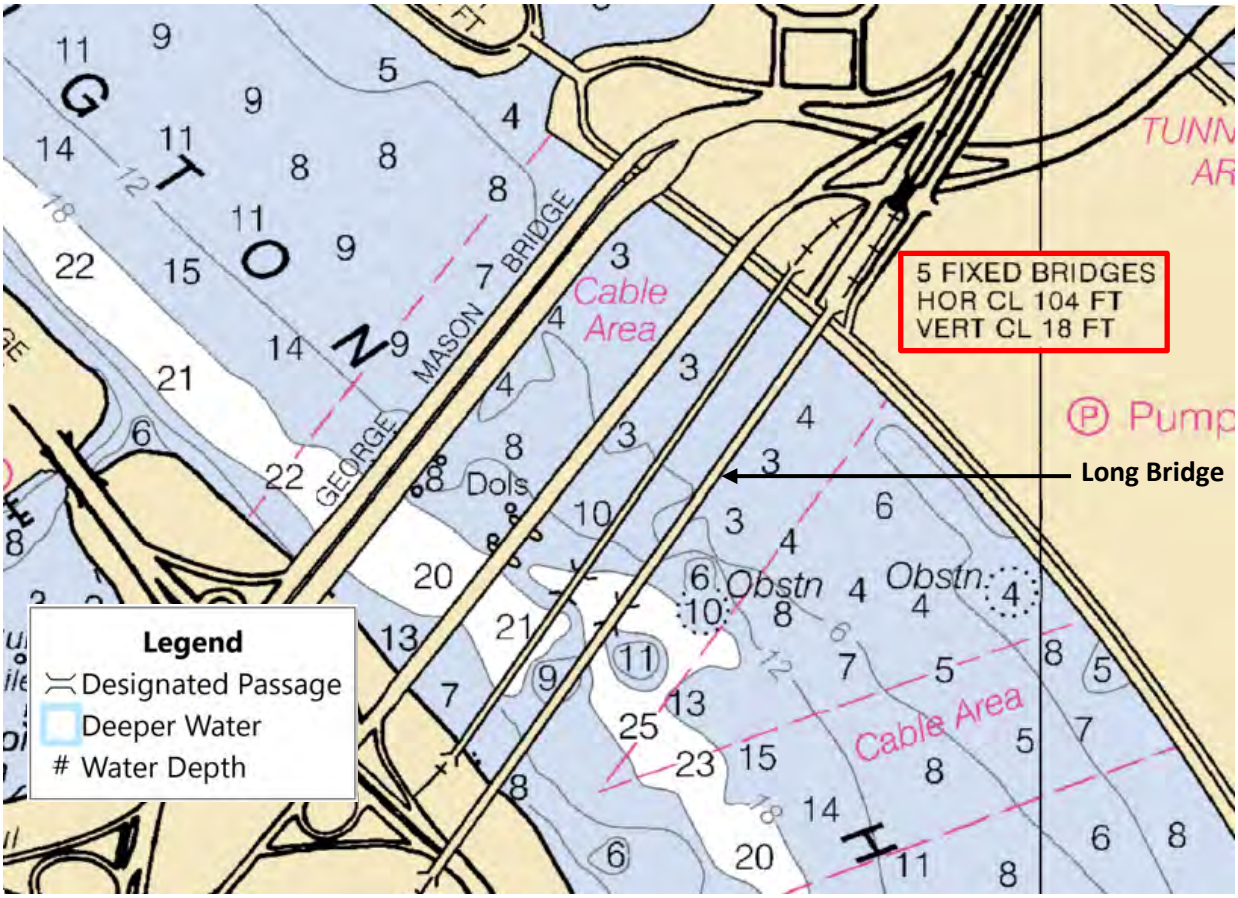


Number	Bridge Name
1	Francis Scott Key Bridge
2	Theodore Roosevelt Bridge
3	Arlington Memorial Bridge
4	14th Street Bridge Complex
5	Charles R Fenwick Bridge
6	Woodrow Wilson Bridge
7	Frederick Douglass Memorial Bridge
8	Martin Luther King Jr. Avenue Bridge
9	11th Street Bridge
10	Tidal Basin Outlet Bridge
11	14th Street SW Bridge
12	Francis Case Memorial Bridge
13	Tidal Basin Inlet Bridge
14	Humpback Bridge
15	Tidal Basin Bridge

The NOAA nautical chart reports the horizontal clearances for all five (5) bridges in the 14th Street Bridge Complex, as listed in **Table 2-1** and shown in **Figure 2-6**. Not shown in Table 2-1 is the 18-foot vertical clearance in the NOAA nautical chart, this is because the NOAA nautical chart reports the most restrictive clearances for the bridge complex and does not document the actual vertical clearance of individual bridges, which are covered in **Section 2.1.** Recorded vertical clearance for the 14th Street Bridge Complex is shown in **Table 2-1** below. The vertical clearances for the individual bridges are not identical and based on field observations, the Long Bridge is the controlling structure for existing vertical clearances.

Because the NOAA nautical chart does not distinguish clearances among bridges in the 14th Street Bridge Complex, the study relies on bridge permit records as well as DDOT and WMATA as-built drawings to enable a comparison of the vertical and horizontal clearances of the bridges. However, it is important to note the clearances shown on the as-built drawings are measured at mean low water.

Figure 2-6 | Limiting Horizontal and Vertical Clearances of the 14th Street Bridge Complex



Source: NOAA Nautical Chart US12285

Table 2-2 shows the vertical clearance data from historic bridge permit records and as-built drawings. At 18 feet at mean high water and 22 feet at mean low water, the Long Bridge has the most restrictive

vertical clearance of all the bridges and is the limiting factor for vessels navigating underneath the 14th Street Bridge Complex.

Table 2-2 | Comparisons of Vertical Clearances of the 14th Street Bridge Complex Bridges

Bridge	Vertical Clearance from Bridge Permits (Mean High Water)[18]	Vertical Clearance As-Built Condition Drawings (Mean Low Water)
George Mason Memorial Bridge	24 feet	27 feet[19]
Rochambeau Memorial Bridge	24 feet	27 feet[19]
Arland D. Williams Jr. Memorial Bridge	24 feet	28 feet[19]
Charles Fenwick Bridge	27 feet	30 feet 3 inches[20]
Long Bridge	18 feet	22 feet[20]

There are three (3) bridges on the Anacostia River within the Study Area. These bridges and key details are listed in **Table 2-3**.

Table 2-3 | Anacostia River Bridge Specifications Documented on NOAA Nautical Chart US12285

Bridge	Bridge Type	Vertical Clearance at Mean High Water	Horizontal Clearance
Frederick Douglass Memorial Bridge	Swing Bridge[21]	40 feet	149 feet
Martin Luther King Jr. Avenue Bridge	Fixed Bridge	28 feet	200 feet
11th Street Bridge	Fixed Bridge	28 feet	200 feet

[18] According to historic bridge permit records, US Coast Guard email from Mr. Hal Pitts, 8/2/2019.

[19] As built clearances for highway bridges from DDOT as-built drawings in Appendix G.

[20] According to Appendix D, WMATA as-built drawing.

[21] The new Frederick Douglass Memorial Bridge, to begin construction in 2018, will be a fixed span bridge with a minimum vertical clearance of 42 feet below the structure and a horizontal clearance of 150 feet.

There are five (5) bridges crossing the waterway between the Tidal Basin and Washington Channel within the Study Area. Private vessels are not allowed to operate within the Tidal Basin and therefore the clearances of the bridges adjacent to the Tidal Basin are not noted on NOAA Nautical Chart US12285.[22] The bridge names and available key details are listed in **Table 2-4**.

Table 2-4 | Tidal Basin and Washington Channel Bridge Specifications Documented on NOAA Nautical Chart US12285

Bridge	Bridge Type	Vertical Clearance at Mean High Water	Horizontal Clearance
Tidal Basin Outlet Bridge (carrying Ohio Drive SW over the Tidal Basin and the Washington Channel)	Fixed Bridge	No clearances listed on nautical charts	No clearances listed on nautical charts
14th St SW Bridge (carrying US Route 1 over the Tidal Basin and the Washington Channel)	Fixed Bridge	No clearances listed on nautical charts	No clearances listed on nautical charts
Francis Case Memorial Bridge (carrying I-395 over the Washington Channel)	Fixed Bridge	37 feet	93 feet
Tidal Basin Inlet Bridge (carrying Ohio Drive SW between West Potomac Park and East Potomac Park)	Fixed Bridge	11 feet	12 feet
Tidal Basin Bridge (carrying the railroad tracks over the Tidal Basin and the Washington Channel)	Fixed Bridge	No clearances listed on nautical charts	No clearances listed on nautical charts

[22] A National Mall and Memorial Parks, National Park Service employee confirmed via a phone conversation on March 6, 2018 that both motorized and non-motorized private vessels are not allowed to operate on the Tidal Basin.

3.0 Current Waterway Usage

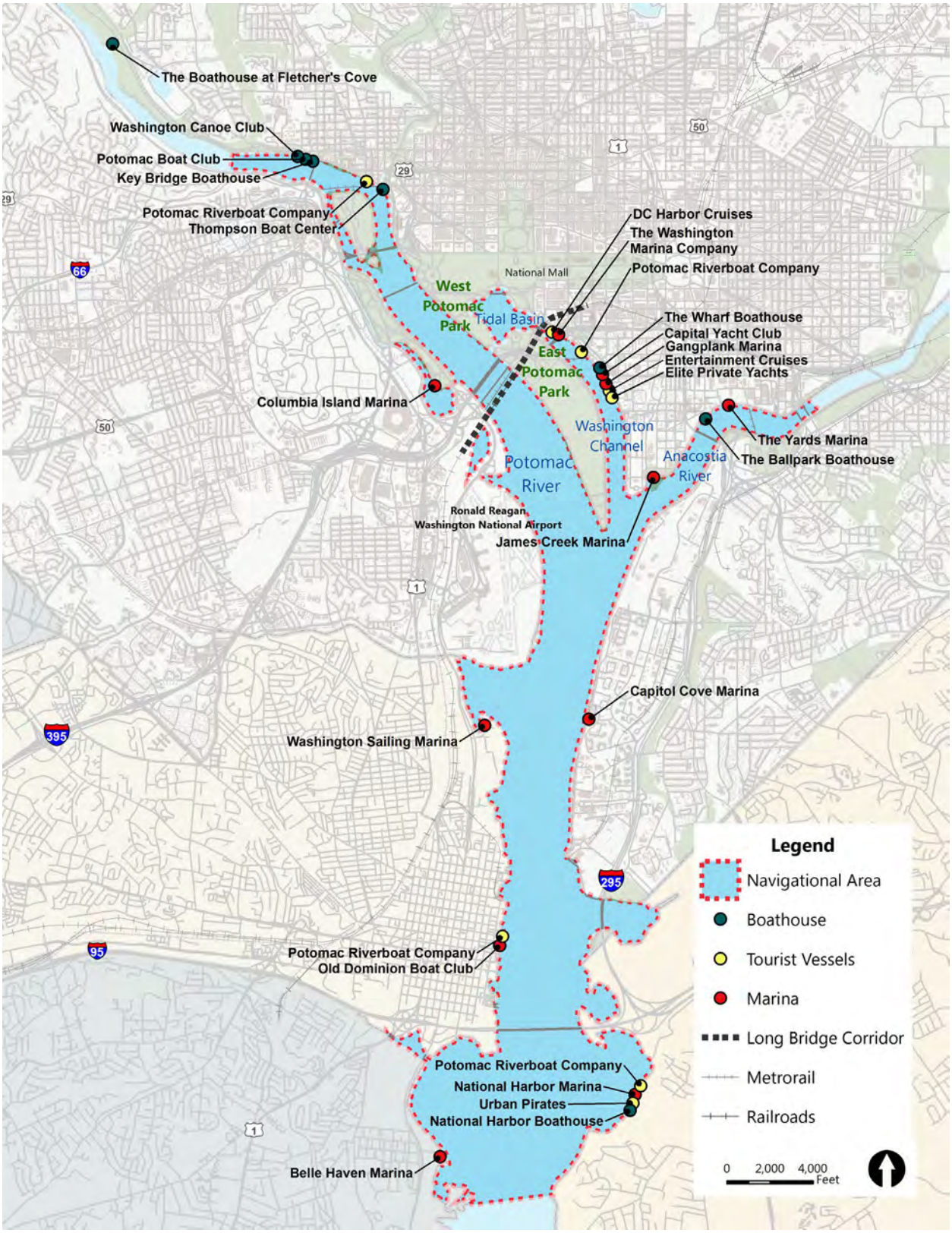
3.1. Vessel Operation in the Study Area

The District Harbormaster regulates all vessels in the waters of the District, and this duty is held by the District of Columbia Metropolitan Police. According to NOAA Nautical Chart US12285, no vessel shall be propelled or operated at a greater rate than six statute miles per hour in the Potomac River upstream from the Arlington Memorial Bridge and in the Washington Channel upstream from Hains Point. The speed regulations are for areas upstream of the Long Bridge therefore do not apply to the waterway underneath the Long Bridge.

Vessels over 22 feet in height that operate within or dock at the marinas or harbors in the Study Area are unable to travel upstream of the Long Bridge on the Potomac River due to restrictions posed by the mean low water vertical clearance of the bridge. Vessels over 18 feet are physically restricted from traveling freely under the Long Bridge as well, due to the tidal variation of the Potomac River; and the vertical clearance of the 18 feet at mean high water clearance height underneath Long Bridge. As noted in **Section 2.2** North of the Francis Scott Key Bridge and the Three Sisters Islands geological feature, the upper Potomac River becomes non-navigable for larger vessels as it is narrow and rocky, another limiting factor to vessel operations within the Study Area (**Figure 2-2**).

The majority of vessel operations in the Study Area are associated with local marinas, boat launches, and tourism. The businesses that are located within the Study Area are depicted in **Figure 3-1.**

Figure 3-1 | Marinas, Boat Houses, and Commercial Operators within the Study Area



3.2. Marinas and Boat Launches in the Study Area

There are currently 11 marinas and boat launches that operate within the Project Study Area. They are listed in **Table 3-1**.

Eight (8) non-motorized boat houses are also located within the Study Area. On the Potomac River, north of the Long Bridge, there is the Key Bridge Boathouse, Thompson Boat Center, Potomac Boat Club, Washington Canoe Club, and The Boathouse at Fletcher's Cove. Additional boathouses are located downstream from the Long Bridge, including The Ballpark Boathouse, The Wharf Boathouse, and National Harbor Boathouse.

Table 3-1 | Study Area Marinas and Boat Launches

Business	Location	Details
Belle Haven Marina	Dyke Marsh (Fairfax County, VA), downstream of the Long Bridge	• Marina is at maximum capacity • No posted height restrictions for boats docking at the Marina • Administered by NPS • Rents sailboats and non-motorized boats • Home of the Mariner Sailing School • Largest vessel that could be accommodated: 60 feet in length
Capital Cove Marina	Joint Base Anacostia-Bolling, downstream (southeast) of the Long Bridge	• Marina has 60 slips for transient (short term) dockage • Home to the Pentagon Sailing Club • Largest vessel accommodated: 44 feet in length
Capital Yacht Club	District Wharf on the Washington Channel	• Club has 100 slips available to members and visiting guests • Slips all currently rented with a wait list among members • Largest vessel accommodated: 125 feet in length
Columbia Island Marina	Pentagon Lagoon, upstream (northwest) of the Long Bridge	• Marina has 256 annual slips ranging from 20 feet to 50 feet in length • Marina has 126 seasonal slips at 20 feet • Transient dockage for vessels up to 50 feet in length (must be reserved in advance) • Only houses powerboats • The Humpback bridge dividing the Pentagon Lagoon Yacht Basin and the Potomac River is located at the entrance to the Marina • Administered by NPS • Largest vessel accommodated: 50 feet in length

Business	Location	Details
Gangplank Marina	District Wharf on the Washington Channel	• Marina has 309 annual, seasonal, and transient slips • Carefree Boat Club resides at the Marina. It is a members-only Club with a variety of boats ranging from 18 feet to 27 feet for members to utilize • Largest vessel accommodated: 125 feet in length
James Creek Marina	Confluence of the Potomac River, Anacostia River, and Washington Channel; directly east of Fort McNair and downstream (southeast) of the Long Bridge	• Marina has 297 slips • Largest vessel accommodated: 160 feet in length
National Harbor Marina	Smoots Bay on the Potomac River, downstream from the Long Bridge	• Marina has 81 slips • 77 slips for annual, seasonal, and transient customers • 4 slips for commercial operators, tow boats, and police vessels • Marina is not always at maximum capacity • Depth of the Smoots Bay Channel is the limiting factor and will require dredging to accommodate vessels with drafts of more than 7 feet • Marina has plans to develop the facility further to better accommodate larger vessels • Commercial vessels that operate out of the Marina include Urban Pirates, Odyssey Cruise, National Elite Private Yacht, and the Spirit of Washington • Largest vessel that was accommodated: 185 feet long
Old Dominion Boat Club	Old Town Alexandria, downstream from the Long Bridge	• Marina has 53 boat slips for club members • Includes 15 larger slips • Largest vessel accommodated: up to 80 feet in length
Washington Marina Company	Northeastern shore of the Washington Channel just south of where the CSXT tracks cross the Channel	• Marina has annual, seasonal, and transient slips for vessels between 20 feet and 100 feet in length • No houseboats or liveaboards • Includes a boating parts and accessories store as well as a service business • DC Harbor Cruises operates out of the Marina
Washington Sailing Marina	Daingerfield Island, downstream from the Long Bridge on the Potomac River	• Marina has 208 floating slips • Typically, at 95 percent capacity during the high season • Administered by NPS • Hosts local sailing teams, clubs, and races • Plans to expand and add a floating dock with transient slips south of its current location • Largest vessel accommodated: up to 35 feet in length

Business	Location	Details

Yards Marina	Navy Yard in the District, on the Anacostia River	• Marina has 52 slips
		• 25 slips intended for transient use
		• No posted height restriction, but Frederick Douglass Memorial Bridge dictates height of vessels
		  o Current bridge has vertical clearance of 40 feet (unless a request is made to open the draw bridge)
		  o Replacement bridge is expected to have a 42-foot fixed vertical clearance
		• Largest vessel accommodated: up to 130 feet in length

3.3. Characteristics of River Usage by Marinas and Boat Launch Patrons

In an interview, a representative from the Washington Sailing Marina stated that the majority of their slipholders travel south, downstream of the marina and the Long Bridge, as the size of most of the sailboats' masts prevent them from passing under the Long Bridge and the 14th Street Bridge Complex. Other marinas, including the Yards Marina, the Capital Yacht Club, the National Harbor Marina, the Belle Haven Marina, and the Old Dominion Boat Club, stated that the vertical and horizontal clearances of the Long Bridge do not directly impact their marinas, as they are located downstream of the bridge and it is not necessary for vessels to navigate under the Long Bridge to patronize their facilities. The only marina upstream of the Long Bridge is the Columbia Island Marina, but the entrance to the marina is limited by the Humpback Bridge on the George Washington Memorial Parkway that also has a vertical clearance of 18 feet, so increasing the clearance of the Long Bridge would not enable additional vessels to reach the marina than cannot currently reach it.

While marinas reported that they can accommodate larger vessels, it was also reported that the use by the larger vessels was not regular. Entertainment Cruises, who operate out of the National Harbor Marina, specified the greatest reported vertical and horizontal vessel clearances, as written below.

- Widest – Odyssey III – 230' L, 47' W, 16' H
- Largest – Spirit of Washington – 142' L, 37' W, 60' H

Houseboat residents at the Gangplank Marina were among the boaters and boating organizations that submitted comments to the Project expressing a strong interest in increasing the vertical clearance of the Long Bridge to allow vessels over 18 feet to be able to freely navigate underneath the bridge to visit attractions upstream, including Washington Harbor in Georgetown.[23] Currently, vessels over 18 feet tall can only navigate under the Long Bridge during low tide and vessels over 22 feet tall cannot navigate underneath the bridge at any time.

[23] Comments regarding the navigational clearance of the Long Bridge were submitted to the Project email address, info@longbridgeproject.com or entered as a comment at a Long Bridge Project Public Meeting.

3.4. Commercial Users in the Study Area

The commercial users of the Potomac and Anacostia Rivers within the Study Area are listed in **Table 3-2** and are shown in **Figure 3-1**. Commercial users consist of sightseeing cruise and water taxi business operators. The Odyssey III, a sightseeing cruise vessel, and water taxis operate upstream of Long Bridge. The vertical clearances of the 14th Street Bridge Complex limit most of the large sightseeing cruise vessels. No commercial facilities receive barge deliveries along the Potomac River north of the Long Bridge.[24]

Entertainment Cruises, who own the four sightseeing and water taxi businesses in the Study Area, noted that many of its vessels cannot freely or easily navigate the route due to height restrictions.

Table 3-2 | Study Area Commercial Users

Business	Location	Additional Information
Spirit Cruises, Elite Yacht Charters, And Odyssey Cruises (Owned by Entertainment Cruises)	District Wharf on the Washington Channel	• Operates four vessels out of District Wharf • Odyssey III (holds up to 600 guests) is specifically designed to accommodate the vertical restrictions of the bridges between Hains Point and Georgetown, including the Long Bridge • Odyssey III can only safely navigate under the bridges at low tide • Approximately 25 percent of Odyssey III cruises occur at high tide; vessel cannot travel to Georgetown at those times and must seek an alternate route • Other three cruising vessels operated by Entertainment Cruises out of the District Wharf are 25 feet high or taller and cannot safely navigate under the Long Bridge
Elite Yacht Charters (Owned by Entertainment Cruises)	National Harbor, Maryland	• Operates a 107-foot long, 24-foot wide, and 35-foot high vessel out of National Harbor • Vessel cannot navigate underneath the Long Bridge.

[24] U.S. Department of the Interior, National Park Service. April 2016. *Arlington Memorial Bridge Rehabilitation Environmental Assessment*.

Business	Location	Additional Information
The Potomac Riverboat Company (Owned by Entertainment Cruises)	Various marinas within the Study Area	• Runs water taxis and sightseeing tours between Navy Yard, DC; Georgetown, DC; Alexandria, VA; National Harbor, MD; and Mount Vernon, VA • Operates 8 water taxi vessels • 6 of the 8 vessels can safely navigate underneath the Long Bridge • 3 vessels have no restrictions when navigating under the Long Bridge • 2 vessels must fold down their masts to navigate underneath the Long Bridge • 1 vessel must close the top deck to passengers when navigating under the Long Bridge
Wharf Water Taxis (Owned by Entertainment Cruises)	District Wharf on the Washington Channel	• Operates four vessels • All vessels are 87 feet long, 21 feet wide 18 feet high • Vessels must close their top decks to passengers and fold their railings down to freely navigate underneath the Long Bridge
Urban Pirates	National Harbor, Maryland	• Operates a 54-foot long vessel • Vessel cannot navigate underneath the Long Bridge
DC Harbor Cruises (Owned by National Ferry Corporation)	Washington Marina Company, on the Washington Channel	• Operates several large vessels that host public cruises around the Potomac River

In addition to the interviews held with commercial users, the Project team has received feedback from marina attendees at the five public meetings that were held from 2016-2019. All public meeting comments regarding navigation issues are attached as **Exhibit A.** The majority of the public comments from local boating clubs and individual boaters request that the future bridge height for Long Bridge be increased to 20-feet at high tide. Local boating clubs, individual pleasure boaters, and commercial tour boaters were amongst the individuals who commented on the Project.

3.5. Federal Agencies & Emergency Services

Navigation on the Potomac and Anacostia Rivers within the Study Area is regulated by the United States Coast Guard (USCG) Atlantic Area, 5th District, Sector Maryland-National Capital Region. In accordance with Section 9 of the Rivers and Harbors Act of 1899, the USCG has jurisdictional authority over critical design parameters for Long Bridge alternatives and is responsible for ensuring that "no bridge shall at any time unreasonably obstruct the free navigation of any navigable water of the United States" (33 USC 401).

As mentioned above, the Metropolitan Police Department Harbor Patrol (DC Harbor Patrol) polices all the rivers, inlets, and waterways that surround the District. DC Harbor Patrol oversees the District's marinas, regulates fishing and game, and ensures boats are safe and meet regulations**.** According to the Harbor and Boating Safety chapter of the DC Code, Section 1000.2, the District's Harbor Master shall regulate the operation, navigation, mooring, and anchoring of all vessels and amphibian aircraft in the District waters, and shall enforce all laws and regulations relating to those waters.

The USACE maintains a Federal navigation channel in the Potomac River that runs underneath the Long Bridge (and the 14th Street Bridge Complex). Under Section 404 of the Clean Water Act (33 USC 1251) and Section 10 of the Rivers and Harbors Act of 1899 (33 USC 403) a permit is required from the USACE for any work in Federal navigable waters.

NPS has jurisdiction over the riverbed of the Potomac River. Actions that would require an NPS action, such as the issuance of a special use permit or the transfer of jurisdiction, require completion of the NEPA process for the Project in compliance with the policies set forth in the NPS's Director's Order 12, Conservation Planning, Environmental Impact Analysis and Decision-Making, and accompanying Handbook.

4.0 Future Conditions

The purpose of the Long Bridge capacity expansion project is to meet the current and future railroad operation conditions in the region and along the East Coast. Transportation demands in and above the Potomac River will continue to increase over time, as the Washington, D.C. metropolitan area continues to redevelop and expand, and demands for high speed rail increase along the East Coast. In the short term, train travel will continue to increase over the Potomac River and the future expansion of the Long Bridge railroad bridge will improve railroad travel reliability, as regional and national train service will be added over the Long Bridge in the future.

4.1. Pleasure and Passenger Transport Vessel Activity

Currently, vessel traffic in the Study Area is primarily comprised of private recreational and passenger transport vessels. The majority of the vessels that travel under Long Bridge are smaller commercial and recreational vessels; select sightseeing cruise vessels and water taxis are able to navigate underneath the Long Bridge. The types of vessels navigating underneath and upstream of the Long Bridge in the future are expected to remain limited to the smaller commercial and recreational vessels common today, due to existing land uses, bridge clearance heights and geologic conditions that limit navigation in the Study area. As noted in **Section 3.4**, there is limited potential for additional commercial operations today and in the future, aside from passenger transport, upstream of Long Bridge since most of the waterfront along this segment of the river is owned, operated, and maintained by the NPS. Overall, the total number of recreational and passenger transport vessels operating in the Study Area will likely increase in the future as waterfront areas such as the Wharf, Navy Yard, and National Harbor continue to develop around entertainment and lifestyle activities that market proximity to the waterways.

4.2. Fixed Bridge Feasibility

Since 1950, all new bridges constructed in the 14th Street Bridge Complex have been fixed, and the majority have been highway bridges. The Charles Fenwick Bridge is a regional Metrorail bridge, and is a tall, fixed bridge, that was constructed in the 1980s. **Table 2-2** shows the best available clearance measurements for the 14th Street Bridge Complex. Other than the existing Long Bridge with an 18-foot clearance above mean high water, the group of three highway bridges all provide 24 feet of vertical clearance at mean high water in the navigation channel. The Metrorail bridge was able to be constructed at a higher elevation and is the tallest of all of the bridges, marked at 30.3 feet above mean low water and 27-foot clearance above mean high water for navigation.

There is limited feasibility to elevate a new railroad bridge above the existing Long Bridge. While Metrorail is able to climb and descend from high to low topographic grade changes in relatively short distances while maintaining operating speeds, these grades are well above the tolerances that a traditional railroad system can handle. Freight railroad tracks and operations cannot tolerate more than a 1-1 ½% grade change within a short distance and be able to continue to function reliably. Design standards also discourage short elevation rises that create humps on a rail line as they create operational hazards for long trains where part of the train would be climbing while another part is descending the rise. Raising the elevation of the Long Bridge railroad tracks is also be constrained on either bank of the river due to other features, including the Maryland Avenue tunnel and right-of-way restrictions. For these reasons, any new railroad bridge crossing over the Potomac River may only

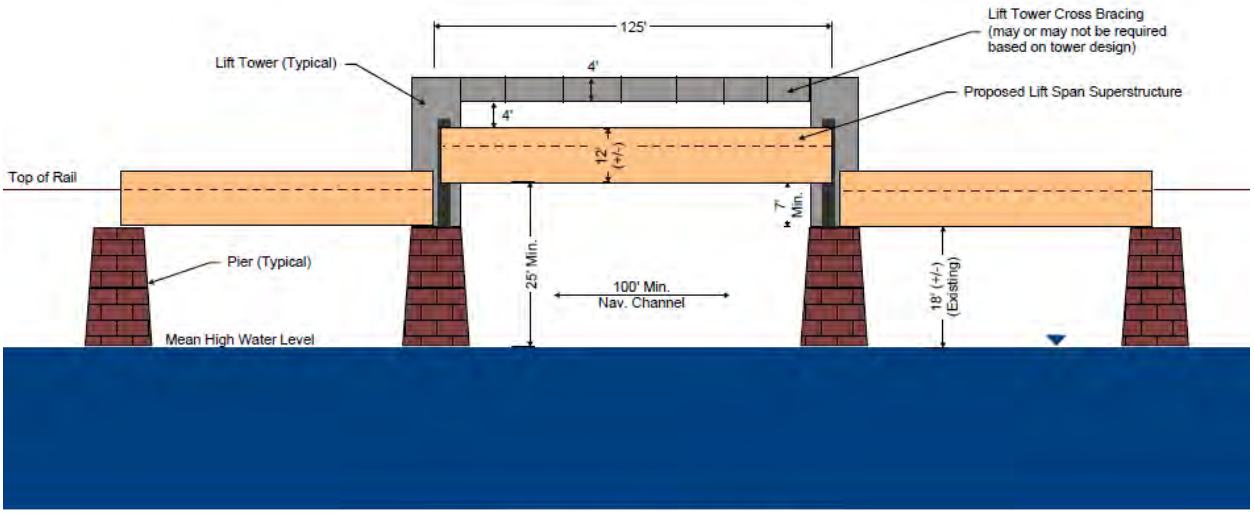
marginally elevate the tracks compared to the existing Long Bridge, and any new fixed railroad bridge could not achieve navigation clearances equal to the adjacent highway or Metrorail bridges. The bicycle/pedestrian bridge, however, could accommodate a somewhat higher vertical navigation clearance.

Based on project studies, a new fixed span railroad bridge could be reasonably anticipated to attain at least a 20-foot mean high water navigation clearance with the use of modern steel bridge designs and construction techniques and without any significant change in the grade of the railroad tracks. A 20-foot clearance fixed bridge height with a 100' horizontal clearance would allow increased passage to most mariners who regularly travel underneath the 14th Street Bridge Complex, and would allow vessels to pass each other in a horizontal channel consistent with other bridges in the 14th Street Bridge Complex.

4.3. Movable (Draw) Bridge Feasibility

Project feasibility studies considered the use of draw bridge spans and have raised several feasibility concerns. The existing Long Bridge swing span no longer has the ability to open and it is unlikely that the owner and operator of the bridge will replace the existing structure in the next several decades. The Long Bridge owner, CSX, recently completed rehabilitation work on the Long Bridge structure extending the useful life of the structure into the future. The owner did not anticipate the need for a drawbridge during the future useful life of the existing Long Bridge. Therefore, returning the existing swing structure to an operable condition is unlikely. Based on Project studies, the most practical type of new drawbridge to achieve greater than 20-foot navigation clearance would be a vertical lift span (as illustrated in **Figure 4-1**).

Figure 4-1 | Vertical Lift Span Concept

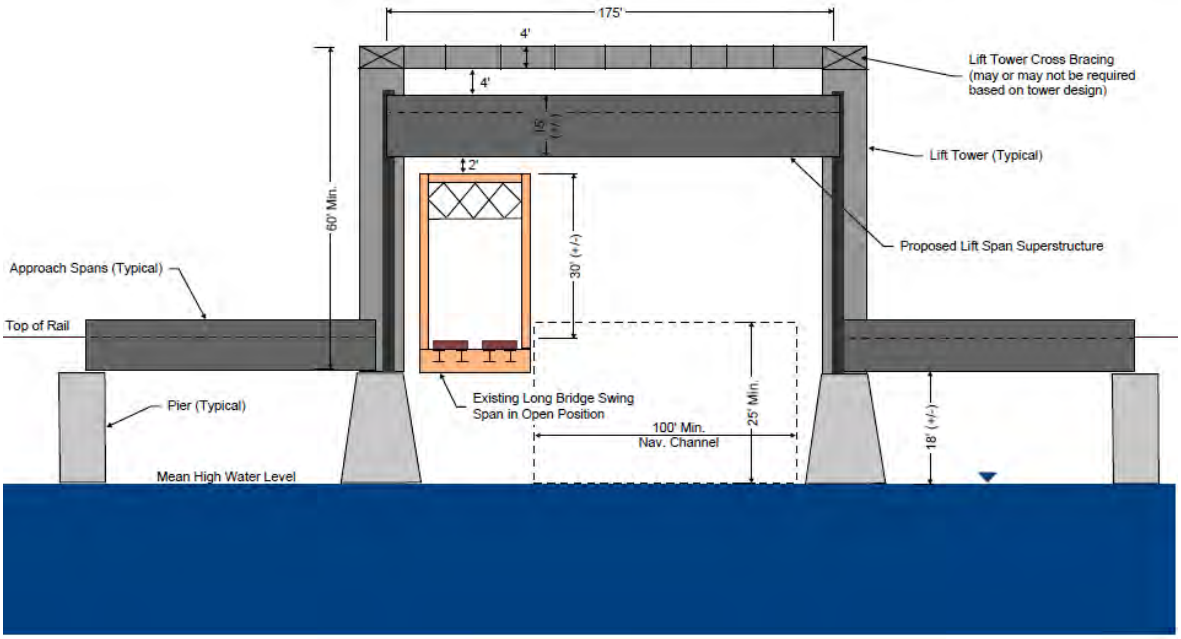


Lift Span Concept (Typical to Existing and New Structures)
(Not to Scale)

Construction of a drawbridge lift span for the Preferred Action Alternative that provides up to 24 feet of navigation clearance at mean high water would not accommodate resumed opening of the existing RR bridge swing span, in the unlikely event it would be returned to service. Therefore, should a 24 foot navigation clearance be required, the existing Long Bridge would at some point have to be replaced with a similar vertical lift span to provide a 24-foot navigation clearance. Even if movable draw bridges were constructed, their operation would require shutting down all four tracks of the Long Bridge Corridor, which would create considerable disruption to rail traffic. Therefore, reasonable limitations on opening the bridge would have to be established through a new bridge regulation further diminishing the feasibility of providing a 24 foot navigation clearance (**Section 4-4**).

In the unlikely event that the existing Long Bridge swing span would be returned to operable condition, a lift span for the second bridge constructed with the Project would have to be longer and higher to accommodate the existing swing span to move under the lift span (as illustrated in **Figures 4-2** and **4-3**).

Figure 4-2 | Vertical Lift Span over Existing Long Bridge Swing Span (Cross Section)

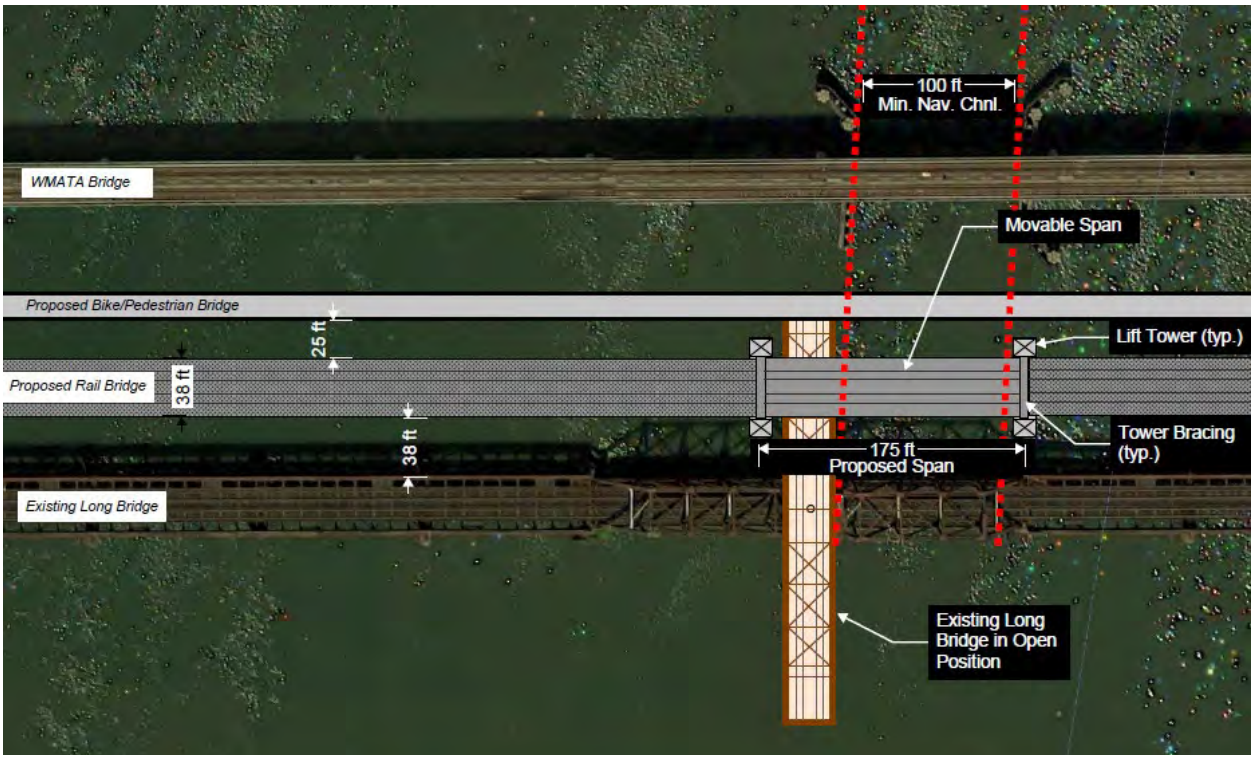


New Lift Span over Existing Swing Span Concept
(Not to Scale)

The bicycle/pedestrian bridge would also have to be substantially modified to either be closer to the WMATA bridge which may not be feasible or acceptable, incorporate a vertical curve to further increase clearance allow the end of the swing span to pass under it, or be combined into the rail lift span which would create pedestrian safety risks. Such a tall lift structure could conflict with FAA clearance restrictions for the Reagan National Airport, which limit any bridge structure at any time to no more

than 89 feet above mean sea level at the navigation channel.[25] Project studies also considered use of a bascule span to accommodate the existing swing span, but a bascule bridge would likely exceed FAA clearance restrictions by 10-30 feet. Therefore only a lift span is potentially feasible for use together with the existing swing span. Operation of the new lift and existing swing spans would require a greatly extended opening time period as the bridges would have to move sequentially to open and again to close. Returning the existing bridge to operable status is impractical as it would have greater design, permitting, and operational challenges than replacement of the existing bridge with a lift span.

Figure 4-3 | Vertical Lift Span over Existing Long Bridge Swing Span (Plan)



In summary, a draw bridge faces many feasibility challenges as it would be much more complex and expensive to design, construct, and operate, and would have severe functional limitations as described below in **Section 4.4**. Use of a drawbridge for the Project could only increase the vertical clearance for navigation up to the 24-feet vertical clearance above mean high water of adjacent fixed bridges.

[25] Metropolitan Washington Airports Authority scoping comment email 10/06/2016.

4.4. Feasibility of Achieving Additional Navigation Clearance

Project studies indicate that a new fixed bridge could provide greater high water clearance (20 feet) than the existing Long Bridge (18 feet). Studies also indicate that a draw bridge (lift span) could be constructed to provide up to 24 feet of clearance, however this additional navigation clearance could not be reliably made available for vessel use due to operational challenges from intensive rail activity (**Table 1-1**). Since the 1962 close regulation, no new draw bridges have been constructed on the Potomac River within the 14th Street Bridge complex or in areas north of the Project. Further, the Project Team has confirmed with the draw bridge owners that all existing draw bridges in the 14th Street Bridge no longer retain the ability to open.

The existing Long Bridge railroad bridge is listed as a draw bridge (swing span) but upon the close order, the owner took steps to weld the operating equipment within the swing span shut and removed movable equipment and machinery, rendering the swing span unusable. The other drawbridge in the 14th Street Bridge complex, the Arland D. Williams Junior Memorial Bridge, is owned, operated, and maintained by DDOT, and no longer has the ability to open because of internal bridge design changes made by DDOT since the close regulation was adopted.

Should future regulation require navigation clearance necessitating a draw bridge for the Project and also require resumption of draw bridge operation in the 14th Street Bridge Complex over the Potomac River, the regulation would have to address bridge operation restrictions to balance navigational need with rail and highway traffic needs. An operational regulation for the Long Bridge would need to consider the rail transportation activity needs over the railroad bridge and the frequency of needs for additional navigation clearance. Railroad operations will continue to grow substantially over the next twenty years. The future operations for vessels travel underneath the 14th Street Bridge Complex is likely to continue to be comprised of both pleasure and commercial passenger vessels of a type similar to today. Peak demand for both the railroad bridge and the passage of pleasure and commercial vessels is likely to be during daylight and evening hours.

Any future operation regulation for a draw bridge would be expected to dictate habitual user height requirements and to limit draw bridge openings to off-peak hours, as it was in the 1955 operating regulations referenced in Section 2.0. As in 1955, “habitual users” underneath the bridge should be required to abide by height restrictions that avoid opening the bridge. The 1955 regulation limited vessel height to less than 16 feet or have detachable elements to allow the ability for the vessel to have a lower vertical profile.

Additionally, because of the peak daylight and evening demands for railroad and vessel travel over and in the Potomac River, it will be likely that any opening of a draw bridge would only be practical in the late evening or nighttime hours, because of the unacceptable disruptions that it would cause for the railroad operations during daylight and evening hours. The reliability of navigation by taller vessels underneath any future drawbridge would be highly constrained due to the unacceptability and impracticality of draw bridge opening during the daylight and evening hours.

Farther south in the Potomac River, the I-495 Woodrow Wilson Bridge draw bridge over Potomac River has similar operational limitations because it routinely carries over two hundred thousand vehicles between Maryland, Virginia, and the District of Columbia every day. Its draw bridge does not, and could

not practically open frequently due to the high volume of highway traffic and the consequences of its disruption. In recent years, it has primarily opened during the very early morning nighttime hours, when peak periods of travel have ended as not to cause major regional travel disruptions.

A drawbridge for the Long Bridge could not feasibly meet demands of taller pleasure and commercial passenger boats while also allowing the railroad operators to provide reliable service scheduling to their customers. A drawbridge would be inefficient for both the mariner passing underneath it, who would hope to be able to frequently navigate their tall pleasure boat through the draw, but would find that the operations were constrained due to railroad operations. Conversely, the railroad user who expects reliable service from the train operator would object to the potential impact a drawbridge opening could have on their trip.

5.0 Conclusions

Based on the analysis of the existing conditions, the conclusions of the Navigation Study for the Long Bridge Project are summarized below.

- Historically regulations in the Study area limited most vessel heights to under 18-feet, even when the draw bridges on the Potomac River were operable.

- Since 1962, the navigation clearance of the Potomac River has been limited by vertical clearances in the 14th Street Bridge Complex and the lowest 18 foot vertical clearance provided by the Long Bridge. None of the draw bridges in the Study area in a condition to operate.

- No draw bridges have been constructed in the Study Area since the 1950s, all bridges that have been constructed are fixed and are located within close proximity to each other.

- Commercial and recreational boaters have adapted to the existing 14th Street Bridge Complex vertical clearance limitations and routinely navigate with a variety of vessels, including some large commercial tour ships.

Additional bridges and geologic conditions in the Study Area limit navigation for vessels upstream of the Long Bridge.

- The four (4) other bridges in the 14th Street Bridge Complex (the George Mason Memorial Bridge, the Rochambeau Memorial Bridge, the Arland D. Williams Jr. Memorial Bridge, and the Charles R. Fenwick Bridge) are all located just upstream of the Long Bridge and could provide vertical navigation clearances of up to 24 feet at mean high water (**Table 2-2**). These bridges limit the potential clearance increases for navigation under the 14th Street Bridge complex.

- The Theodore Roosevelt Memorial Bridge, located between the Long Bridge and tourist and recreational destinations along the Georgetown waterfront, has a vertical clearance of 24 feet at mean high water.

- North of the Francis Scott Key Bridge, the Potomac River becomes non-navigable for larger vessels and begins to narrow and become rocky, which also limits navigation in the Study Area.

Some recreational and passenger transport operators would like for the vertical clearance of the Long Bridge to be increased. The original comments received regarding the bridge clearance height are attached as Exhibit A.

- To date, one tourism boat operator and 20 recreational boaters and boating organizations have submitted comments indicating a desire for the vertical clearance of the Long Bridge to be increased to accommodate larger vessels. The majority of the commenters desire a 20-foot high bridge at high tide.

- There is a mixed message regarding existing navigation clearance of the 14th Street Bridge complex and whether or not it is a hindrance to business by the seven local marina operators interviewed.

- The widest horizontal vessel in operation in the Project Area is 47 feet wide; the tallest is 60 feet high.

Due to the high frequency, and importance of schedule reliability, of future train operations in the area (**Table 1-1**), and to respond to the navigational clearances requested by mariners in the Potomac River, fixed bridge options are most practical for both bridge users and river users. Future conditions over and in the Potomac River will be most feasibly and reliably served by a fixed bridge that provides no more than a 20-foot navigation clearance at mean high water.

- The ability to navigate north of the 14th Street Bridge Complex today and in the future, is limited for tall ships because of the physical geologic constraints of the navigation channel north of the Project area.

- A draw bridge could only achieve an additional four feet of clearance, and would have to be constructed at great expense and with limited operational utility.

- A draw bridge would not provide reliable service to vessel operators due to inevitable regulation constraints on operations that consider that any opening allowance would impact reliable railroad operation.

- A fixed bridge with a maximum vertical clearance at 20-foot mean high water, and a 100-foot horizontal clearance would provide reliable use for both railroad and marine users.

Additional navigation clearance could only be provided when existing Long Bridge, owned by CSXT, is determined to be in need of replacement. The existing Long Bridge structure underwent a rehabilitation in October 2016 and is in proper condition for railroad purposes. CSXT has stated that the structure of Long Bridge is sufficient to meet the needs of their freight operations for the foreseeable future.

Based on the findings above, and considerations of the users over and under any new railroad bridge, a fixed bridge structure with a maximum vertical clearance of at least 20 feet above mean high water can accommodate reasonable current and future needs for navigation in the area.

A 20-foot navigational clearance height would meet the majority of the users request regarding new bridge heights and also permit the railroad users and operators to reliably be able to cross the Potomac River over a bridge that meets railroad design standards for grade, and that is practical to achieve given the topography in both the District and in Arlington, Virginia. Existing horizontal clearances should be maintained at least 100-feet in width for vessel passing purposes and is consistent with the other bridges in the 14th Street Bridge Complex.

6.0 References

Arlington County, Virginia. June 2017. General Land Use Plan Map. Accessed from http://gis.arlingtonva.us/Maps/Standard_Maps/Planning_Maps/GLUP.pdf. Accessed January 5, 2018.

District Department of Transportation. January 2015. Long Bridge Study. Accessed from https://ddot.dc.gov/sites/default/files/dc/sites/ddot/publication/attachments/LongBridge_ExecutiveSummary_Chapters1thru3_0.pdf/. Accessed November 8, 2017.

District Department of Transportation. March 15, 2013. Long Bridge Study: Bridge Design Workshop. Accessed from https://ddot.dc.gov/sites/default/files/dc/sites/ddot/publication/attachments/Appendix%20F_Design%20Workshop.pdf. Accessed November 8, 2017.

District Office of Planning. April 21, 2006. Existing Land Use Maps Map Tiles 10 and 13. Accessed from https://planning.dc.gov/page/existing-land-use-maps. Accessed January 5, 2018.

National Oceanic and Atmospheric Administration. 42nd Edition, August 2015. Cleared through December 30, 2017. Last correction: December 15, 2017. Nautical Chart: US12285.

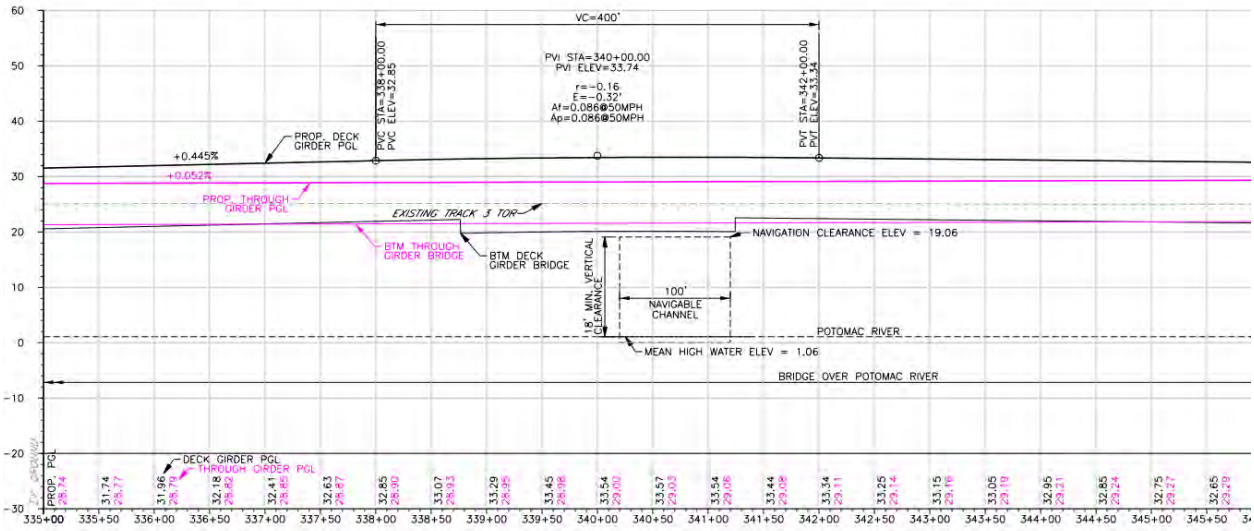
"Title 33 – Navigation and Navigable Waters: Part 203 – Bridge Regulations: Potomac River at Washington, D.C." 27 Federal Register 7411 (July 28, 1962).

United States Army Corps of Engineers, Baltimore District. November 2015. Washington, D.C. & Virginia Condition Survey: Anacostia Channel, Washington Harbor, Potomac River.

United States Department of the Interior, National Park Service. April 2016. Arlington Memorial Bridge Rehabilitation Environmental Assessment.

Washington Metropolitan Area Transit Authority. June 8, 1977. As-Built Drawing.

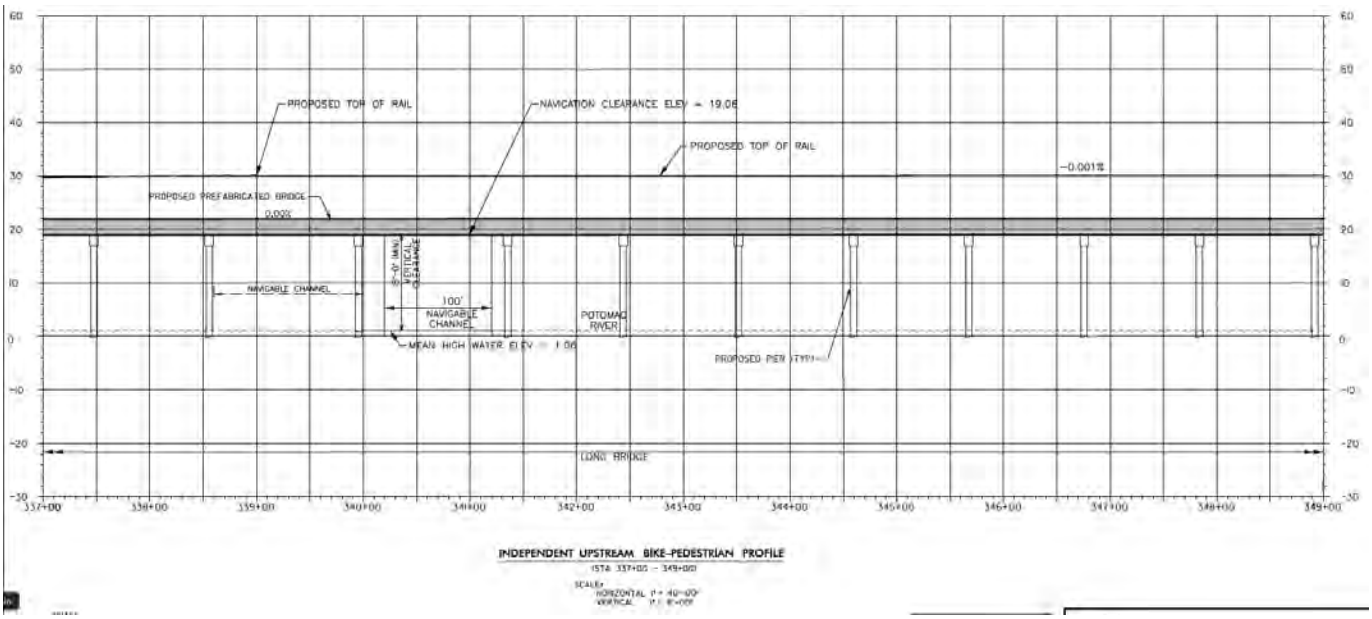
Appendix A: Proposed Project Navigational Clearances (Railroad Bridge(s) and Bike-Pedestrian Bridge)



DESIGN SPEED
ALL TRACKS:
FREIGHT SPEED = 50 MPH
PASSENGER SPEED = 50 MPH

TRACKS 1 & 2 OVER POTOMAC RIVER FOR ACTION ALTERNATIVE A ONLY:
FREIGHT SPEED = 25 MPH

ACTION ALTERNATIVE A & B
PROFILE STA. 335+00 TO 350+00



INDEPENDENT UPSTREAM BIKE-PEDESTRIAN PROFILE
(STA 337+00 - 349+00)

Appendix B: Records of Communication

Log of email and telephone communications with pertinent businesses within the Study Area. Representatives were interviewed to gather information on the navigation uses and needs of the local marine businesses in the Study Area.

RECORD OF COMMUNICATION

Date: October 25, 2017

Between: Kelsey Robertson (VHB) **and:** Debbie Stickell **of:** Capital Yacht Club

Subject: Requesting Information on Capital Yacht Club and the Navigational Impacts of the Long Bridge

RECORD OF COMMUNICATION

Date: October 30, 2017

Between: Kelsey Robertson (VHB) **and:** Paul Ash **of:** National Harbor Marina

Subject: Requesting Information on National Harbor Marina and the Navigational Impacts of the Long Bridge

RECORD OF COMMUNICATION

Date: October 30, 2017

Between: Kelsey Robertson (VHB) **and:** Kevin Warntz **of:** The Yards Marina

Subject: Requesting Information on The Yards Marina and the Navigational Impacts of the Long Bridge

RECORD OF COMMUNICATION

Date: October 31, 2017

Between: Kelsey Robertson (VHB) **and:** Bill Gard **of:** Old Dominion Boat Club

Subject: Requesting Information on Old Dominion Boat Club and the Navigational Impacts of the Long Bridge

RECORD OF COMMUNICATION

Date: November 1, 2017

Between: Kelsey Robertson (VHB) **and:** Dianne Hartenstine **of:** Gangplank Marina

Subject: Requesting Information on Gangplank Marina and the Navigational Impacts of the Long Bridge

RECORD OF COMMUNICATION

Date: November 20, 2017

Between: Kelsey Robertson (VHB) **and:** Kristen Cooley **of:** Urban Pirates

Subject: Requesting Information on Urban Pirates and the Navigational Impacts of the Long Bridge

RECORD OF COMMUNICATION

Date: December 5, 2017

Between: Kelsey Robertson (VHB) **and:** Mike Davis **of:** Washington Sailing Marina

Subject: Requesting Information on Washington Sailing Marina and the Navigational Impacts of the Long Bridge

RECORD OF COMMUNICATION

Date: December 6, 2017

Between: Kelsey Robertson (VHB) **and:** George Stevens **of:** Belle Haven Marina

Subject: Requesting Information on Belle Haven Marina and the Navigational Impacts of the Long Bridge

RECORD OF COMMUNICATION

Date: December 15, 2017

Between: Kelsey Robertson (VHB) **and:** Dave Whanger **of:** Entertainment Cruises

Subject: Requesting Information on Entertainment Cruises and the Navigational Impacts of the Long Bridge

Appendix C: Records of Outreach

Log of email and telephone outreach requesting information from pertinent businesses within the Study Area. Representatives from the businesses did not respond.

RECORD OF OUTREACH

Date: October 24, 2017 and December 4, 2017

Between: Kelsey Robertson (VHB) **and:** Capital Cove Marina

Subject: Requesting Information on Capital Cove Marina and the Navigational Impacts of the Long Bridge

RECORD OF OUTREACH

Date: October 30, 2017 and December 4, 2017

Between: Kelsey Robertson (VHB) **and:** Columbia Island Marina

Subject: Requesting Information on Columbia Island Marina and the Navigational Impacts of the Long Bridge

RECORD OF OUTREACH

Date: October 24, 2017 and December 4, 2017

Between: Kelsey Robertson (VHB) **and:** James Creek Marina

Subject: Requesting Information on James Creek Marina and the Navigational Impacts of the Long Bridge

RECORD OF OUTREACH

Date: October 24, 2017 and December 4, 2017

Between: Kelsey Robertson (VHB) **and:** The Washington Marina Company

Subject: Requesting Information on The Washington Marina Company and the Navigational Impacts of the Long Bridge

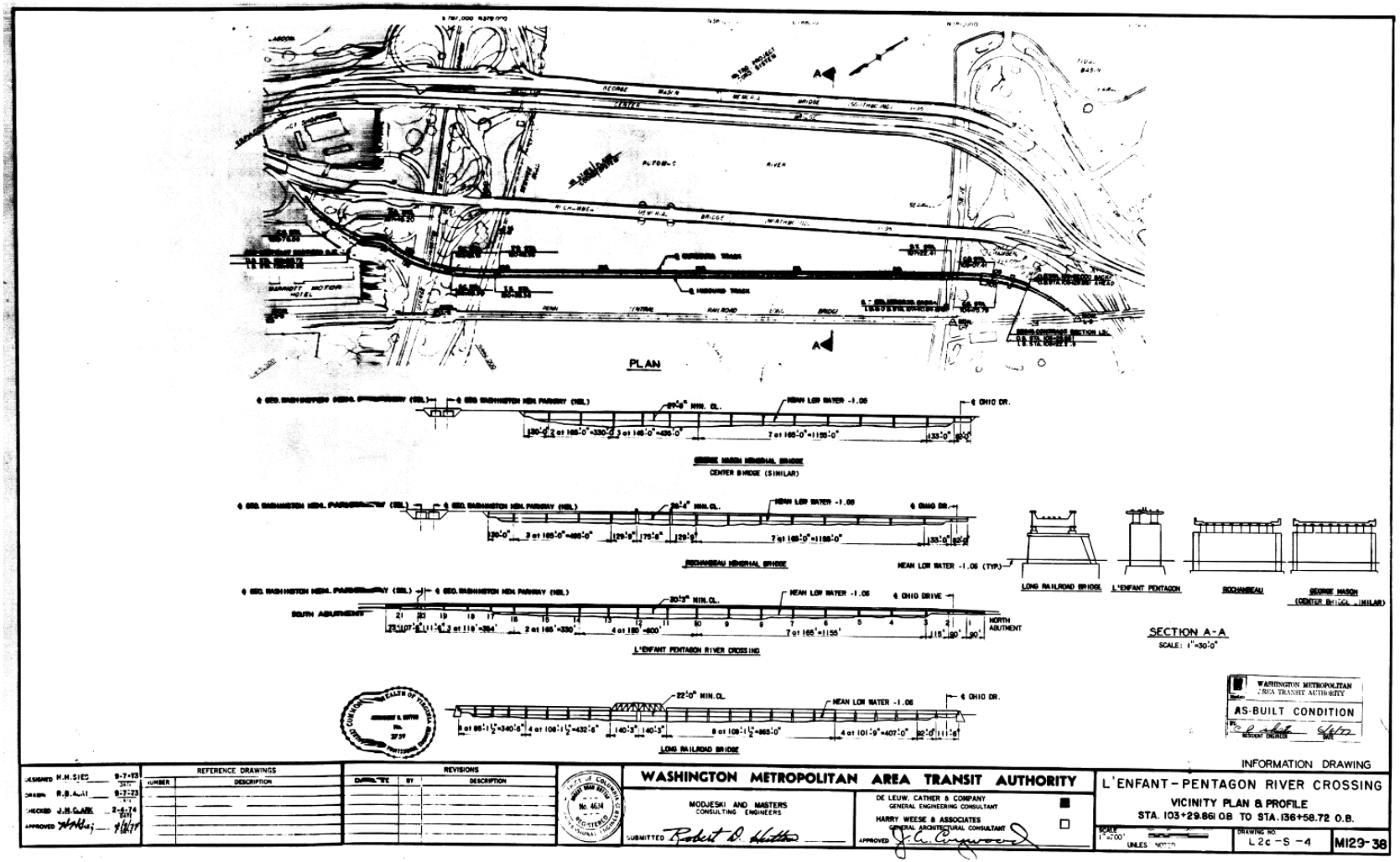
RECORD OF OUTREACH

Date: November 20, 2017 and December 4, 2017

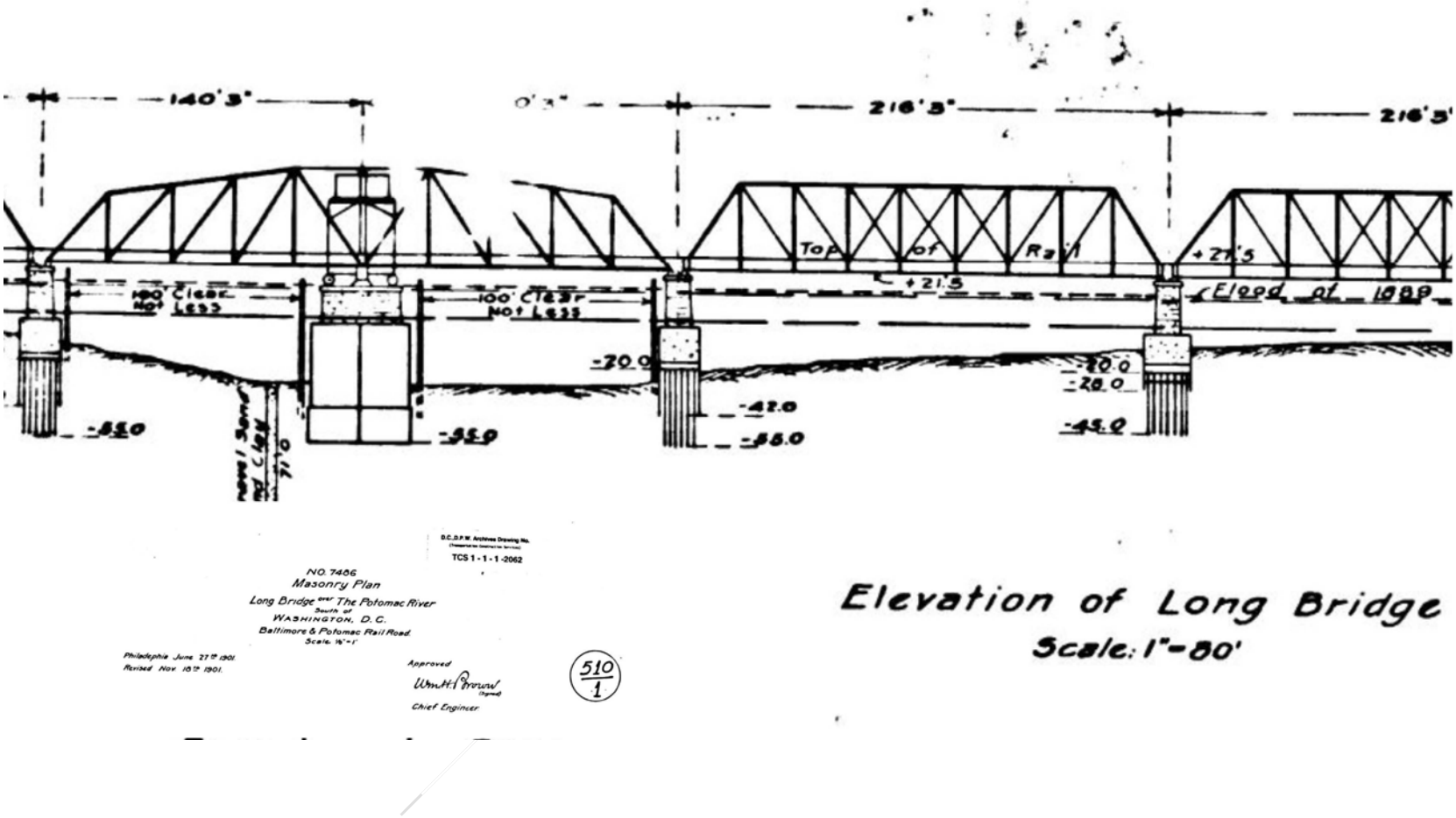
Between: Kelsey Robertson (VHB) **and:** DC Harbor Cruises

Subject: Requesting Information on DC Harbor Cruises and the Navigational Impacts of the Long Bridge

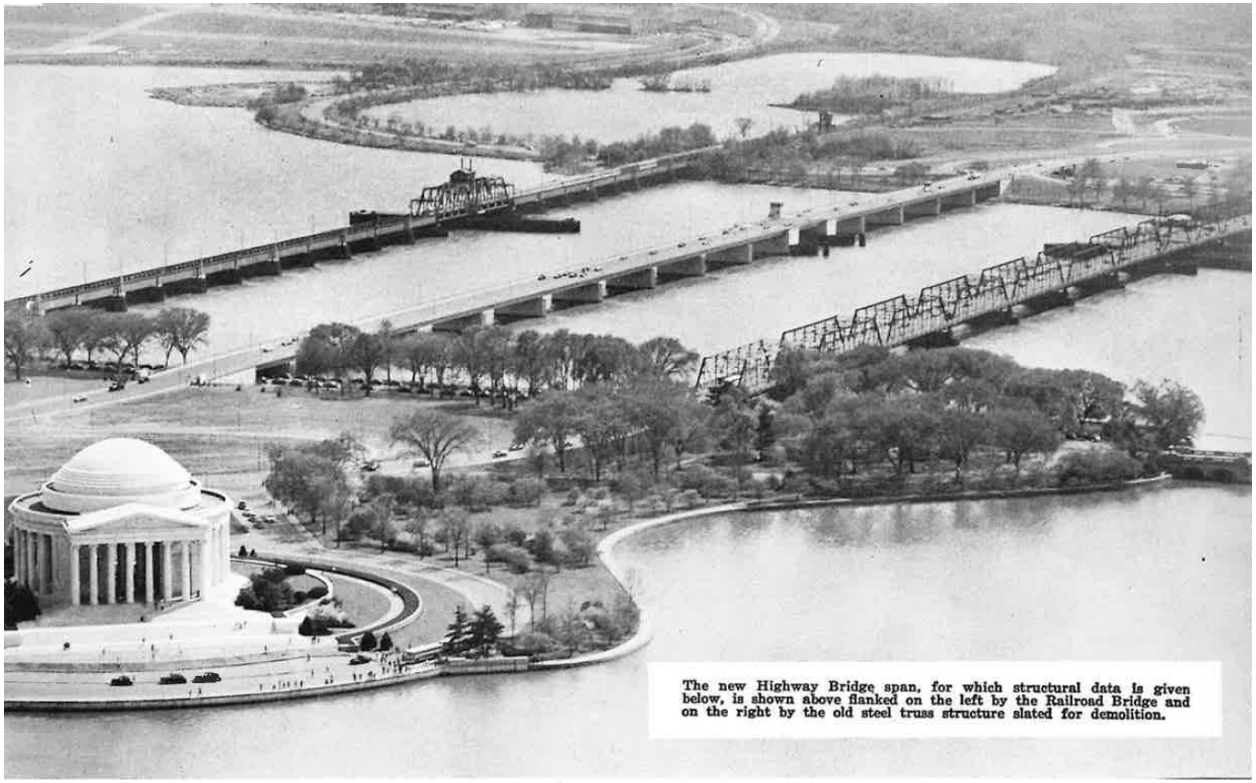
Appendix D: Washington Metropolitan Area Transit Authority As-Built Drawing



Appendix E: Long Bridge 1901 Record Drawing

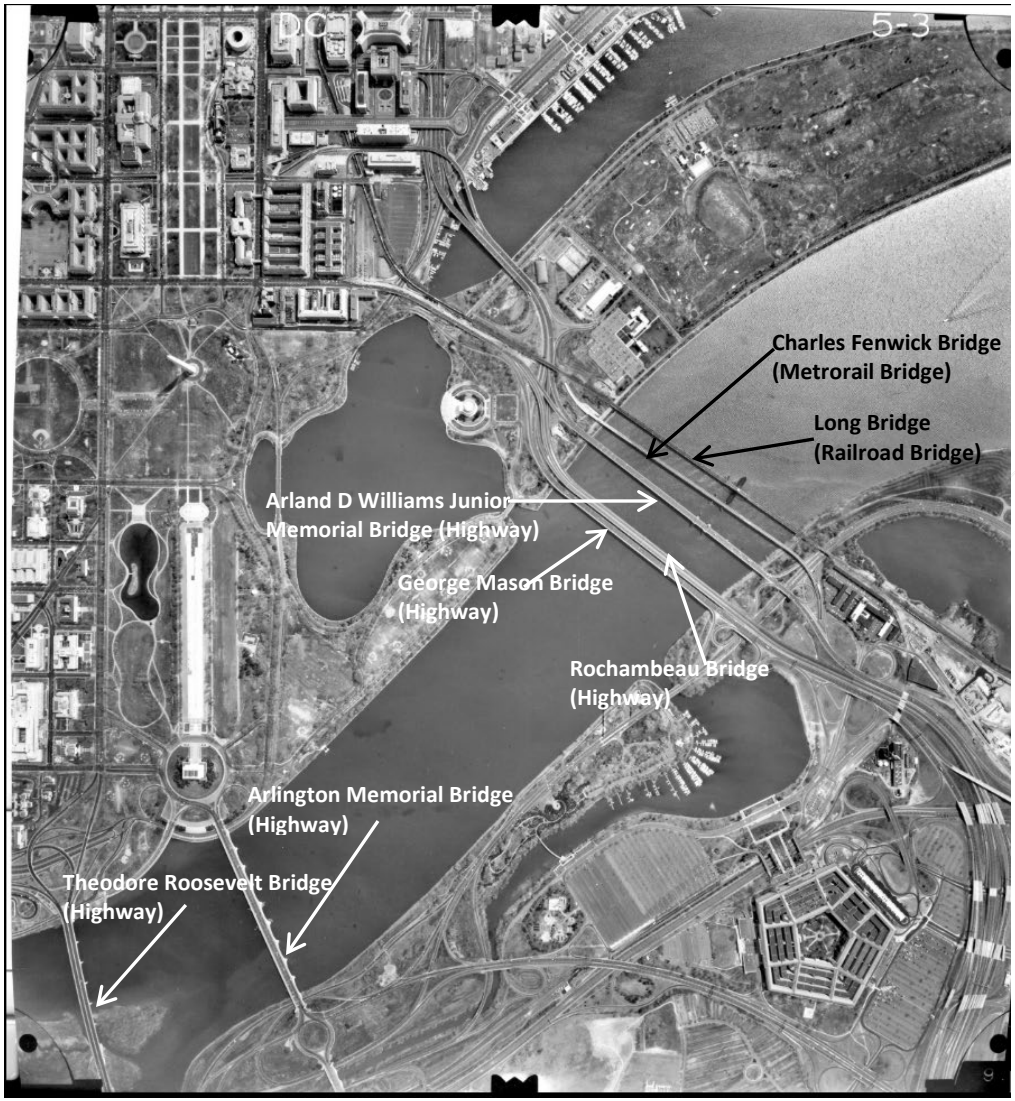


Appendix F: 14th Street Bridge Complex Photos



14th Street Bridge Complex – 1950s Photo of Bridge

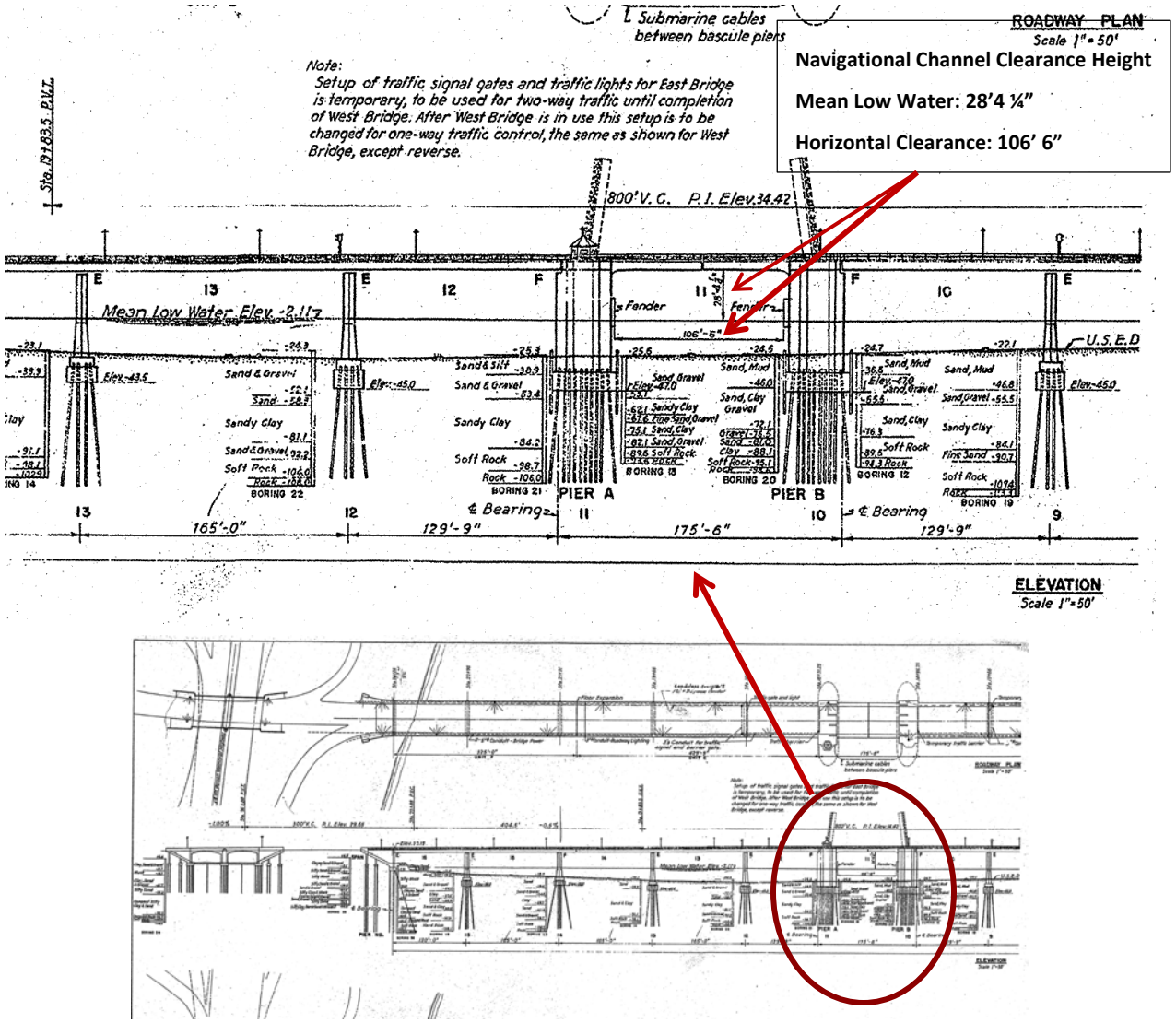
14th Street Highway Bridges circa 1950s



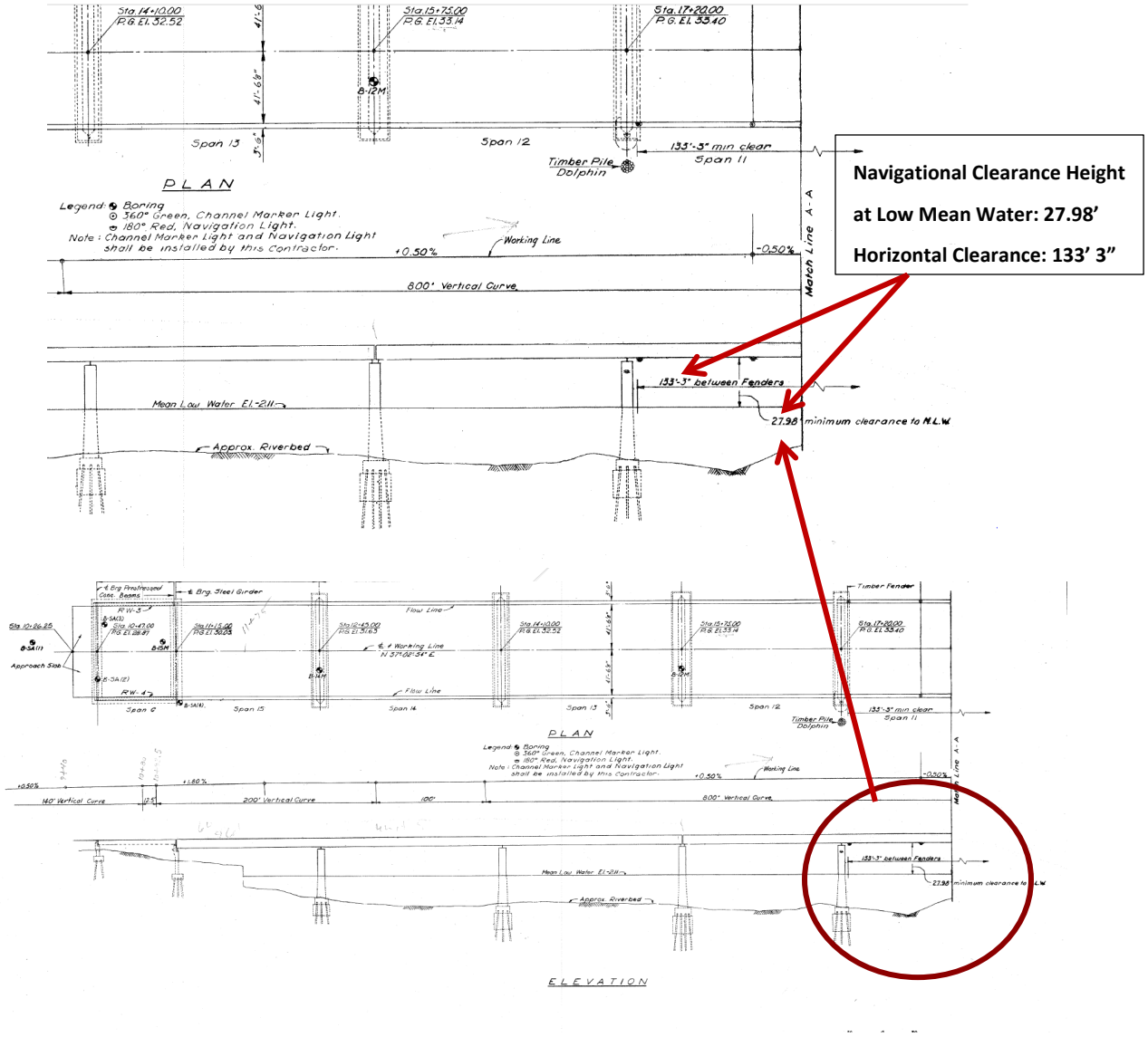
14th Street Bridge Complex 1980s –Existing Conditions - Complex Remains the same today.

Appendix G: 14th Street Bridge Complex: Bridge Navigational Clearance Heights

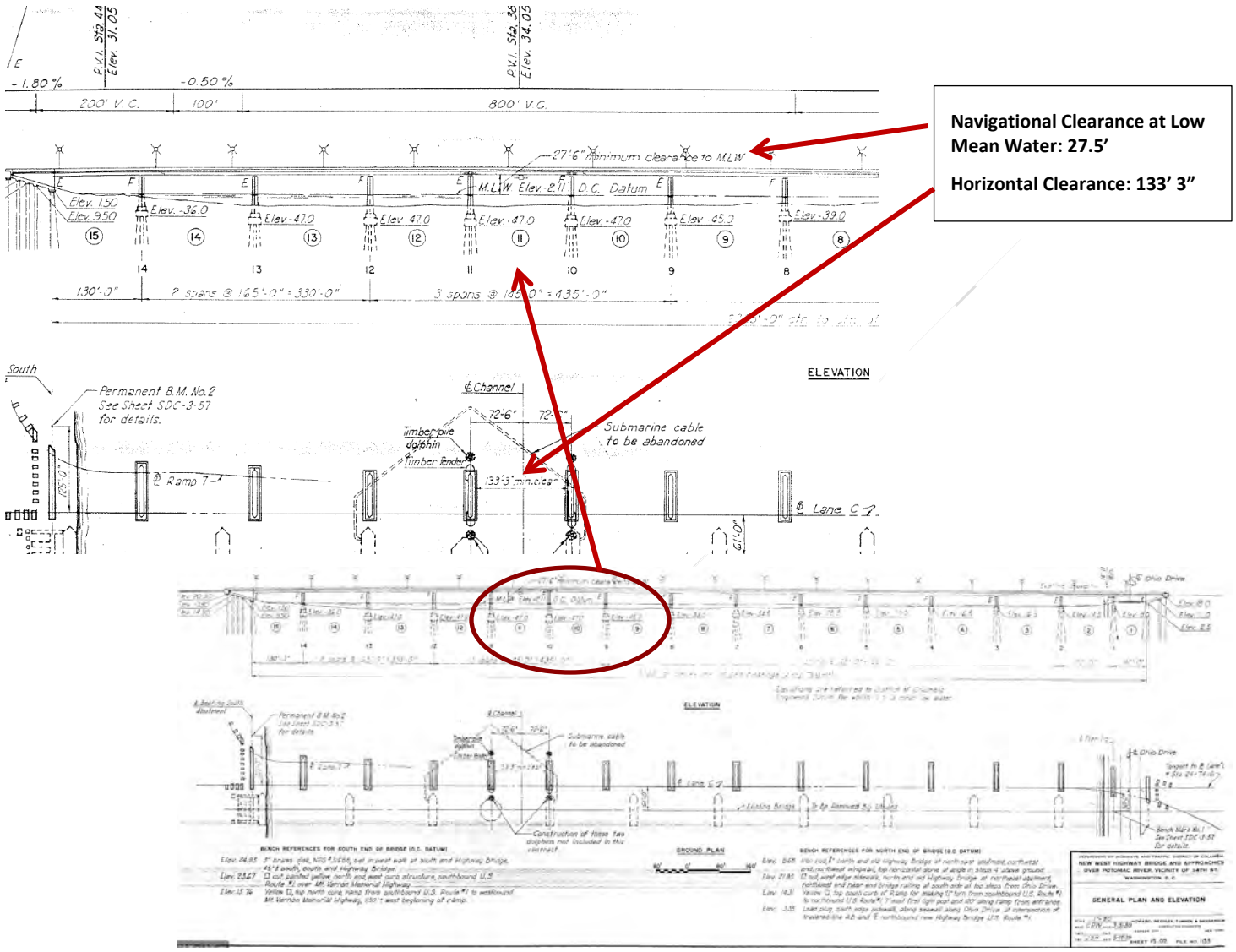
Bridge Name	Navigational Clearance Vertical Height at Mean Low Water	Navigational Clearance Horizontal Width
Arland D Williams, Junior Memorial	28’ 4 ½”	106’ 6”
Rochambeau Bridge	27.98’	133’ 3”
George Mason Memorial Bridge	27’ 6”	133’ 3”



1949 Arland D. Williams, Jr. Memorial Bridge Plan (Highway)



1968 Plan of Rochambeau Bridge (Highway)



1959 George Mason Bridge (Highway)

Appendix E – Section 106 Programmatic Agreement

PROGRAMMATIC AGREEMENT
AMONG
THE FEDERAL RAILROAD ADMINISTRATION,
THE DISTRICT OF COLUMBIA STATE HISTORIC PRESERVATION OFFICE,
THE VIRGINIA DEPARTMENT OF HISTORIC RESOURCES,
THE NATIONAL PARK SERVICE,
NATIONAL CAPITAL PLANNING COMMISSION,
AND
THE VIRGINIA DEPARTMENT OF RAIL AND PUBLIC TRANSPORTATION
REGARDING
THE LONG BRIDGE PROJECT
IN
WASHINGTON, D.C. AND ARLINGTON COUNTY, VIRGINIA

WHEREAS, the Federal Railroad Administration (FRA) and the District Department of Transportation (DDOT) are proposing potential improvements to railroad infrastructure located between the RO Interlocking near Long Bridge Park in Arlington, Virginia, and the L'Enfant (LE) Interlocking near 10th Street SW in the District of Columbia (Long Bridge Corridor)[1] to address insufficient capacity, resiliency, and redundancy to accommodate the projected demand in future rail services; and

WHEREAS, the Long Bridge Project (Project) consists of the construction of a new two-track bridge upstream of the existing two-track Long Bridge to create a four-track crossing over the Potomac River (Appendix A, Figure 1), and construction of a new two-track railroad bridge over the George Washington Memorial Parkway (GWMP), Mount Vernon Trail, and Ohio Drive SW. After crossing the Potomac River and Ohio Drive SW, the Long Bridge Corridor would continue through East and West Potomac Parks. The Project includes improvements to related railroad infrastructure but proposes no alterations to the existing Long Bridge, a two-track railroad bridge constructed in 1904, that is currently owned and operated by CSX Transportation (CSXT), a Class I freight railroad; and

WHEREAS, the Project includes all associated mitigations triggered by applicable laws, such as the National Historic Preservation Act (NHPA) as amended (54 U.S.C. § 306108); the National Environmental Policy Act (NEPA) (42 U.S.C. § 4231 et seq.); and Section 4(f) of the United States Department of Transportation Act of 1966, 49 U.S.C. § 303 (Section 4(f)); and

WHEREAS, the Project is needed to ensure the Long Bridge Corridor continues to serve as a critical link connecting the local, regional, and national railroad network; and

WHEREAS, FRA provided Fiscal Year 2014 grant funding (Grant # FR-TII-0036) to DDOT to conduct nondestructive project planning activities that have no potential to cause effects on historic properties, including engineering and environmental analysis of the Project; and

WHEREAS, if FRA provides funding for future construction of the Project, the FRA funding, along with Project implementation and related federal authorizations, which are the subject of this Programmatic Agreement (PA), will constitute an "Undertaking" subject to review under Section 106 of the NHPA (Section 106), and FRA will be the Federal agency responsible for compliance with Section 106; and

[1] An interlocking is a segment of railroad infrastructure comprised of track, turnouts, and signals linked (interlocked) in a way that allows trains to safely move from one track to another, or across tracks, preventing conflicting train movements. Note that the proper name of RO Interlocking is "RO." It is not an acronym.

WHEREAS, this PA was developed pursuant to Section 106 of the NHPA and its implementing regulations, 36 CFR Part 800; and

WHEREAS, the Virginia Department of Rail and Public Transportation (DRPT) is the final design and construction sponsor for the Project (Construction Project Sponsor) who will be responsible for implementing the Project through final design and construction, including compliance with identified mitigation measures; and

WHEREAS, in accordance with NEPA, FRA and DDOT prepared an Environmental Impact Statement (EIS) for the Project; and

WHEREAS, the Project will involve the use of lands managed by the National Park Service (NPS) within the GWMP and National Mall and Memorial Parks (NAMA); and

WHEREAS, the Project would impact NPS park properties protected under Section 4(f), and FRA and DDOT determined that impacts will be mitigated through construction of a bicycle-pedestrian crossing over the Potomac River on a structure located upstream of the new railroad bridge (Appendix A, Figure 2) and the effects of the bicycle-pedestrian crossing on historic properties have been considered under Section 106 as described below; and

WHEREAS, NPS is charged in its administration of the units of the National Park System to meet the directives of other laws, regulations, and policies including the NPS Organic Act as codified in Title 54 U.S.C. § 100101(a) to "conserve the scenery, natural and historic objects, and wild life in the System units and to provide for the enjoyment of the scenery, natural and historic objects, and wild life in such a manner and by such means as will leave them unimpaired for the enjoyment of future generations"; and

WHEREAS, the GWMP, a unit of the National Park System, with portions located in Fairfax and Arlington Counties and the City of Alexandria, Virginia, was established pursuant to what is known as the Capper-Cramton Act, Public Law 71-284, 46 Statute 482 (1930), for purposes "to include the shores of the Potomac and adjacent lands, from Mount Vernon to a point above the Great Falls on the Virginia side, including the protection and preservation of the natural scenery of the Gorge and Great Falls of the Potomac," and came to be administered by NPS pursuant to Executive Order 6166 of June 10, 1933; and

WHEREAS, NAMA, which administers more than 1,000 acres of park land within the District of Columbia, including fourteen units of the National Park System, as well as more than 150 reservations, circles, fountains, squares, triangles, and park spaces, also came to be administered by NPS under Executive Order 6166; and

WHEREAS, phased identification and evaluation will occur for archaeological resources consistent with the *Long Bridge Project Phase IA Archaeological Assessment Report* dated July 24, 2018, therefore FRA will comply with Section 106 through the execution and implementation of this PA pursuant to 36 CFR § 800.14(b); and

WHEREAS, in accordance with 36 CFR § 800.2(a)(4), FRA invited individuals and organizations with a demonstrated interest in the Project to participate as Consulting Parties in the Section 106 process. The full list of Consulting Parties is provided in Appendix B; and

WHEREAS, FRA in consultation with the DC State Historic Preservation Office (DC SHPO), the Virginia Department of Historic Resources (DHR) (which is the Virginia SHPO), and the Consulting Parties, established the Project's Area of Potential Effects (APE), as defined under 36 CFR §800.16(d)

and DC SHPO and DHR concurred with the APE on July 12, 2017. The APE is illustrated in Appendix C; and

WHEREAS, FRA identified forty-two (42) historic properties within the APE, including the East and West Potomac Parks Historic District (listed in the National Register of Historic Places (NRHP) on November 30, 1973 (revised November 11, 2001)), the GWMP (listed in the NRHP on June 2, 1995), and the Mount Vernon Memorial Highway (MVMH) (listed in the NRHP on May 18, 1981). The Long Bridge is a contributing element to all three historic districts. DC SHPO and DHR concurred with the *Identification of Historic Properties Technical Report* on March 23, 2018; both letters and the full report can be found in Appendix C, along with a complete list of historic properties in the APE; and

WHEREAS, FRA determined the Project will have an adverse effect on the GWMP, MVMH, and East and West Potomac Parks Historic Districts due to the introduction of new structures that would have visual effects, direct effects resulting from the alteration of historic fabric within those districts, as well as temporary adverse effects due to construction-related activities on the above mentioned districts and the National Mall Historic District (listed in the NRHP on October 15, 1966 (revised December 8, 2016)); and

WHEREAS, DC SHPO concurred with FRA's *Assessment of Effects Report* and the subsequent *Determination of Effect* in a letter dated November 8, 2018, and DHR concurred with both in a letter dated November 9, 2018. Both letters can be found in Appendix D; and

WHEREAS, FRA considered avoidance measures during concept screening, and dismissed any alternatives that considered the construction of a new railroad bridge and associated railroad infrastructure outside of the existing Long Bridge Corridor, thus avoiding potential effects on historic properties generated by expanding the Project Area. Additionally, the new railroad bridge will be designed with a vertical clearance, visual appearance of the structural system, and alignment that closely references that of the existing Long Bridge, thus avoiding potential adverse visual effects caused by a less compatible type of new bridge structure; and

WHEREAS, in accordance with 36 CFR § 800.6(a)(1), FRA notified the Advisory Council on Historic Preservation (ACHP) of the adverse effects determination and provided the documentation specified in 36 CFR § 800.11(e). ACHP declined to participate in consultation pursuant to 36 CFR § 800.6(a)(1)(iv) in a letter dated December 21, 2018, which can be found in Appendix E; and

WHEREAS, NPS is a Consulting Party in the Section 106 process pursuant to 36 CFR § 800.3(f)(1), manages the Federal park property on either side of the Potomac River within the Project's APE (see Appendix C), and has permitting authority over the Potomac River bottom which includes the Washington Channel (41 Fed. Reg, 34,801). As part of the Project, when an appropriate legal mechanism is identified for permanent use of the affected Federal park property for the Project, NPS would issue a permit for temporary use of land under its administration for construction-related activities. NPS also will issue a permit for permanent use of river bottom land. These permits constitute an Undertaking as defined at 36 CFR § 800.16(y). Therefore, NPS has elected to fulfill its Section 106 responsibilities by participating in this consultation, and is an Invited Signatory to this PA pursuant to 36 CFR § 800.6(c)(2); and

WHEREAS, National Capital Planning Commission (NCPC) is a Consulting Party in the Section 106 process pursuant to 36 CFR § 800.3(f)(1), has approval authority over Federal projects located within the District of Columbia and has approval authority over all land transfers and physical alterations to Federal property pursuant to the National Capital Planning Act (40 U.S.C. § 8722(b)(1) and (d)), and this

approval would constitute an Undertaking as defined at 36 CFR § 800.16(y). NCPC has elected to fulfill its Section 106 responsibilities by participating in this consultation and is an Invited Signatory to this PA pursuant to 36 CFR § 800.6(c)(2); and

WHEREAS, DRPT is a Consulting Party in the Section 106 process pursuant to 36 CFR § 800.3(f)(1), is the Construction Project Sponsor, and will have roles and responsibilities in the implementation of this PA and is an Invited Signatory to this PA pursuant to 36 CFR § 800.6(c)(2); and

WHEREAS, the U.S. Commission of Fine Arts (CFA) has a statutory obligation under the Shipstead-Luce Act of 1930 (Public Law 71-231) to regulate height, exterior design, and construction of private and semiprivate buildings in certain areas of the National Capitol within which the Project falls. CFA has design review authority over new structures erected in the District under the direction of the Federal government (Executive Order 1862) and plans for parks which "in any essential way affect the appearance of the City of Washington, or the District of Columbia" (Executive Order 3524). CFA is a Consulting Party in the Section 106 process pursuant to 36 CFR § 800.3(f)(1) and is invited to concur with this PA pursuant to 36 CFR § 800.6(c)(3); and

WHEREAS, U.S. Army Corps of Engineers (USACE), acting through its Norfolk and Baltimore Districts, is the Federal agency responsible for permitting under Section 10 of the Rivers and Harbors Act of 1899 and Sections 401 and 404 of the Clean Water Act of 1972 which would constitute an Undertaking as defined at 36 CFR § 800.16(y). USACE designated FRA to act as the lead Federal agency to fulfill their collective Section 106 responsibilities pursuant to 36 CFR § 800.2(a)(2) via letters on October 14, 2016 (Norfolk District) and November 15, 2018 (Baltimore District), and is invited to concur with this PA pursuant to 36 CFR § 800.6(c)(3); and

WHEREAS, U.S. Coast Guard (USCG), acting through its Fifth Coast Guard District, is the Federal agency responsible for bridge permitting over a navigable waterway under Section 9 of the Rivers and Harbors Act of 1899 and the General Bridge Act of 1946 which would constitute an Undertaking as defined at 36 CFR §800.16(y). USCG designated FRA to act as the lead Federal agency to fulfill its Section 106 responsibilities pursuant to 36 CFR § 800.2(a)(2) via a letter dated November 18, 2019, and is invited to concur with the PA pursuant to 36 CFR § 800.6(c)(3); and

WHEREAS, DDOT, as the Planning Project Sponsor, is a Consulting Party in the Section 106 process pursuant to 36 CFR § 800.2(c)(4). However, DDOT will not have a role or responsibility in implementing the terms of the PA and is invited to concur with this PA pursuant to 36 CFR § 800.6(c)(3); and

WHEREAS, in letters dated March 31, 2017 (Appendix F), FRA contacted the Catawba Indian Nation, the Delaware Nation, and the Delaware Tribe of Indians (collectively referred to as "Native American tribes" in this PA), Federally recognized sovereign Indian Nations that have a government-to-government relationship with the United States and an interest in the area affected by the Project pursuant to 36 CFR § 800.2(c)(2). FRA invited each of these Native American tribes to be a Consulting Party and they are invited to concur with this PA pursuant to 36 CFR § 800.6(c)(3); and

WHEREAS, the Delaware Nation accepted FRA's invitation to consult in the Section 106 process by electronic mail on May 11, 2017; the Delaware Tribe of Indians declined to participate on June 15, 2017; and the Catawba Indian Nation declined to participate on July 29, 2019; and

WHEREAS, FRA will notify the Native American tribes in the event that pre-historic resources are discovered through the phased identification and evaluation of archaeological resources or in a Post Review Discovery; and

WHEREAS, FRA conducted five Section 106 Consulting Party meetings to provide opportunities for the Consulting Parties to comment on the development of the Action Alternatives, delineation of the APE, identification of historic properties, methodology for assessing effects on historic properties, assessment of effects on historic properties, and potential resolution strategies. Summaries of each Consulting Party meeting can be found in Appendix G; and

WHEREAS, FRA made the draft PA available to the public for review and comment by appending it to the Draft EIS, and FRA considered comments received when finalizing this PA; and

NOW, THEREFORE, FRA, DC SHPO, DHR, NPS, NCPC, and DRPT (collectively referred to as the Signatories) agree that if the Project moves forward, it will be implemented in accordance with the following stipulations in order to take into account the effects of the Project on historic properties and that these stipulations will govern compliance with Section 106 of the NHPA.

STIPULATIONS

FRA will ensure that the following measures are carried out:

I. GENERAL

A. APPLICABILITY

1. FRA, NPS, NCPC, USCG, and USACE will use the terms and conditions of this PA to fulfill their Section 106 responsibilities, as well as any other Federal agencies that designate FRA as the lead Federal agency, pursuant to 36 CFR § 800.2(a)(2). Federal agencies that do not designate FRA as the lead Federal agency remain individually responsible for their compliance with Section 106.

2. In the event that a Federal agency or other agency issues Federal funding, permits, licenses, or approvals for the Undertakings associated with the Project and the Project remains unchanged, such Federal agency may become a Signatory to this PA as a means of satisfying its Section 106 compliance responsibilities, as outlined in Stipulation XI. Any necessary amendments will be considered in accordance with Stipulation XII of this PA.

3. This PA only binds FRA if it provides financial assistance, permits, licenses, or approvals for construction of the Project and, therefore, meets the definition of Undertaking found at 36 CFR § 800.16(y).

4. In the event that the Project does not become an FRA Undertaking and FRA withdraws its participation in the PA under Stipulation XIII.B, and another Federal agency or other agency continues to have an Undertaking and desires to continue to use this PA to satisfy its responsibilities under Section 106, this PA will be amended in accordance with the terms of Stipulation XII.B and that Federal agency or other agency acting as a Federal agency will assume lead agency responsibilities for Section 106.

B. TIMEFRAMES AND NOTIFICATIONS

1. All time designations are in calendar days unless otherwise stipulated. If a review period ends on a Saturday, Sunday, or Federal holiday, the review period will be extended until the next business day.

2. All communication and notifications required by this PA will be sent by email or other electronic means.

C. ROLES AND RESPONSIBLITIES

1. FRA

   a. Pursuant to 36 CFR §800.2(a)(2), FRA has the primary responsibility to ensure the provisions of this PA are carried out.

   b. FRA is responsible for all government-to-government consultation with federally-recognized Native American tribes.

2. DDOT

   a. Pursuant to 36 CFR §800.2(c)(4), FRA authorized DDOT to initiate consultation and prepare any necessary analyses, documentation, and recommendations on its behalf, but FRA remains responsible for all findings and determinations, including determinations of eligibility, findings of effect as well as resolution to objections or dispute resolution.

3. NPS

   a. Although the legal mechanism for NPS's actions has not yet been determined, NPS currently expects that no further NPS Undertakings separate from those outlined in this PA would occur, therefore no additional Section 106 review by NPS is anticipated to be necessary. If any unexpected NPS Undertakings are required, NPS may suggest amending this PA in accordance with Stipulation XII to address the additional Section 106 reviews.

   b. NPS is responsible for implementing certain specified mitigation measures identified in Stipulation III and for any resulting curation of records and other cultural materials pursuant to 36 CFR §79.

   c. NPS will provide Signatories with annual updates on the completion of the specific mitigation measures that NPS has agreed to complete in Stipulation III pursuant to Stipulation IX.

   d. NPS is responsible for coordinating Federal Agencies' compliance with the Native American Graves Protection and Repatriation Act (NAGPRA) on National Park System lands.

   e. NPS is responsible for enforcing the applicable provisions of the Archaeological Resources Protection Act (ARPA 16 U.S.C. 470aa et seq.), including but not limited to the issuance of permits, and investigation of any damages resulting from prohibited activities on National Park System lands.

4. DRPT

   a. Pursuant to 36 CFR §800.2(c)(4), FRA authorizes DRPT to initiate consultation and prepare any necessary analyses, documentation, and recommendations on its behalf, but FRA remains legally responsible for all findings and determinations, including

determinations of eligibility, findings of effect as well as resolution to objections or dispute resolution.

b. DRPT will conduct investigations and produce analyses, documentation and recommendations in a timely manner to address archaeological resources within the APE not recorded in the field prior to the Record of Decision.

c. DRPT will successfully complete any mitigation measures to minimize and resolve adverse effects on historic properties except for those for which NPS is responsible pursuant to Stipulation III.B.

d. DRPT is responsible for funding the completion of all investigations and associated documentation, curation, and other mitigation necessitated as a result of adverse effects on historic properties in accordance with the terms prescribed in this PA. This includes those mitigation measures specified in Stipulation III.B which will be implemented by NPS.

e. DRPT is responsible for costs incurred during any work stoppages in the event of a Post-Review Discovery.

f. In the event the Virginia General Assembly creates a Virginia Rail Authority or other rail governing body, DRPT may assign this Agreement to that governing body without obtaining consent of the Signatories. This Agreement shall be binding upon and inure to the benefit of the Signatories hereto and their respective successors and permitted assigns. DRPT will notify FRA of the assignment when the agreement to assign is fully executed.

5. DC SHPO and DHR

a. DC SHPO and DHR will review Project submittals according to the timeframes defined within this PA, and participate in consultation, as requested by FRA.

6. NCPC and CFA

a. NCPC and CFA will review Project submittals according to the timeframes defined within this PA, and participate in consultation, as requested by FRA.

b. These reviews do not supersede the statutory or regulatory obligations these bodies have, and their Commissions or Boards will review and approve the project components as required.

II. PERSONNEL QUALIFICATIONS STANDARDS

FRA, NPS, and DRPT will ensure that all historic preservation work performed by the relevant agency pursuant to Stipulations III and IV will be accomplished by or under the direct supervision of a person or persons who meet(s) or exceed(s) the pertinent qualifications in the *Secretary of the Interior's Professional Standards* (48 Federal Register [F.R.] 44716).

III. RESOLUTION OF ADVERSE EFFECTS

A. DOCUMENT REVIEW FOR MINIMIZATION AND MITIGATION MEASURES

The Signatories will follow these Document Review procedures, when specified, in Stipulation III.B for Minimization and Mitigation Measures during the Project's Preliminary Engineering Phase as stipulated below. The Signatories will also follow these procedures for Stipulation IV.C, Archaeology.

1. DRPT will provide draft documentation regarding preliminary engineering and design elements of the Project and any Minimization and Mitigation Measures it is responsible for performing to FRA for review and approval. FRA will review the draft documentation within thirty (30) calendar days. Following receipt of FRA approval, DRPT will submit the documentation to the Signatories.

2. The Signatories will review the documentation and provide written comments to FRA and DRPT within thirty (30) calendar days. Any Signatory may request a meeting within that review period.

3. DRPT, in consultation with FRA, will ensure that written comments received are considered and incorporated, as appropriate, to the fullest reasonable extent into the documentation and that the Signatories are notified of the manner in which the comments have been incorporated.

4. If no Signatory provides written comments within the specified timeframe, DRPT may proceed with the portion of the Project subject to the documentation without taking additional steps to seek comment from the Signatories.

5. If FRA or DRPT receives an objection or extensive revision recommendations to the document, FRA and DRPT will work expeditiously with the Signatories to respond to the objection and/or resolve the dispute. If no agreement is reached within thirty (30) calendar days, FRA may request the ACHP review the dispute in accordance with Stipulation X. FRA will notify the Signatories of FRA's decision.

6. Should any substantive changes be made to the engineering and design elements of the Project after the Signatories' review, DRPT, in consultation with FRA, will submit changes to the Signatories and review shall follow the same timeline and process as outlined above.

B. MINIMIZATION AND MITIGATION MEASURES

FRA and DRPT will ensure the following measures to minimize and/or mitigate adverse effects on historic properties are carried out. DRPT may independently proceed with the Project while NPS completes assigned mitigation measures.

1. *Design Review:* DRPT will design and aesthetically treat any elements of the Project, as illustrated in Appendix A, introduced into NPS-administered properties to be compatible with the character of existing resources and appropriate for the context of Washington DC's Monumental Core.

a. *Minimization:* Design Review will minimize potential adverse effects of introducing new features into the historic districts.

b. DRPT, in consultation with FRA, will consult with DC SHPO, DHR, NPS, NCPC and CFA pursuant to Stipulation III.A as the Preliminary Engineering Phase is progressed within the historic districts. Design Review will address the following design elements: a) structure type and visual appearance of the new railroad bridge and bike-pedestrian crossing; b) aesthetic treatment of new bridges or other structures; c) landscape design; and d) any additional signage or lighting necessitated by the Project, except for the Interpretative Signage Mitigation in Stipulation III.B.7 below.

c. The Signatories agree that steel "through plate girders" should be used to construct the new bridge over the Potomac River because the "through plate girders" are similar to the Long Bridge's girders and will avoid and minimize adverse effects by establishing a common structural vocabulary and a better visual connection between the historic and new bridges than the steel "deck plate girders" which are similar to the adjacent Metro Bridge. If, through engineering and design development, DRPT determines that it is impracticable to construct the new bridge with "through plate girders," DRPT will forward the information that forms the basis of its decision to the other Signatories and consult in accordance with Stipulation V. Any unresolved dispute relating to the type of girders that will be used to construct the new bridge will be addressed pursuant to Stipulation X. If "deck plate girders" are ultimately used to construct the new bridge, the Signatories shall consult further pursuant to Stipulation V to identify additional measures that will be used to mitigate the adverse effects that "deck plate girders" will cause and this PA will be amended pursuant to Stipulation XII.

2. *Viewshed Protection Plan and Inventory/Assessment*. DRPT will contribute a monetary value, agreed upon with NPS, for NPS to use to prepare and implement a GWMP Viewshed Protection Plan and Inventory/Assessment.

   a. DRPT and NPS agree that the contribution will be a value equal to the cost of preparing and implementing the GWMP Viewshed Protection Plan Inventory/Assessment for the portion of the GWMP from Alexandria to Columbia Island.

   b. NPS will produce the GWMP Viewshed Protection Plan and Inventory/Assessment within two years of the receipt of funding.

3. *Cultural Landscape Inventory*. DRPT will contribute a monetary value, agreed upon with NPS, for NPS to use to prepare Cultural Landscape Inventories (CLIs).

   a. Funding will be provided for NPS to complete CLIs for the MVMH (north of Alexandria to Columbia Island), and the East and West Potomac Parks Historic District (from the Golf Course to the railroad corridor and including the NPS National Capital Region Headquarters Campus). NPS will oversee the development and execution of the CLIs.

   b. NPS will produce a draft of the CLIs within eight (8) months of the receipt of funding from DRPT and will produce the final CLIs within one (1) year of the receipt of funding from DRPT.

4. Vegetation Protection Plan: A vegetation protection plan will be developed and implemented by DRPT, in coordination with NPS, within the areas defined as the limits of disturbance (LOD) in engineering plans to determine which vegetation is anticipated to be removed, impacted, or protected by the Project.

a. *Minimization:* Where feasible and appropriate, extant vegetation will be preserved *in situ* and protected during construction.

b. The *Vegetation Protection Plan* will include, at a minimum: documentation of the site's existing conditions; quantification and illustrations of vegetation that will be affected by the Project; and specifications for the protection of vegetation where necessary. This plan shall focus to protect mature and contributing trees within the GWMP, MVMH, and East and West Potomac Parks Historic Districts.

c. DRPT will complete the draft *Vegetation Protection Plan* during the Preliminary Engineering Phase of the Project. The plan will be reviewed pursuant to Stipulation III.A. FRA will ensure that DRPT will produce a final *Vegetation Protection Plan* and distribute the plan electronically to the Signatories for documentation purposes.

d. DPRT will implement the final *Vegetation Protection Plan* through the completion of the construction of the Project.

5. *Vegetation Restoration Plan:* DRPT will contribute a monetary value, agreed upon with NPS, for NPS' implementation of its portion of the *Vegetation Restoration Plan*, as described below in paragraph (a). The *Vegetation Restoration Plan* will utilize the draft and final CLIs, in the manner described in this Agreement, with the purpose of reestablishing the historic planting plans, with a focus from Columbia Island to Gravelly Point vicinity within GWMP and East and West Potomac Parks Historic Districts within NAMA.

a. Development & Implementation Responsibilities

i. DRPT shall develop a Vegetation Restoration Plan in collaboration with NPS, to the extent feasible under DRPT's Project schedule.

ii. NPS shall collaborate with DRPT to provide agency expert knowledge and any other available, relevant information for the development of the Vegetation Restoration Plan, including baseline documentation and other material to assist in the development of the restoration plan.

iii. DRPT shall implement the portion of the Vegetation Restoration Plan pertaining to the area within the LOD.

iv. NPS shall implement the Vegetation Restoration Plan for the non-LOD area.

v. DRPT will be responsible for vegetation monitoring and invasive plant removal within the LOD for five (5)-years after the date of construction completion, to ensure and support vegetation restoration within the LOD.

vi. Upon finalization, DRPT shall distribute the final Vegetation Restoration Plan to the Signatories. The plan will be reviewed pursuant to Stipulation III.A.

b. NPS would be responsible for any requirements associated with additional archaeology not subject to Stipulation IV for implementation of the plan outside the LOD. The Plan will include:

i. Specifications for the replacement of vegetation, and their caliper, where necessary. Restoration of vegetation at the same number and caliper inches of vegetation to be removed, unless the Project Sponsor and NPS agree to a lesser caliper and/or to a different tree type. NPS will be responsible for identification of appropriate replacement species alternatives, where in-kind replacement is not feasible, and the location of vegetation.

ii. A planting plan consisting of native trees and vegetation to screen new bridge structures and to minimize the visual effect of those structures to the extent feasible and appropriate.

6. *Construction Management Control Plan:*

a. *Minimization:* DRPT will minimize temporary construction effects to historic properties from noise and vibration and visual effects using a variety of construction management techniques. Visual effects will be minimized to the extent practicable by providing appropriate screening between construction staging areas and cultural resources, limiting the size of construction staging areas, and/or locating them away from sensitive views and viewsheds.

b. DRPT will develop and implement a construction noise and vibration control plan to ensure that both noise and vibrations are controlled throughout the estimated five (5)-year construction of the Project. The plan will be reviewed pursuant to Stipulation III.A.

c. DRPT will develop and implement a plan for visual screening of construction areas throughout the estimated five (5)-year construction of the Project. The plan will be reviewed pursuant to Stipulation III.A.

7. *Interpretation Plan:* DRPT will prepare and implement the interpretation plan regarding the history and significance of the Long Bridge and related topics. In addition to the interpretation plan, DRPT will design, fabricate, and install physical wayside signs, and develop a website. DRPT will ensure that no less than four (4) physical wayside signs are installed along the bike-pedestrian crossing. DRPT will submit the *Interpretation Plan* and wayside drawings to the Signatories for their review, comment and approval prior to its completion. The plan will be reviewed pursuant to Stipulation III.A.

IV. ARCHAEOLOGY

For archaeological studies undertaken by DRPT, DRPT will continue identification and evaluation of archaeological historic properties in accordance with 36 CFR § 800.4 and 800.5 and following the findings and recommendations of the *Long Bridge Project Phase IA Archaeological Assessment Report*. DRPT, in consultation with FRA, will notify and consult, as appropriate, with Native American tribes in the event that pre-historic resources are identified.

A. DRPT will ensure additional identification and evaluation of archaeological resources is accomplished in accordance with the relevant performance and reporting standards in Stipulation

II, including the DC SHPO *Guidelines for Archaeological Investigations in the District of Columbia*, the DHR *Guidelines for Conducting Historic Resources Survey in Virginia*, applicable Secretary of the Interior's Standards, and appropriate ACHP guidance.

B. For archaeological studies undertaken by DRPT, DRPT will ensure payment for the permanent curation or arrange for long-term management and preservation of the archaeological collections, field records, images, digital data, maps, and associated records in accordance with 36 CFR § 79, *Curation of Federally-Owned and Administered Archaeological Collections,* and the relevant DC SHPO and DHR Guidelines. A digital copy of all field records, reports, and collections data will be supplied to DC SHPO, DHR, and NPS. All work will conform with *Director's Order #28A: Archaeology*, NPS's management policies, and the resource's archaeology program practices.

C. If adverse effects to archaeological historic properties are identified, DRPT, in consultation with FRA, will do one of the following:

1. Propose a minimization and data recovery plan; or

2. Depending upon the significance of the resource(s) identified, propose a resource-specific Memorandum of Agreement (MOA) to resolve adverse effects. The MOA may address multiple historic properties.

D. Document Review Procedures will be conducted pursuant to Stipulation III.A

V. POST-REVIEW CHANGES

If DRPT proposes changes to the Project that may result in additional or new effects on historic properties, DRPT will notify the Signatories of such changes. Before DRPT takes any action that may result in additional or new effects on historic properties, the Signatories, and other consulting parties, as appropriate, must consult to determine the appropriate course of action. This may include revision to the APE, identification and evaluation of historic properties, assessment of effects on historic properties, development and evaluation of alternatives or modifications to the Project that could avoid or minimize any adverse effects, or development of additional measures to mitigate any adverse effects. If required, the PA will be amended, as necessary, pursuant to Stipulation XII.

VI. POST-REVIEW DISCOVERIES

A. If newly identified historic properties are discovered during Project construction or unanticipated effects on known historic properties are identified, FRA and DRPT will comply with 36 CFR § 800.13 by consulting with NPS, DC SHPO and/or DHR and, if applicable, Native American tribes that may attach religious and/or cultural significance to the affected property; and by developing and implementing avoidance, minimization, or mitigation measures with the concurrence of NPS, DC SHPO and/or DHR and, if applicable, Native American tribes.

1. DRPT will immediately cease all ground disturbing and/or construction activities within a 50-foot radius of the discovery. DRPT will not resume ground disturbing and/or construction activities until the specified Section 106 process required by 36 CFR § 800.13 and this PA is complete.

2. DRPT will notify FRA, NPS, DC SHPO, and DHR of any discovery within forty-eight (48) hours.

3. DRPT, in consultation with FRA, will notify the Signatories and Native American tribes, as appropriate, of the discovery by providing documentation related to the eligibility of the discovery or assumed eligibility, and if applicable, a proposal to resolve adverse effects, within fourteen (14) calendar days.

4. The Signatories will review the documents and provide written comments to FRA and DRPT within seven (7) calendar days or another agreed upon timeframe.

5. DRPT, in consultation with FRA, will consider the written comments to the fullest reasonable extent.

6. If DRPT receives an objection from a Signatory or Native American tribe, DRPT will notify FRA and then work in consultation with FRA to take the appropriate action and notify Signatories of FRA's decision. Should FRA, in consultation with DRPT, object to any of the comments received, FRA will provide a written explanation of its objection and will consult with the Signatories to resolve the objection. If no agreement is reached within thirty (30) calendar days following receipt of a written explanation, FRA will request the ACHP to review the dispute in accordance with Stipulation X.

7. If no Signatory provides written comments on the notification specified in Stipulation VI.A.3 within the agreed upon timeframe noted above, DRPT may proceed with the submitted plan.

B. *Treatment of Human Remains*. In the event that human remains, burials, or funerary objects are discovered during construction of the Project or any action taken pursuant to this PA within the District of Columbia, DRPT will immediately halt subsurface construction disturbance in the area of the discovery and in the surrounding area where additional remains can reasonably be expected to occur and will immediately notify FRA, DC SHPO, NPS, and the District Chief Medical Examiner ("CME") of the discovery under DC Code Section 5-1406 and other applicable laws and regulations. Should the discovery occur in Virginia, the Virginia Antiquities Act, Section 10.0-2305 of the *Code of Virginia* and its implementing regulations, 17 VACS-20, adopted by the Virginia Board of Historic Resources and published in the Virginia Register on July 15, 1991, and the Native American Graves Protection and Repatriation Act (25 U.S.C. 3001 et seq) and its implementing regulations, 36 CFR §10, should be followed.

1. If the CME determines that the human remains are not subject to a criminal investigation by Federal or local authorities, FRA will ensure DRPT complies with the applicable Federal or local laws and regulations governing the discovery and disposition of human remains and consider the ACHP's Policy Statement Regarding Treatment of Burial Sites, Human Remains, and Funerary Objects (2007).

2. In accordance with the Virginia laws stated above, the local jurisdiction within which the remains are found can obtain a permit from DHR for the archaeological removal of human remains should removal be necessary.

3. For actions involving Native American human remains or burials, FRA will consult the appropriate Native American tribes and DC SHPO and/or DHR to determine a treatment plan for the avoidance, recovery and/or reburial of the remains. If the human remains or burials occur on NPS lands, NPS will ensure compliance with applicable laws in accordance with provisions of the Native American Graves Protection and Repatriation Act, as amended

(Public Law 101-601, 25 U.S.C. 3001 et seq) and regulations of the Secretary of the Interior at 43 CFR § 10.

VII. CONFIDENTIALITY

A. If disclosure of location information could result in the disturbance of a cultural resource, all Signatories to this PA will ensure shared data, including data concerning the precise location and nature of historic properties, archeological sites, and properties of religious and cultural significance to Native American tribes, are protected from public disclosure to the greatest extent permitted by law, in accordance with 36 CFR § 800.11(c), Section 304 of the NHPA, Section 9 of the Archeological Resource Protection Act of 1979, and Executive Order 13007 Indian Sacred Sites (61 F.R. 26771-26772) dated May 24, 1996.

B. For work executed on NPS land, NPS standard policies, Director's Orders #28 and 28A, along with NPS management policies will be followed. Per ARPA, the Superintendent of each park is the arbiter for what information can and cannot be released publicly.

C. Consulting Parties and members of the public are not entitled to receive information protected from public disclosure.

VIII. DURATION

A. This PA will expire if its terms are not carried out within ten (10) years from the date of its execution.

B. Six (6) months prior to expiration, FRA, or DRPT with FRA's approval, may consult with the Signatories to re-evaluate this PA and amend it in accordance with Stipulation XII below.

C. If FRA does not amend this PA prior to its expiration, FRA shall either (a) execute a new PA pursuant to 36 CFR § 800.14(b) or (b) comply with 36 CFR Part 800 for all remaining aspects of the Project as applicable.

D. If FRA, in consultation with the Signatories, determines that the terms of this PA have been satisfactorily fulfilled prior to the expiration date, the PA shall terminate, and FRA shall provide all Consulting Parties with written notice of the termination.

IX. MONITORING AND REPORTING

A. DRPT will provide the Signatories with a summary report detailing work undertaken pursuant to the PA's terms each year until the PA expires or is terminated. This report will include any scheduling changes proposed, any problems encountered, and any disputes or objections received in DRPT's efforts to carry out the terms of this PA.

B. For mitigation measures for which NPS is the responsible party for implementation, NPS will notify and provide Signatories with a progress report on implementation of those measures at least annually via NPS' PEPC website (https://parkplanning.nps.gov/).

X. DISPUTE RESOLUTION

A. Should any Signatory to this PA object at any time to any actions proposed or the manner in which the terms of the PA are implemented, FRA will consult with such Signatory to resolve the

objection. If FRA determines that such objection cannot be resolved within thirty (30) calendar days, FRA will:

1. Forward all documentation relevant to the dispute, including FRA's proposed resolution, to the ACHP with a copy to the other Signatories to this PA and request that ACHP provide FRA with its comments on the resolution of the objection within thirty (30) calendar days of receiving the documentation.

2. If the ACHP does not provide comment regarding the dispute within the thirty (30) calendar-day time period, FRA will make a final decision on the dispute and proceed accordingly.

3. FRA will document this decision in a written response to the objection that takes into account any timely comments regarding the dispute from the Signatories and provide the ACHP and Signatories with a copy of such written response.

4. FRA may then proceed according to its decision.

5. The Signatories remain responsible for carrying out all other actions subject to the terms of the PA that are not the subject of the dispute.

B. Should a Consulting Party or member of the public object to any proposed action(s) or the manner in which the terms of the PA are implemented by submitting its objection to DRPT and/or FRA in writing, DRPT or FRA will notify the other Signatories and FRA will take the objection into consideration. FRA will notify the other Signatories of the objection, consult with the objecting party, and if FRA determines it appropriate, also consult with the other Signatories for not more than thirty (30) calendar days. Within fourteen (14) calendar days after closure of the consultation period, FRA will provide the objecting party and the Signatories with its final decision in writing.

XI. ADOPTABILITY

In the event that a Federal agency other than FRA is considering providing financial assistance, permits, licenses, or approvals for the Project, such Federal agency may become a Signatory to this PA as a means of satisfying its Section 106 compliance responsibilities. To become a Signatory to this PA, the agency official must provide written notice to the Signatories that the agency agrees to the terms of the PA, specifying the extent of the agency's intent to participate in the PA, and identifying the lead Federal agency for the Undertaking. The participation of the agency is subject to approval by the Signatories, who must respond to the written notice within thirty (30) calendar days or the approval will be considered implicit. Any other modifications to the PA will be considered in accordance with Stipulation XII.

XII. AMENDMENTS

A. In the event that the Construction Project Sponsor changes, and FRA is providing financial assistance for construction of the Project, FRA will inform all Signatories in writing of the change. If the terms of the PA remain unchanged as a result of a new Construction Project Sponsor, the written notification will serve as the amendment, and will not necessitate action pursuant to Stipulation XII.B. The amendment will be effective on the date of notification. FRA will file the amendment with the ACHP. If changes to the terms of the PA are necessitated as a result, then the PA will be amended in accordance with Stipulation XII.B.

B. Any Signatory to this PA may request that it be amended. The Signatories will consult for a minimum of thirty (30) calendar days, or another time period agreed upon by all Signatories, to consider such amendment. The amendment will be effective on the date it is signed by all of the Signatories. FRA will file the executed amendment with the ACHP.

XIII. TERMINATION AND WITHDRAWAL

A. If any Signatory to this PA determines that the terms of the PA will not or cannot be carried out, that Signatory will immediately notify the other Signatories in writing and consult with them to seek resolution or amendment pursuant to Stipulation XII of the PA. If within sixty (60) days a resolution or amendment cannot be reached, any Signatory may terminate the PA upon written notification to the other Signatories. Once the PA is terminated, and prior to work continuing on the Undertaking, the lead Federal agency must either (a) execute a new PA pursuant to 36 CFR § 800.14(b); (b) comply with 36 CFR Part 800 for all remaining aspects of the Project; or (c) request, take into account, and respond to the comments of the ACHP under 36 CFR§ 800.7. FRA will notify the Signatories as to the course of action it will pursue.

B. If FRA determines it does not have an Undertaking relating to this Project, FRA may withdraw from participation in this PA entirely upon 90-days written notification to all Signatories. If another Federal agency or other agency acting as a Federal agency does not elect to continue utilizing the PA per Stipulations I.A.4 then the PA is terminated.

XIV. AVAILABILITY OF FUNDS

A. The obligations of Federal agencies under this PA are pursuant to the Anti-Deficiency Act, 31 U.S.C. § 1341(a)(1), therefore nothing in this PA will be construed as binding the United States to expend in any one fiscal year any sum in excess of appropriations made by Congress for this purpose, or to involve the United States in any contract or obligation for the further expenditure of money in excess of such appropriations.

B. DRPT's obligation to expend, pay or reimburse any funds under this PA is subject to the availability of appropriations by the Virginia General Assembly and allocations by the Commonwealth Transportation Board. No funds had been appropriated for the Project at the time of the effective date of this PA.

XV. SIGNATURES AND EFFECTIVE DATE

A. *Effective Date.* This PA will become effective immediately upon execution by all Signatories.

B. *Counterparts.* This PA may be executed in counterparts, each of which constitutes an original and all of which constitute one and the same Agreement.

C. *Electronic Copies.* Within one (1) week of the last signature on this PA, FRA shall provide each Signatory with one high quality, legible, full color, electronic copy of the fully-executed PA and all of its attachments fully integrated into one, single document. If the electronic copy is too large to send by e-mail, FRA shall provide each Signatory with an electronic copy of the fully executed PA as described above, on a compact disc or other suitable, electronic means.

Execution and implementation of this PA evidences that FRA has considered the effects of this Undertaking on historic properties, afforded the ACHP a reasonable opportunity to comment, and satisfied its responsibilities under Section 106 of the NHPA and its implementing regulations.

[*Signature Pages Follow*]

PROGRAMMATIC AGREEMENT
AMONG
THE FEDERAL RAILROAD ADMINISTRATION,
THE DISTRICT OF COLUMBIA STATE HISTORIC PRESERVATION OFFICE,
THE VIRGINIA DEPARTMENT OF HISTORIC RESOURCES,
THE NATIONAL PARK SERVICE,
NATIONAL CAPITAL PLANNING COMMISSION,
AND
THE VIRGINIA DEPARTMENT OF RAIL AND PUBLIC TRANSPORTATION
REGARDING
THE LONG BRIDGE PROJECT
IN
WASHINGTON, D.C. AND ARLINGTON COUNTY, VIRGINIA

FEDERAL RAILROAD ADMINISTRATION

Marlys A Osterhues 7/20/2020

BY: Marlys Osterhues Date

Chief, Environment and Project Engineering Division
Office of Railroad Policy and Development

PROGRAMMATIC AGREEMENT
AMONG
THE FEDERAL RAILROAD ADMINISTRATION,
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THE VIRGINIA DEPARTMENT OF HISTORIC RESOURCES,
THE NATIONAL PARK SERVICE,
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REGARDING
THE LONG BRIDGE PROJECT
IN
WASHINGTON, D.C. AND ARLINGTON COUNTY, VIRGINIA

DISTRICT OF COLUMBIA STATE HISTORIC PRESERVATION OFFICER

7/10/2020

BY: David Maloney, State Historic Preservation Officer Date

PROGRAMMATIC AGREEMENT
AMONG
THE FEDERAL RAILROAD ADMINISTRATION,
THE DISTRICT OF COLUMBIA STATE HISTORIC PRESERVATION OFFICE,
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REGARDING
THE LONG BRIDGE PROJECT
IN
WASHINGTON, D.C. AND ARLINGTON COUNTY, VIRGINIA

VIRGINIA DEPARTMENT OF HISTORIC RESOURCES

Stephanie B. Williams for JVL — 7.30.2020

BY: Julie Langan, State Historic Preservation Officer — Date

Deputy Director

PROGRAMMATIC AGREEMENT
AMONG
THE FEDERAL RAILROAD ADMINISTRATION,
THE DISTRICT OF COLUMBIA STATE HISTORIC PRESERVATION OFFICE,
THE VIRGINIA DEPARTMENT OF HISTORIC RESOURCES,
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REGARDING
THE LONG BRIDGE PROJECT
IN
WASHINGTON, D.C. AND ARLINGTON COUNTY, VIRGINIA

NATIONAL PARK SERVICE

Charles Cuvelier Date: 2020.07.09 20:23:40 -04'00'

BY: Charles Cuvelier
Superintendent
George Washington Memorial Parkway
Region 1 - National Capital Area

JEFFREY REINBOLD Digitally signed by JEFFREY REINBOLD Date: 2020.07.20 10:42:26 -04'00'

BY: Jeff Reinbold
Superintendent
National Mall and Memorial Parks
Region 1 - National Capital Area

PROGRAMMATIC AGREEMENT
AMONG
THE FEDERAL RAILROAD ADMINISTRATION,
THE DISTRICT OF COLUMBIA STATE HISTORIC PRESERVATION OFFICE,
THE VIRGINIA DEPARTMENT OF HISTORIC RESOURCES,
THE NATIONAL PARK SERVICE,
NATIONAL CAPITAL PLANNING COMMISSION,
AND
THE VIRGINIA DEPARTMENT OF RAIL AND PUBLIC TRANSPORTATION
REGARDING
THE LONG BRIDGE PROJECT
IN
WASHINGTON, D.C. AND ARLINGTON COUNTY, VIRGINIA

NATIONAL CAPITAL PLANNING COMMISSION

7/27/20

BY: Marcel Acosta, Executive Director Date

PROGRAMMATIC AGREEMENT
AMONG
THE FEDERAL RAILROAD ADMINISTRATION,
THE DISTRICT OF COLUMBIA STATE HISTORIC PRESERVATION OFFICE,
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THE LONG BRIDGE PROJECT
IN
WASHINGTON, D.C. AND ARLINGTON COUNTY, VIRGINIA

VIRGINIA DEPARTMENT OF RAIL AND PUBLIC TRANSPORTATION

Jennifer L. Mitchell 7/17/2020

BY: Jennifer Mitchell, Director

PROGRAMMATIC AGREEMENT
AMONG
THE FEDERAL RAILROAD ADMINISTRATION,
THE DISTRICT OF COLUMBIA STATE HISTORIC PRESERVATION OFFICE,
THE VIRGINIA DEPARTMENT OF HISTORIC RESOURCES,
THE NATIONAL PARK SERVICE,
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AND
THE VIRGINIA DEPARTMENT OF RAIL AND PUBLIC TRANSPORTATION
REGARDING
THE LONG BRIDGE PROJECT
IN
WASHINGTON, D.C. AND ARLINGTON COUNTY, VIRGINIA

CONCURRING PARTIES:

DELAWARE NATION

SIGNATURE: _____ Date _____

PRINT NAME: _____

VIRGINIA RAILWAY EXPRESS

SIGNATURE: _____ Date _____

PRINT NAME: _____

FEDERAL TRANSIT ADMINISTRATION

SIGNATURE: _____ Date _____

PRINT NAME: _____

ANC 6D

SIGNATURE: _____ Date _____

PRINT NAME: _____

AMTRAK

SIGNATURE: _____ Date _____

PRINT NAME: _____

ARCHITECT OF THE CAPITOL

SIGNATURE: _____ Date _____

PRINT NAME: _____

ARLINGTON COUNTY HISTORIC PRESERVATION PROGRAM

SIGNATURE: _____ Date _____

PRINT NAME: _____

CRYSTAL CITY CIVIC ASSOCIATION

SIGNATURE: _____ Date _____

PRINT NAME: _____

CSX TRANSPORTATION

SIGNATURE: _____ Date _____

PRINT NAME: _____

DC PRESERVATION LEAGUE

SIGNATURE: _____ Date _____

PRINT NAME: _____

PENTAGON RESERVATION

SIGNATURE: _____ Date _____

PRINT NAME: _____

SOUTHWEST BID

SIGNATURE: _____ Date _____

PRINT NAME: _____

U.S. COMMISSION OF FINE ARTS

SIGNATURE: _____ Date _____

PRINT NAME: _____

U.S. GENERAL SERVICES ADMINISTRATION

SIGNATURE: _____ Date _____

PRINT NAME: _____

APPENDIX A: LONG BRIDGE PROJECT PREFERRED ALTERNATIVE AND BIKE-PEDESTRIAN CROSSING OPTION

Figure 1: Preferred Alternative

Figure 2: Bike-Pedestrian Crossing Option

APPENDIX B: LIST OF CONSULTING PARTIES

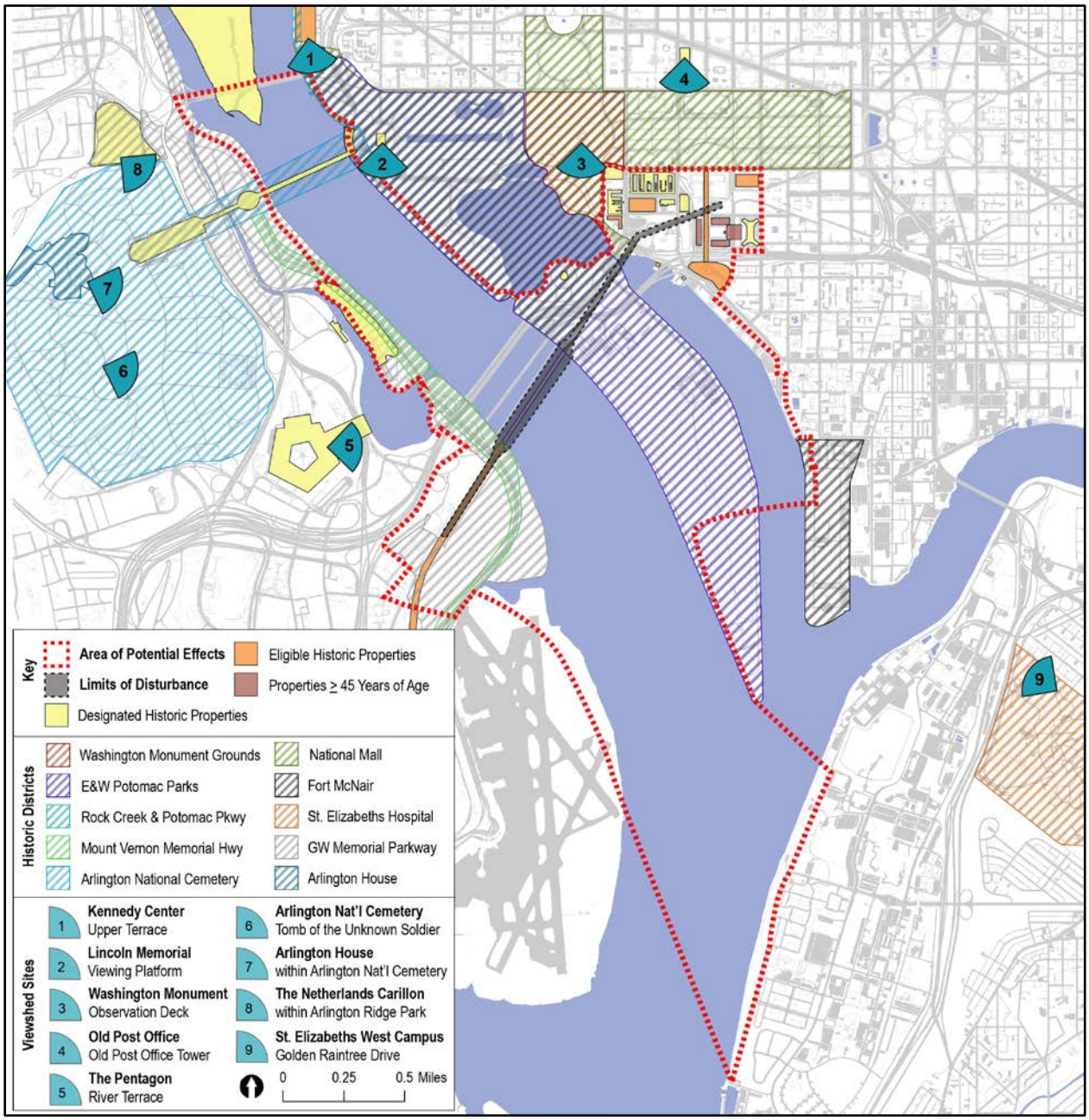
FRA initiated Section 106 consultation with DC SHPO and DHR on September 22, 2016. FRA and DDOT worked with DHR and DC SHPO to identify Consulting Parties, who were formally invited to participate in the Section 106 consultation process in March 2017. A list of those parties FRA invited to participate in the consultation process is shown in **Table 1** below.

Table 1: Agencies and Organizations Invited to Participate as Consulting Parties for the Long Bridge Project

Amtrak	National Mall Coalition[1]
Architect of the Capitol	NPS, Captain John Smith Trail[1]
Arlington County Historic Preservation Program	NPS, GWMP
Arlington County Manager[1]	NPS, National Capital Region
Arlington Historical Society[1]	NPS, National Mall & Memorial Parks
Arlington National Cemetery[1]	National Trust for Historic Preservation[1]
Catawba Indian Nation[1]	Pentagon Reservation (Department of Defense)
Committee of 100 on the Federal City[1]	Southwest BID
Crystal City Civic Association	Trust for the National Mall[1]
CSXT	U.S. Army Corps of Engineers, Baltimore District
DC Preservation League	U.S. Army Corps of Engineers, Norfolk District
Delaware Nation	U.S. Commission of Fine Arts
Delaware Tribe of Indians[1]	U.S. General Services Administration, National Capital Region
Federal Transit Administration	Virginia Department of Rail and Public Transportation
Mayor of the District of Columbia[1]	Virginia Railway Express
National Capital Planning Commission	Washington DC Chapter National Railway Historical Society[1]

[1] *These organizations did not respond to the Consulting Party invitation or declined to participate as Consulting Parties.*

APPENDIX C: AREA OF POTENTIAL EFFECTS AND LIST OF HISTORIC PROPERTIES



The following properties are listed in **Table 2.**

Table 2: List of Historic Properties

#	**Name**	**Location**	**Designation**
1.	National Mall Historic District	Washington, DC	DC Inventory of Historic Sites (DC), National Register of Historic Places (NRHP)
2.	Parkways of the National Capital Region	Washington, DC	Virginia Landmarks Register (VLR), Multiple Property Document (MPD) [2]
3.	Rock Creek and Potomac Parkway Historic District	Along the Potomac River and Rock Creek from the Lincoln Memorial to the National Zoo, Washington, DC	DC, NRHP
4.	GWMP[3]	Arlington, VA; Washington, DC	VLR, NRHP
5.	Mount Vernon Memorial Highway (MVMH)[4]	Arlington, VA; Washington, DC	VLR, NRHP
6.	Plan of the City of Washington	Washington, DC	DC, NRHP
7.	East and West Potomac Parks Historic District	Washington, DC	DC, NRHP
8.	Thomas Jefferson Memorial	East Basin Drive SW, Washington, DC	DC, NRHP
9.	Central Heating Plant	325 13th Street SW, Washington, DC	DC, NRHP
10.	United States Department of Agriculture (USDA) Cotton Annex	300 12th Street SW, Washington, DC	DC, NRHP

[2] *A Multiple Property Documentation Form is a cover document and not a nomination in its own right but serves as a basis for evaluating the National Register eligibility of related properties. In this instance, the resources within the MPD, GWMP and MVMH, are analyzed within the EIS as individually listed resources.*

[3] *Within the Long Bridge Project Area, the GWMP is primarily located in Virginia. Segments of the GWMP, such as where it extends along Lady Bird Johnson Park, are located within the District. Outside of the Project area, the GWMP also extends into Maryland.*

[4] *The same geographic considerations as described above for the GWMP also apply to the MVMH.*

#	**Name**	**Location**	**Designation**
11.	HUD Building (Robert C. Weaver Federal Building)	451 7th Street, SW, Washington, DC	DC, NRHP
12.	USDA South Building	1352 C Street SW, Washington, DC	DC, NRHP
13.	Bureau of Engraving and Printing	301 14th Street SW, Washington, DC	DC
14.	Auditor's Building Complex	14th Street and Independence Avenue SW, Washington, DC	DC, NRHP
15.	Arlington Memorial Bridge (and related features)	Memorial Avenue, Arlington, VA, and Washington, DC	DC, NRHP
16.	Fort Leslie J. McNair Historic District (The Old Arsenal)	4th and P Streets SW, Washington, DC	DC, Determination of Eligibility (DOE)[5]
17.	Titanic Memorial	Water and P Streets SW, Washington, DC	DC, NRHP
18.	Lunch Room Building and Oyster Shucking Shed	1100 Maine Avenue SW, Washington, DC	DC, DOE
19.	Cuban Friendship Urn	Reservation 332, Ohio Drive at 14th Street Bridge SW, Washington, DC	DC, NRHP
20.	Theodore Roosevelt Island National Memorial (Analostan Island)	Potomac River west of Georgetown Channel	DC, NRHP
21.	Lyndon B. Johnson Memorial Grove	Columbia Island in Lady Bird Johnson Park	DC, NRHP
22.	Lincoln Memorial (Statue of Lincoln)[6]	West Potomac Park, Washington, DC	DC, NRHP
23.	Washington Monument and Grounds Historic District[6]	14th Street, between Constitution and	DC, NRHP

[5] *A Determination of Eligibility Form is documentation outlining a resource's significance and applies the National Register Criteria for Evaluation to determine if the resource can be listed in the NRHP.*
[6] *These properties are designated as viewshed locations outside of the APE boundaries.*

#	**Name**	**Location**	**Designation**
		Independence Avenues, Washington, DC	
24.	Arlington House Historic District[6]	Roughly bound by Sheridan Drive, Ord and Weitzel Drive, Humphrey's Drive and Lee Avenue in Arlington National Cemetery	VLR, NRHP
25.	Arlington National Cemetery Historic District[6]	One Memorial Avenue, Arlington, VA	NRHP
26.	St. Elizabeths Hospital Historic District[6]	2700 Martin Luther King Jr. Avenue SE, Washington, DC	DC, NRHP, National Historic Landmark (NHL)
27.	Netherlands Carillon (within Arlington Ridge Park) [6]	Northwest corner of N Meade Street and Marwill Drive, Arlington, VA	VLR, NRHP,
28.	Old Post Office[6]	1100 Pennsylvania Avenue NW, Washington, DC	DC, NRHP
29.	The Pentagon[6]	US 1, Virginia Route 110, and I-395, Arlington, VA	VLR, NRHP, NHL
30.	Bureau of Engraving and Printing Annex	300 14th Street SW, Washington, DC	DOE
31.	Federal Office Building 10A (Orville Wright Building)	800 Independence Ave SW, Washington, DC	DOE
32.	Benjamin Banneker Park/Overlook; Tenth Street Overlook	Terminus of 10th Street SW, Washington, DC	DOE
33.	Richmond, Fredericksburg and Potomac Railroad Historic District	Along CSXT right-of-way in VA from Arlington County to the City of Richmond, VA	DOE
34.	Washington Marina Building	1300 Maine Avenue SW, Washington, DC	DOE

#	**Name**	**Location**	**Designation**
35.	L'Enfant Promenade	Section of 10th Street SW between Independence Avenue and Banneker Park, Washington, DC	DOE
36.	Lady Bird Johnson Park	GWMP, Washington, DC	DOE
37.	John F. Kennedy Center for the Performing Arts[6]	2700 F Street NW, Washington, DC	DOE
38.	Liberty Loan Federal Building	401 14th Street SW, Washington, DC	DOE
39.	Astral Building (North Building, L'Enfant Plaza), 1968	955 L'Enfant Plaza SW, Washington, DC	Potentially eligible[7]
40.	Comsat Building (South Building, L'Enfant Plaza), 1965	950 L'Enfant Plaza SW, Washington, DC	Potentially eligible
41.	Loew's L'Enfant Plaza Hotel (East Building, L'Enfant Plaza), 1971 to 1973	470-490 L'Enfant Plaza SW, Washington, DC	Potentially eligible
42.	USPS Building (West Building, L'Enfant Plaza), 1969 to 1971	475 L'Enfant Plaza SW, Washington, DC	Potentially eligible

[7] *Potentially eligible resources are those that have the possibility to be listed in the NRHP but a formal DOE has yet to be conducted.*

APPENDIX D: ASSESSMENT OF EFFECTS REPORT CONCURRANCE LETTERS

GOVERNMENT OF THE DISTRICT OF COLUMBIA
STATE HISTORIC PRESERVATION OFFICER

November 8, 2018

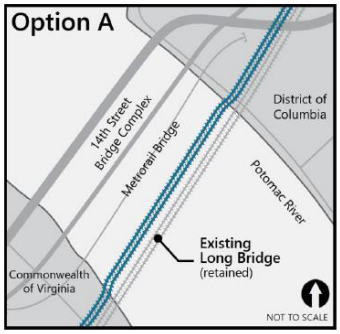
Ms. Amanda Murphy
Environmental Protection Specialist
Office of Railroad Policy and Development
U.S. Department of Transportation
Federal Railroad Administration
1200 New Jersey Avenue, SE
Washington, DC 20590

RE: Assessment of Effects Report for the Long Bridge Project

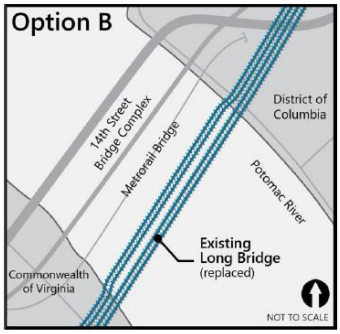
Dear Ms. Murphy:

Thank you for providing the District of Columbia State Historic Preservation Officer (DC SHPO) with a copy of the *Assessment of Effects Report* for review and comment. We have reviewed the document and are writing to provide additional comments regarding effects on historic properties in accordance with Section 106 of the National Historic Preservation Act.

We understand that two action alternatives have been retained for further consideration. Alternative A proposes to retain and restore the historic bridge, and to construct a second bridge upstream from the existing structure. Alternative B proposes to replace the historic bridge with two newly constructed bridges in the same general alignment. Both alternatives also include the possibility of constructing a new bike-pedestrian bridge upstream from the new bridge(s) that will either be attached to (Option 1), or independent from the new railroad bridge (Option 2), but a decision regarding whether the bike-pedestrian bridge will be constructed as part of the project has not yet been made.



- New 2-track bridge upstream of existing bridge
- Retain existing bridge



- New 2-track bridge upstream of existing bridge
- Replace existing bridge

Based upon our review of the report and the discussions held during the October 24, 2018 consulting parties' meeting, we concur that implementation of either action alternative will result in adverse effects on historic properties as outlined in the attached table. We also believe that Alternative A will have an indirect visual adverse effect on the East & West Potomac Park Historic District because it will block views to the historic bridge. However, the adverse effects associated with Alternative B will be far greater than those which will occur as a result of Alternative A because the former will completely destroy the historic bridge. For this reason, we recommend that Alternative A be selected as the Preferred Alternative.

Of the two options for the new bike-pedestrian bridge, an independent structure (Option 2) appears to result in fewer adverse effects because it will avoid the need to construct wider piers to accommodate both the new bike-pedestrian bridge and the new railroad bridge. This will allow the new railroad bridge piers to be much more similar in size and design to the historic piers and, therefore, more compatible with the historic context.

On a related note, we recommend that the new railroad bridge be constructed using "Through Plate Girders" (below, left) that match the historic girders rather than "Deck Plate Girders" (below right) that were used to construct the Metro bridge further upstream. Using "Through Plate Girders" will establish a consistent, compatible "vocabulary" for the railroad bridges and differentiate them from the Metro structure. Differences in age and subtle details should eliminate any confusion that the two railroad bridges were constructed simultaneously.

In addition to the minimization measures described above, we recommend that mitigation measures such as interpretive displays that address the existing historic bridge and the extended history of bridges along this alignment be developed and installed within the project area. Supplemental mitigation measures may also be required as we learn more about the proposed project.

If you should have any questions or comments regarding this matter, please contact me at andrew.lewis@dc.gov or 202-442-8841. Otherwise, we look forward to consulting further to develop an appropriate Section 106 agreement document.

Sincerely,

C. Andrew Lewis
Senior Historic Preservation Officer
DC State Historic Preservation Office

17-0051

Assessment of Effects

Summary of Adverse Effects Determination

LONG BRIDGE PROJECT
Connecting North and South Through our Nation's Capital

Historic Property	No Action Alternative	Action Alternative A	Action Alternative B	Cumulative Effects	Temporary Effects
National Mall *DC*	No Adverse Effect	No Adverse Effect	No Adverse Effect	No Adverse Effect	Indirect Adverse Effect
George Washington Memorial Parkway (GWMP) *VA/DC*	No Adverse Effect	Direct Adverse Effect	Direct and Indirect Adverse Effect	Direct Adverse Effect	Direct and Indirect Adverse Effect
Mount Vernon Memorial Highway (MVMH) *VA/DC*	No Adverse Effect	Direct Adverse Effect	Direct and Indirect Adverse Effect	Direct Adverse Effect	Direct and Indirect Adverse Effect
East and West Potomac Parks *DC*	No Adverse Effect	Direct Adverse Effect	Direct Adverse Effect	Direct Adverse Effect	Direct and Indirect Adverse Effect

COMMONWEALTH of VIRGINIA

Department of Historic Resources

Matt Strickler
Secretary of Natural Resources

2801 Kensington Avenue, Richmond, Virginia 23221

Julie V. Langan
Director

Tel: (804) 367-2323
Fax: (804) 367-2391
www.dhr.virginia.gov

November 9, 2018

Ms. Amanda Murphy, Environmental Protection Specialist
Federal Railroad Administration
1200 New Jersey Avenue SE, Mail Stop-20
Washington, DC 20590

Re: Long Bridge Project
Arlington County, Virginia
DHR Project No. 2016-0932

Dear Ms. Murphy:

Thank you for requesting comments from the Virginia Department of Historic Resources (DHR) on the materials presented at the Fourth Consulting Parties Meeting held on October 30, 2018.

Action Alternatives. DHR recommends the selection of Option 2 for the bike-pedestrian crossing, as the footprint would be smaller than Option 1; it would not as directly impact the historic bridge and would be more easily reversible. We recommend that it be placed upstream. Because Long Bridge is contributing to the East-West Potomac Park, it should be retained and a new two-track bridge should be constructed. Action alternatives may include ground disturbances for piers and/or landings in Virginia and in the District of Columbia. Any necessary further survey should be completed prior to the selection of the preferred alternative.

Summary for Assessment of Effects. Regarding summary assessment for Virginia properties, DHR concurs with the following determinations:

Property	No Action Alternative	Action Alternative A	Action Alternative B	Cumulative Effects	Temporary Effects
George Washington Memorial Parkway	No Adverse Effect	Direct Adverse Effect	Direct and Indirect Adverse Effect	Direct Adverse Effect	Direct and Indirect Adverse Effect
Mount Vernon Memorial Highway	No Adverse Effect	Direct Adverse Effect	Direct and Indirect Adverse Effect	Direct Adverse Effect	Direct and Indirect Adverse Effect

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Salem, VA 24153
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Fax: (540) 387-5446

Northern Region Office
5357 Main Street
PO Box 519
Stephens City, VA 22655
Tel: (540) 868-7029
Fax: (540) 868-7033

Eastern Region Office
2801 Kensington Avenue
Richmond, VA 23221
Tel: (804) 367-2323
Fax: (804) 367-2391

Long Bridge Project: Phase IA Archaeological Assessment Draft Technical Report. We have reviewed the document entitled Long *Bridge Project: Phase IA Archaeological Assessment Draft Technical Report* and find that its recommendations are sound. We support the proposed classification of areas with high, moderate, and no archaeological potential and the Recommended Actions presented in Section 11.5.

This letter provides our concurrence with the FRA's determination of Adverse Effect for all action alternatives as submitted. We look forward to continued consultation with the FRA and the other consulting parties as the project progresses. For any additional questions, please contact the reviewer assigned to this project, Adrienne Birge-Wilson at (804) 482-6092, or via email at adrienne.birge-wilson@dhr.virginia.gov.

Sincerely,

Roger W. Kirchen
Director, Review and Compliance Division

Western Region Office
962 Kime Lane
Salem, VA 24153
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Richmond, VA 23221
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Fax: (804) 367-2391

APPENDIX E: ASSESSMENT OF EFFECTS REPORT

LONG BRIDGE PROJECT

Connecting North and South Through our Nation's Capital

Long Bridge Project

Section 106 Assessment of Effects Report

December 7, 2018

District Department of Transportation

U.S. Department of Transportation
Federal Railroad Administration

Long Bridge Project

Section 106 Assessment of Effects Report

Table of Contents

Appendices

Appendix A: Historic Properties Technical Report

List of Tables

List of Figures

1.0 Introduction

The Federal Railroad Administration (FRA) in coordination with the District Department of Transportation (DDOT) assessed effects of the Long Bridge Project (the Project) on historic properties per Section 106 of the National Historic Preservation Act of 1966[1] and its implementing regulation.[2] FRA and DDOT are coordinating the Section 106 process with the preparation of an Environmental Impact Statement (EIS) in accordance with the National Environmental Policy Act of 1969 (NEPA).

The Project consists of potential improvements to the Long Bridge and related railroad infrastructure located between the RO Interlocking near Long Bridge Park in Arlington, Virginia, and the L'Enfant (LE) Interlocking near 10th Street SW in the District of Columbia (the Long Bridge Corridor). The 1.8-mile Long Bridge Corridor is shown in **Figure 1-1**.

The purpose of the Project is to provide additional long-term railroad capacity and to improve the reliability of railroad service through the Long Bridge Corridor. Currently, there is insufficient capacity, resiliency, and redundancy to accommodate the projected demand in future railroad services. The Proposed Action is needed to address these issues and to ensure the Long Bridge Corridor continues to serve as a critical link connecting the local, regional, and national transportation network.

This report documents the assessment of effects to historic properties that could result from the Project. This report includes the following:

1. Description of the project alternatives considered and a description of the bike-pedestrian crossing mitigation option;
2. Summary of Section 106 consultation efforts completed to date;
3. Description of the Area of Potential Effects (APE);
4. Listing identified historic properties and properties at or greater than 45 years of age within the APE;
5. Description of the methodology used for assessing effects on historic properties; and
6. Assessment of effects on historic properties.

FRA and DDOT considered comments from the District of Columbia State Historic Preservation Officer (DC SHPO), Virginia Department of Historic Resources (VDHR), and other Consulting Parties to the Section 106 process in preparing this final report.[3]

[1] 54 USC 300101.
[2] 36 CFR Part 800. Protection of Historic Properties.
[3] FRA and DDOT provided a draft Assessment of Effects report to SHPOs and Consulting Parties for 30-day review (Oct 10, 2018 – November 9, 2018), and held a Consulting Parties Meeting on October 24, 2018.

Figure 1-1 | Long Bridge Corridor

2.0 Description of the Undertaking

2.1. Project Background

The existing Long Bridge is a two-track railroad bridge, constructed in 1904, that is currently owned and operated by CSX Transportation (CSXT), a Class I freight railroad. The Long Bridge is a contributing structure to the East and West Potomac Parks Historic District. The Long Bridge Corridor serves freight (CSXT), National Railroad Passenger Corporation (Amtrak) intercity passenger rail, and Virginia Railway Express (VRE) commuter rail. Maryland Area Regional Commuter (MARC) service, which currently terminates at Washington Union Station in the District, plans to expand service across Long Bridge between the District and Northern Virginia. Norfolk Southern, also a Class I freight railroad, has trackage rights on Long Bridge but does not currently exercise those rights.

Long Bridge is a key element of the regional commuter railroad network and national railroad system for intra- and intercity passenger rail service, as well as freight railroad service along the Eastern Seaboard of the United States, linking the Northeast Corridor and Southeast High-Speed Rail Corridor. Projections indicate that freight and passenger growth will exceed the capacity of the existing two-track bridge across the Potomac River. Future demand will require new options and expanded infrastructure to avoid interrupting the movement of passengers and goods across the Potomac River and to provide service to economic centers north and south of Long Bridge.

2.2. Alternatives to Be Evaluated in the EIS

2.2.1. Action Alternatives

Based on the results of concept screening completed by FRA and DDOT, in addition to comments from agencies, the public, and Consulting Parties, FRA and DDOT selected two Action Alternatives to for evaluation in the EIS. **Figure 2-1** shows Action Alternative A and Action Alternative B.

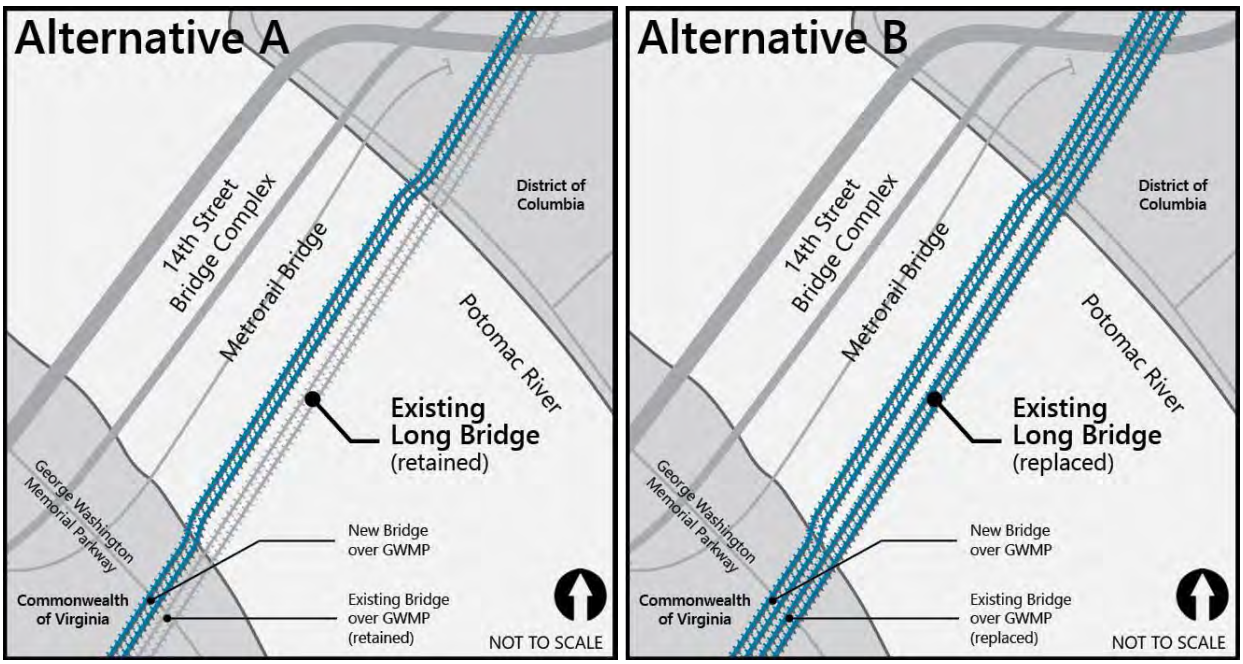
- **Action Alternative A (Preferred Alternative):**[4] This alternative would retain the existing two-track Long Bridge and construct a new two-track bridge upstream of the existing Long Bridge to create a four-track crossing over the Potomac River. Action Alternative A proposes no repairs or modifications to the existing Long Bridge under this Project, and the central through-truss span would be retained. A new component railway bridge would also be constructed to span above the George Washington Memorial Parkway (GWMP). The existing two-track railroad bridge above the GWMP would remain.

- **Action Alternative B:** This alternative would replace Long Bridge with a new two-track bridge and construct another new two-track bridge upstream of the existing bridge to create a four-track crossing. This alternative would also construct two new component railway bridges spanning above the GWMP, necessitating the removal of the existing bridge.

[4] FRA and DDOT have identified Action Alternative A as the Preferred Alternative in the EIS. They informed agencies and the public of this decision on November 29, 2018.

North of the Potomac River crossing, the Action Alternatives follow substantially the same course. The following section describes elements common to both Action Alternatives.

Figure 2-1 | Action Alternatives to Be Evaluated in the EIS



2.2.2. Elements Common to Both Action Alternatives

The southern Project limit is the RO Interlocking, a series of signals and track crossovers allowing trains to switch between tracks. As part of the District to Richmond segment of the Southeast High-Speed Rail Corridor, the Virginia Department of Rail and Public Transportation (DRPT) is proposing a four-track crossover alignment at this location.[5] Both Action Alternatives tie into the planned interlocking and add two new tracks in addition to the two existing tracks. The new and existing tracks would meet the switching and crossover length requirements necessary at an interlocking for interoperability.

Moving north from the RO Interlocking, the four-track alignment proposed for the Project would continue adjacent to Long Bridge Park and would then cross over the GWMP. In both Action Alternatives, a new bridge would be constructed over the Mount Vernon Trail (MVT) and continue across the Potomac River upstream of the existing bridge. Additional information on the proposed bridge design and engineering is described in **Section 2.2.4, Conceptual Engineering Studies**.

After crossing the Potomac River, the new Long Bridge structures in both Action Alternatives would extend over Ohio Drive SW in the District and end at an abutment north of the street. The new upstream bridge would extend into National Park Service (NPS) Parking Lot C. The two new western track alignments would continue north from NPS Parking Lot C with a new single-span bridge spanning

[5] DRPT. *DC2RVA Tier II DEIS*, Appendix A – Alternatives Technical Report. Accessed from http://dc2rvarail.com/files/9615/0413/6228/Appendix_A-Attachment_A_Corridor_Segments.pdf. Accessed July 18, 2018.

the Washington Metropolitan Area Transit Authority (WMATA) Metrorail Yellow Line portal. Retaining walls would be required along the eastern and western sides of the four-track corridor to retain embankment fills.

The four new tracks would continue across I-395 on two separate two-track bridges. After bridging I-395, the four tracks would converge into parallel alignments and widen to the east of the existing track alignment, but would still be within the existing right-of-way. The four tracks would continue north along the corridor and cross over Ohio Drive SW for a second time on a single new four-track bridge. Retaining walls would again be required on either side of the corridor to retain embankment fill slopes.

The corridor would cross the Washington Channel at the mouth of the Tidal Basin on a single new four-track bridge that would replace the existing bridge. The channel is not navigable underneath the existing bridges. Just north of the Washington Channel crossing, the tracks would cross Maine Avenue SW and Maiden Lane on a new four-track bridge. The existing retaining wall along the west side of the tracks along the I-395 off-ramp would be maintained, and a new retaining wall would be required along the east side of the railroad corridor between the tracks and the Washington Marina parking lot. The alignment of the two new tracks would require that the pedestrian bridge over Maine Avenue SW be replaced on a new alignment.

The four-track alignment would proceed along the corridor between the Mandarin Oriental Hotel and the Portals V development and would continue underneath the Maryland Avenue SW overbuild. The tracks would share multiple bays between existing bridge piers, with some bridge modifications required.

From Maryland Avenue SW, the tracks would travel along the corridor underneath 12th Street SW, the 12th Street Expressway, and L'Enfant Plaza SW. Just north of L'Enfant Plaza SW, the four tracks would tie into the four tracks at LE Interlocking proposed by VRE, again meeting the switching and crossover length requirements necessary at an interlocking for interoperability.

2.2.3. No Action Alternative

The EIS will also evaluate the No Action Alternative, pursuant to NEPA implementing regulations. In the No Action Alternative, the Project would not be implemented. While the No Action Alternative is not consistent with the Project's Purpose and Need, it will serve as a baseline against which the potential effects of the Action Alternatives can be compared.

2.2.4. Conceptual Engineering Studies

FRA and DDOT are currently studying options to consider the feasibility and constructability of various bridge structure types under both Action Alternatives. In each alternative, the new bridges would be essentially identical in type and size. Over the navigation channels, a fixed span is proposed for the new bridge, with no ability to move or open for marine traffic. The vertical clearances beneath the bridge are restricted at the navigation channel, Ohio Drive SW, the Rock Creek Park Trail, and the MVT. Therefore, the bottom of the beams on the new bridge would be at the same elevation as that of the existing bridge. However, to meet new CSXT design criteria and maintain similar span lengths, the top of rail of the new bridge would be approximately 3 to 5 feet higher than the top of rail of the existing bridge.

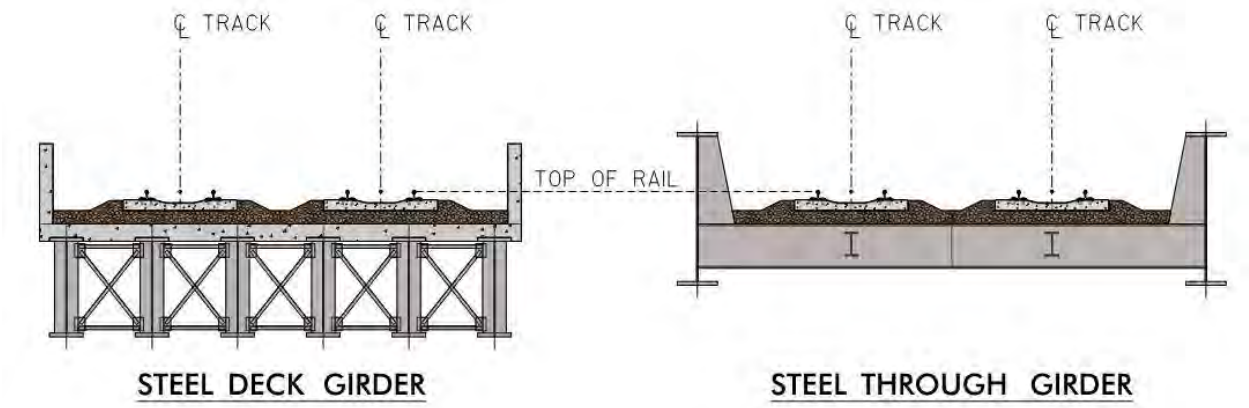
The overall depth of the approach bridge superstructure would be similar to, or slightly deeper than, the existing bridge depth. This element would be further refined during final design. The main channel span

over the navigational channel would have a deeper superstructure depth than the approach bridges due to the longer span, with an overall depth approximately 50 percent greater than the existing through girders.

For Action Alternative A, the locations of the new piers in the Potomac River are proposed to remain in the same configuration as the existing Long Bridge and in line with existing piers. If Action Alternative B is selected, and the existing bridge is replaced with a new bridge, the span lengths for both new bridges would remain similar as the superstructure lengths are already at the maximum limits for the required design loading, bridge geometry, and vertical clearances.

Two structure types for the proposed bridge across the Potomac River are being considered, as shown in **Figure 2-2**: a steel through girder bridge and a steel deck girder bridge. These are common structure types for railroad bridges in the United States. In addition, these structure types are considerably more cost effective than other structure types. The shallow depth of the structure required over the navigation channel precludes the use of concrete girders at this location. For uniformity, only steel girders are proposed for the new bridges over the river.

Figure 2-2 | Structure Types Under Consideration



Given the location of the bridge and its proximity to major landmarks and trails, the aesthetics of the proposed bridge would be considered in final design. The main difference between the two structure types in terms of aesthetics is the visible structure depth. For the deck girder design, roughly half the depth is the steel girder and the other half is the concrete deck and parapet wall. For the through girder bridge, the entire visible depth is steel. The concrete deck and parapet of the deck girder option may be cast with a decorative form liner to economically give an aesthetic finish to the parapet. The through girders can be painted to enhance the bridge appearance.

Both evaluated structure types would be viewed as traditional railroad bridges in appearance, to provide visual consistency with the existing Long Bridge structure. These would not have any signature spans that would greatly stand out among the surrounding bridges. Additionally, none of the new bridges proposed in either Action Alternative would recreate the central through truss span on the existing Long Bridge. Feedback received from the public, agencies, and Consulting Parties indicated a preference for a new span or spans that preserves the uniformity of the existing Long Bridge-Metrorail-14th Street bridge

complex and avoids potential adverse visual effects resulting from a signature span. The new bridges would be a deck plate girder or through plate girder bridge type for all spans, as shown in **Figure 2-2**.

2.2.5. Bike-Pedestrian Crossing Options

Although not part of the Project's Purpose and Need, some agencies and members of the public have expressed strong support for a bike-pedestrian crossing. The Project has continued to explore the potential opportunity to accommodate connections that follow the trajectory of the Long Bridge Corridor to the pedestrian and bicycle network. A potential bike-pedestrian crossing could be implemented under either Action Alternative being evaluated in the EIS. While not part of the Project, FRA, DDOT, and NPS are continuing to consider a bike-pedestrian crossing option as potential mitigation for impacts to properties protected under Section 4(f) of the United States Department of Transportation Act of 1966.[6]

The Project evaluated the feasibility of four bike-pedestrian crossing options and considered if a crossing could be designed to be consistent with railroad operator plans and pursuant to railroad safety practices. The four options extend from the Long Bridge Park side of the GWMP to the north side of Ohio Drive SW at NPS Parking Lot C, with connections to the MVT and Ohio Drive SW. These options are summarized below:

- **Option 1A** would provide a crossing attached to the upstream side of the new upstream railroad bridge using a shared superstructure and substructure with the railroad bridge. This option would provide a direct connection to Long Bridge Park.
- **Option 1B** would provide a crossing attached to the upstream side of the new upstream railroad bridge using a shared substructure and separate superstructures. This option would provide a direct connection to Long Bridge Park.
- **Option 2** would provide a crossing on an independent bridge on the upstream side of the new upstream railroad bridge. This option would provide a direct connection to Long Bridge Park.
- **Option 3** would provide a crossing on an independent bridge downstream of the existing railroad bridge. To optimize connections to bicycle and pedestrian facilities, the crossing would connect in the District to Ohio Drive SW near the NPS National Capital Region (NCR) Headquarters, rather than landing next to Long Bridge. A direct connection to Long Bridge Park would not be feasible with this option.

Options shown at the public and agency meetings in December 2017 did not show the crossing connecting across the GWMP to Long Bridge Park. However, following feedback received from the public and agencies (U.S. Commission of Fine Arts [CFA], National Capital Planning Commission [NCPC], and Arlington County) that emphasized the importance of a connection to Crystal City, the potential to cross the GWMP have been evaluated as part of all options.

The ramps connecting to the MVT in Virginia and to Ohio Drive SW in the District would begin sloping down to existing ground once the crossing reaches land on either side of the river or may begin sloping down while still over the river, which would minimize the length of ramp switchbacks. The determination of whether the bridge can begin sloping downward while still over the river channel

[6] 49 USC 303

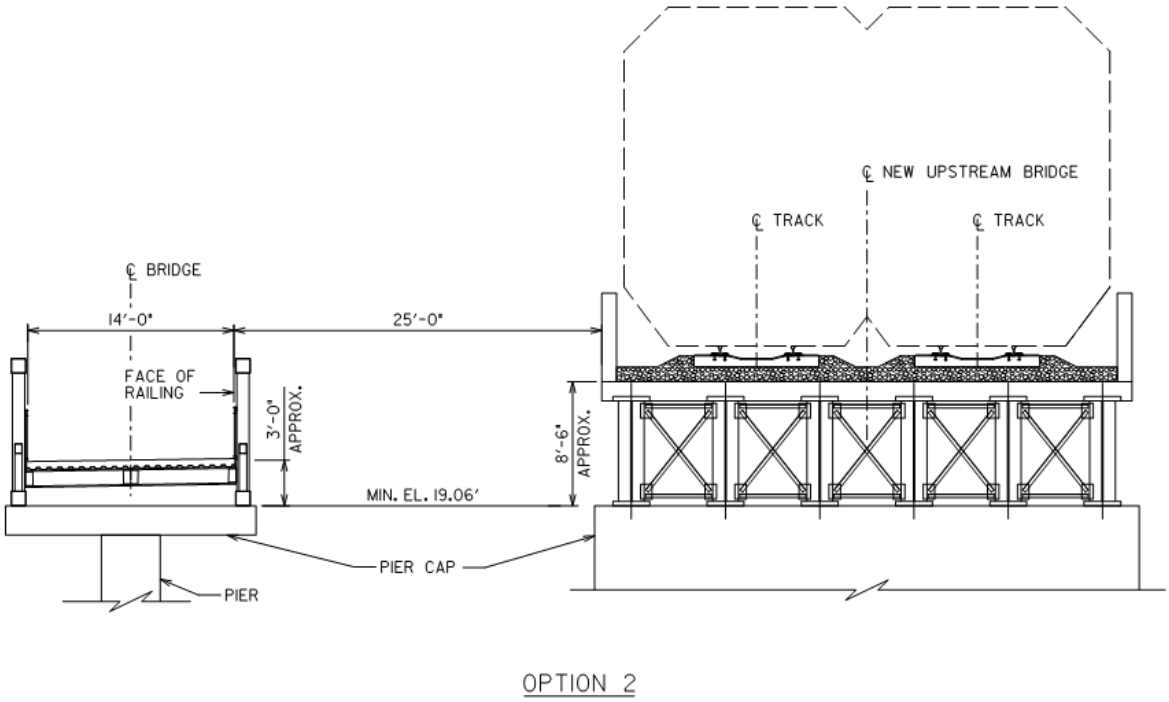
would be made in consultation with the United States Coast Guard regarding the minimum allowable vertical clearance over the channel.

FRA and DDOT will continue to consider Option 2 as potential mitigation for the Project. As shown in **Figure 2-3** and **Figure 2-4**, Option 2 provides the bike-pedestrian crossing on a completely separate structure approximately 25 feet upstream of the new upstream railroad bridge.

Option 2 is preferred by the railroad operators and NPS (land owner on either side of the bridge and the river bottom). This structure would be supported by single-column piers approximately 6 feet in diameter. The Option 2 piers would be significantly smaller than the piers in Option 1B as the size would be based on bike-pedestrian loading rather than railroad loading. The results of a Threat, Vulnerability, & Risk Assessment (TVRA) showed that this option would have the lowest risk, because the completely separate structure and distance between bridges would prohibit pedestrians from accessing the railroad bridge. Therefore, fewer security measures would be required. The completely separate structure also simplifies inspection and maintenance. Lastly, the construction cost of Option 2 would also be approximately 20 percent less than Option 1B.

Figure 2-3 | Bike-Pedestrian Crossing Option 2

Figure 2-4 | Section Diagram of New Upstream Railroad Bridge and Bike-Pedestrian Crossing Option 2



Options 1A, 1B, and 3 were eliminated from further consideration for the following reasons:

- The deck of Option 1A, because it shares its superstructure as well as its substructure with the new upstream railroad bridge, would be at a much higher elevation across the river. This would require longer ramps than the other options, resulting in additional impacts to the GWMP, MVT, and NPS Parking Lot C. Compared to the other options, Option 1A would also offer less separation between the bike-pedestrian crossing and the railroad bridge. This proximity to the railroad bridge would result in a less desirable experience for bicyclists and pedestrians and would make maintenance and inspection more difficult.

- Option 1B shares its substructure with the new upstream railroad bridge, but would have a separate superstructure, enabling additional separation distance from the active railroad. To support the bike-pedestrian crossing superstructure, the railroad bridge piers would be extended by approximately 22 feet farther upstream. The results of the TVRA showed that this option would have the second highest risk of the options available. Option 1B requires substantial security measures to make it more difficult for pedestrians to access the railroad bridge. The proximity to the railroad bridge would result in a less desirable experience for bicyclists and pedestrians and make maintenance and inspection more difficult. The extended railroad piers and security measures make Option 1B more expensive than Option 2.

- Option 3 would introduce a new visual element into the viewsheds from the GWMP, East Potomac Park, and Potomac River resulting in additional impacts. In addition, it could not provide a direct connection to Long Bridge Park.

2.3. Long Bridge Section 106 Consultation

FRA initiated Section 106 consultation with DC SHPO and VDHR on September 22, 2016. FRA and DDOT worked with VDHR and DC SHPO to identify Consulting Parties, who were formally invited to participate in the Section 106 consultation process in March 2017. A list of those parties FRA invited to participate in the consultation process is shown in **Table 2-1** below.

Table 2-1 | Agencies and Organizations Invited to Participate as Consulting Parties for the Long Bridge Project

Amtrak	National Mall Coalition[1]
Architect of the Capitol	NPS, Captain John Smith Trail[1]
Arlington County Historic Preservation Program	NPS, GWMP
Arlington County Manager[1]	NPS, National Capital Region
Arlington Historical Society[1]	NPS, National Mall & Memorial Parks
Arlington National Cemetery[1]	National Trust for Historic Preservation[1]
Catawba Indian Nation[1]	Pentagon Reservation (Department of Defense)
Committee of 100 on the Federal City[1]	Southwest BID
Crystal City Civic Association	Trust for the National Mall[1]
CSXT	U.S. Army Corps of Engineers, Baltimore District[2]
DC Preservation League	U.S. Army Corps of Engineers, Norfolk District[2]
Delaware Nation	CFA
Delaware Tribe of Indians[1]	U.S. General Services Administration, National Capital Region
Federal Transit Administration (FTA)	DRPT
Mayor of the District of Columbia[1]	VRE
NCPC	Washington DC Chapter National Railway Historical Society[1]

[1] These organizations did not respond to the Consulting Party invitation or declined to participate as Consulting Parties.

[2] During scoping, the Norfolk District designated FRA as the lead Federal agency for fulfilling its compliance obligations under Section 106. In November 2018, the Baltimore District designated FRA as the lead Federal agency for Section 106 compliance.

FRA and DDOT jointly conducted four Section 106 Consulting Party meetings between April 2017 and October 2018. The specific content of those meetings is explained in **Table 2-2**. The feedback received during these meetings and in the subsequent comment periods informed the development of the APE, the identification of historic properties, the methodology for assessing effects, the assessment of effects on historic properties, and appropriate resolution strategies. In addition to meeting with Consulting Parties, FRA and DDOT held several public meetings throughout the NEPA process to provide information and solicit comments and questions from the public. These meetings also served as public meetings for the purposes of Section 106 consultation.

Table 2-2 | Consulting Party Meetings for the Long Bridge Project

Date	Content
Meeting #1 April 25, 2017	Project overview; purpose and need; preliminary concepts and screening; Section 106 process; preliminary identification of historic properties; and role of the consulting party.
Meeting #2 November 15, 2017	Concept screening results; draft APE and field survey methodology; and identification of historic properties.
Meeting #3 May 30, 2018	Phase 1A archaeological assessment overview; methodology for assessing effects to historic properties.
Meeting #4 October 24, 2018	Phase IA archaeological assessment findings; findings of draft assessment of effects report; and avoidance, minimization, and mitigation strategies.

3.0 Identification of Historic Properties

This section provides a summary of the methodology utilized by FRA and DDOT to develop the project APE and identify historic properties, as well as the findings of those efforts. A detailed description of these methodologies and findings are described in the *Area of Potential Effects and Historic Properties Technical Report* (February 2018), which was provided to DC SHPO, VDHR, and the Consulting Parties (see **Appendix A**).

3.1. APE Development

Section 106 regulations define the APE as the geographic boundary within which an undertaking has the potential to directly or indirectly effect historic properties. The APE boundary reflects the scale and nature of an undertaking and may be different for different types of effects caused by an undertaking. For Section 106 consultation, the APE is defined to facilitate the identification of historic properties and to allow for the evaluation of potential effects to historic properties resulting from an undertaking.[7]

For the Project, FRA identified an APE and Limits of Disturbance (LOD) for the alternatives under consideration. The LOD boundary represents the area within which the Project has the potential to directly alter an existing feature or result in ground-disturbing activities. FRA subsequently refined the APE in consultation with DC SHPO, VDHR, and other Consulting Parties. By letters dated March 23, 2018, DC SHPO and VDHR concurred with the APE and LOD.

Following the dismissal of the bike-pedestrian crossing option downstream of the existing Long Bridge (see **Section 2.2.5, Bike-Pedestrian Crossing Options**), FRA revised the LOD to remove the alignment of that crossing option and its associated access ramps and landings (see **Figure 3-1**). The APE boundary remains unchanged.

3.2. Identification of Historic Properties

Concurrent with the development of the APE, FRA and DDOT identified historic properties within the APE boundaries in consultation with DC SHPO, VDHR, and the Consulting Parties (as shown in **Figure 3-2**). Per the Section 106 regulation, a historic property is defined as "… any prehistoric or historic district, site, building, structure, or object included in, or eligible for inclusion in, the National Register of Historic Places (NRHP)." The definition of historic properties includes properties of traditional religious and cultural importance to an Indian tribe or Native Hawaiian organization and that meet the National Register criteria (including artifacts, records, and material remains).[8] The following tables provide a list of identified historic properties for the Project. **Appendix A, Area of Potential Effects and Historic Properties Technical Report**, provides more detailed information on the location and significance of these properties.

[7] 36 CFR 800.16(d).
[8] 36 CFR 800.16(l)(1).

Figure 3-1 | Area of Potential Effects and Limits of Disturbance

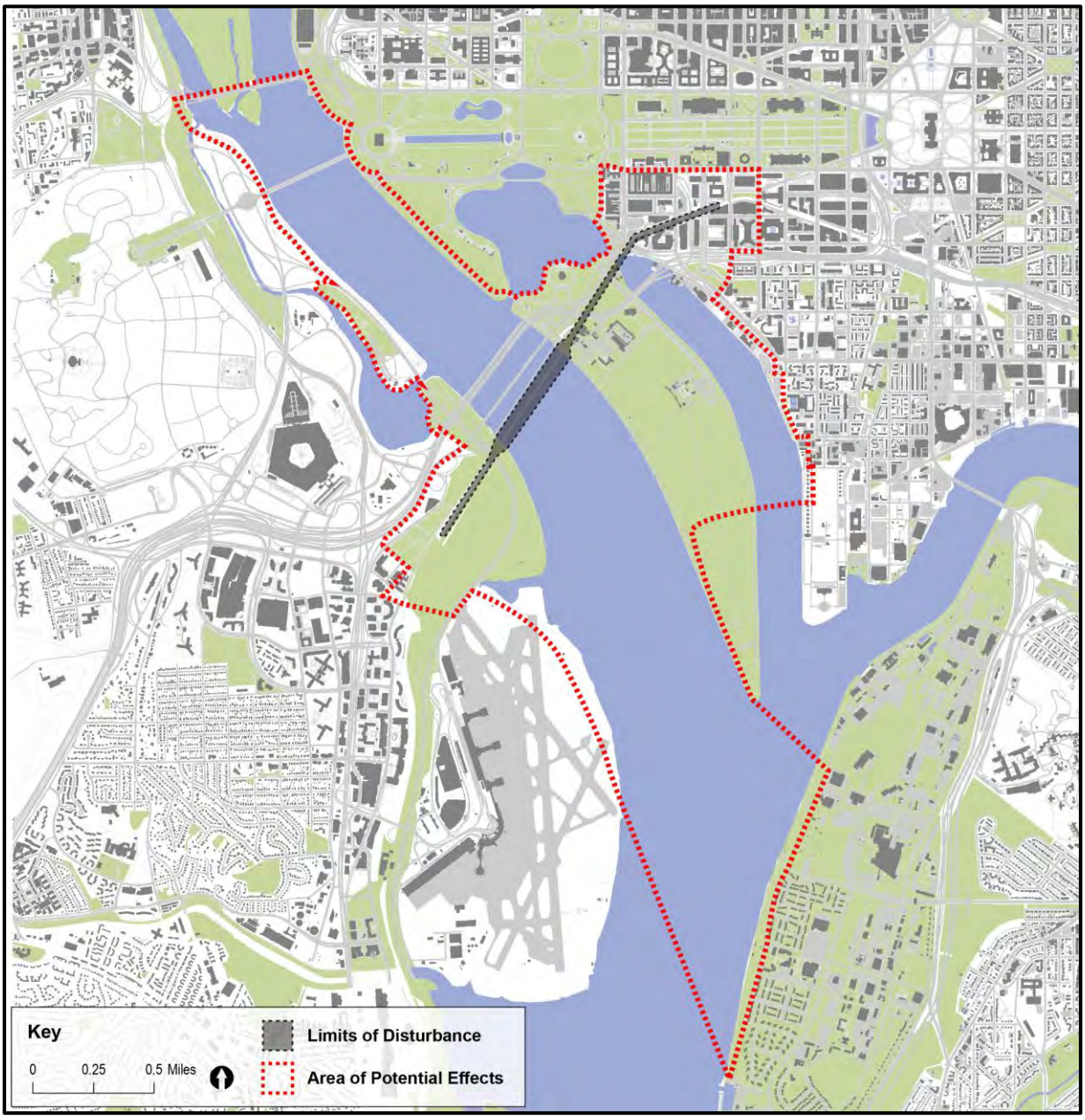
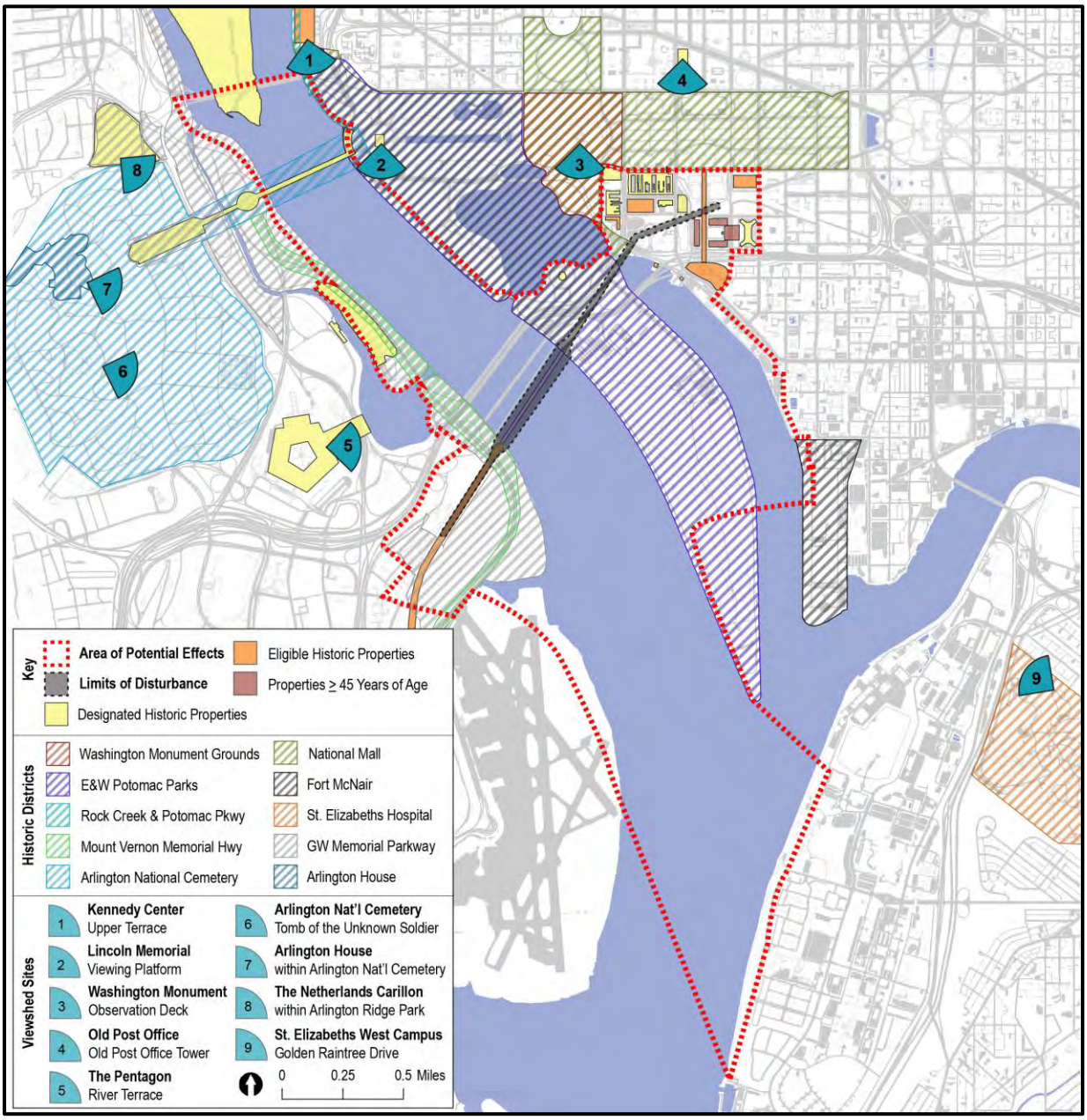


Figure 3-2 | Identification of Historic Properties



3.2.1. Designated Historic Properties

The following properties (**Table 3-1**) have been listed in the NRHP, DC Inventory of Historic Sites (DC), or the Virginia Landmarks Register (VLR). Two properties have been designated as National Historic Landmarks (NHL). In some cases, these properties were determined eligible for NRHP listing (Determination of Eligibility [DOE]) and were subsequently listed.

Table 3-1 | Designated Historic Properties

#	Name	Location	Designation
1.	**National Mall Historic District**	Washington, DC	DC, NRHP
2.	**Parkways of the National Capital Region**	Washington, DC	VLR, NRHP
3.	**Rock Creek and Potomac Parkway Historic District**	Along the Potomac River and Rock Creek from the Lincoln Memorial to the National Zoo, Washington, DC	DC, NRHP
4.	**GWMP**[1]	Arlington, VA; Washington, DC	VLR, NRHP
5.	**Mount Vernon Memorial Highway (MVMH)**[2]	Arlington, VA; Washington, DC	VLR, NRHP
6.	**Plan of the City of Washington**	Washington, DC	DC, NRHP
7.	**East and West Potomac Parks Historic District**	Washington, DC	DC, NRHP
8.	**Thomas Jefferson Memorial**	East Basin Drive SW, Washington, DC	DC, NRHP
9.	**Central Heating Plant**	325 13th Street SW, Washington, DC	DC, NRHP
10.	**United States Department of Agriculture (USDA) Cotton Annex**	300 12th Street SW, Washington, DC	DC, NRHP
11.	**HUD Building (Robert C. Weaver Federal Building)**	451 7th Street, SW, Washington, DC	DC, NRHP
12.	**USDA South Building**	1352 C Street SW, Washington, DC	DC, NRHP
13.	**Bureau of Engraving and Printing**	301 14th Street SW, Washington, DC	DC
14.	**Auditor's Building Complex**	14th Street and Independence Avenue SW, Washington, DC	DC, NRHP
15.	**Arlington Memorial Bridge (and related features)**	Memorial Avenue, Arlington, VA, and Washington, DC	DC, NRHP
16.	**Fort Leslie J. McNair Historic District (The Old Arsenal)**	4th and P Streets SW, Washington, DC	DC, DOE
17.	**Titanic Memorial**	Water and P Streets SW, Washington, DC	DC, NRHP
18.	**Lunch Room Building and Oyster Shucking Shed**	1100 Maine Avenue SW, Washington, DC	DC, DOE
19.	**Cuban Friendship Urn**	Reservation 332, Ohio Drive at 14th Street Bridge SW, Washington, DC	DC, NRHP
20.	**Theodore Roosevelt Island National Memorial (Analostan Island)**	Potomac River west of Georgetown Channel	DC, NRHP
21.	**Lyndon B. Johnson Memorial Grove**	Columbia Island in Lady Bird Johnson Park	DC, NRHP
22.	**Lincoln Memorial (Statue of Lincoln)**[3]	West Potomac Park, Washington, DC	DC, NRHP
23.	**Washington Monument and Grounds Historic District**[3]	14th Street, between Constitution and Independence Avenues, Washington, DC	DC, NRHP
24.	**Arlington House Historic District**[3]	Roughly bound by Sheridan Drive, Ord and Weitzel Drive, Humphrey's Drive and Lee Avenue in Arlington National Cemetery	VLR, NRHP

25.	**Arlington National Cemetery Historic District**[3]	One Memorial Avenue, Arlington, VA	NRHP
26.	**St. Elizabeths Hospital Historic District**[3]	2700 Martin Luther King Jr. Avenue SE, Washington, DC	DC, NRHP, NHL
27.	**Netherlands Carillon (within Arlington Ridge Park)** [3]	Northwest corner of N Meade Street and Marshall Drive, Arlington, VA	VLR, NRHP,
28.	**Old Post Office**[3]	1100 Pennsylvania Avenue NW, Washington, DC	DC, NRHP
29.	**The Pentagon**[3]	US 1, Virginia Route 110, and I-395, Arlington, VA	VLR, NRHP, NHL

[1] Within the Long Bridge Project Area, the GWMP is primarily located in Virginia. Segments of the GWMP, such as where it extends along Lady Bird Johnson Park, are located within the District. Outside of the Project area, the GWMP also extends into Maryland.

[2] The same geographic considerations as described above for the GWMP also apply to the MVMH.

[3] These properties are designated as viewshed locations outside of the contiguous APE boundaries.

3.2.2. Eligible Historic Properties

The following properties have been determined eligible for listing in the NRHP by a Federal agency or recommended as eligible by VDHR or DC SHPO.

Table 3-2 | Eligible Historic Properties

#	Name	Location	Designation
1.	**Bureau of Engraving and Printing Annex**	300 14th Street SW, Washington, DC	DOE
2.	**Federal Office Building 10A (Orville Wright Building)**	800 Independence Ave SW, Washington, DC	DOE
3.	**Benjamin Banneker Park/Overlook; Tenth Street Overlook**	Terminus of 10th Street SW, Washington, DC	DOE
4.	**Richmond, Fredericksburg and Potomac Railroad Historic District**	Along CSX right-of-way in VA from Arlington County to the City of Richmond, VA	DOE
5.	**Washington Marina Building**	1300 Maine Avenue SW, Washington, DC	DOE
6.	**L'Enfant Promenade**	Section of 10th Street SW between Independence Avenue and Banneker Park, Washington, DC	DOE
7.	**Lady Bird Johnson Park**	GWMP, Washington, DC	DOE
8.	**John F. Kennedy Center for the Performing Arts**[1]	2700 F Street NW, Washington, DC	DOE
9.	**Liberty Loan Federal Building**	401 14th Street SW, Washington, DC	DOE

[1] These properties are designated as viewshed locations outside of the contiguous APE boundaries.

3.2.3. Properties at or Greater than 45 Years of Age

Although the scope for this project does not include drafting formal DOEs, properties located within the APE that are at least 45 years of age were evaluated against the NRHP Criteria for Evaluation.[9] An assessment of integrity for each property was also undertaken. This age was selected to account for the 50-year threshold that is generally observed in the evaluation of historic significance, and to account for the implementation schedule of the Project (which would extend 5 or more years into the future). These properties were identified using a range of documentation resources including real property and building permit data, historic maps and photographs, and aerial photographs. A preliminary evaluation of each property's potential historic significance and integrity is provided as a resource for future, or more detailed, evaluation by FRA or others at the time of Project implementation.

Table 3-3 | Properties at or Greater than 45 Years of Age

#	Name	Location	Date(s)	Preliminary Determination of Eligibility
1.	**425 12th Street SW[1]**	425 12th Street SW, Washington, DC	1959	Likely not eligible.
2.	**Astral Building (North Building, L'Enfant Plaza)**	955 L'Enfant Plaza SW, Washington, DC	1968	Potentially eligible.
3.	**Comsat Building (South Building, L'Enfant Plaza)**	950 L'Enfant Plaza SW, Washington, DC	1965	Potentially eligible.
4.	**Loew's L'Enfant Plaza Hotel (East Building, L'Enfant Plaza)**	470-490 L'Enfant Plaza SW, Washington, DC	1971 to 1973	Potentially eligible.
5.	**USPS Building (West Building, L'Enfant Plaza)**	475 L'Enfant Plaza SW, Washington, DC	1969 to 1971	Potentially eligible.
6.	**398 Long Bridge Drive[1]**	398 Long Bridge Drive, Arlington, VA	1957	Likely not eligible.

[1] VDHR or DC SHPO concurred with FRA's preliminary determination of ineligibility. For this reason, these properties are not considered historic properties and are not evaluated for adverse effects.

3.2.4. Archaeological Resources

Archaeological resources will be identified using a phased approach. FRA and DDOT have initiated the process by completing a Phase IA Archaeological Assessment in consultation with DC SHPO and VDHR. The Phase IA consists of a desktop review of known archaeological sites and areas that exhibit high archaeological potential. The Phase IA addresses both Action Alternatives and the potential bike-pedestrian crossing. Additional surveys will be conducted as needed now that a Preferred Alternative has been identified. Because NPS has jurisdiction over a majority of the area within the LOD (including the bottom lands of the Potomac River), FRA and DDOT will coordinate with them regarding potential effects on archaeological resources, including potential underwater archaeology. VDHR provided

[9] *National Register of Historic Places, National Register Bulletin, How to Apply the National Register Criteria for Evaluation* (United States Department of the Interior, NPS, revised 2002).

concurrence on the recommendations and conclusions in the draft Phase IA technical report on November 9, 2018. DC SHPO concurred on November 19, 2018.

4.0 Assessment of Effects

This section provides a description of the criteria and methodology used to assess the Project's effects on historic properties. Following a summary determination of effect, the detailed assessment is organized by historic property and further separated between permanent or long-term effects, cumulative effects associated with the bike-pedestrian crossing options, and temporary or construction-related effects. Effects on archaeological resources are not addressed here but will be identified using the phased approach described above.

4.1. Criteria of Adverse Effect

The Section 106 implementing regulations provide a definition of the criteria of adverse effect: "An adverse effect is found when an undertaking may directly or indirectly alter any of the characteristics of a historic property that qualify it for inclusion in the National Register in a manner that would diminish the property's integrity of location, design, setting, materials, workmanship, feeling, or association."[10]

Examples of adverse effects include:

- Physical destruction or damage;
- Alterations that are inconsistent with the *Secretary's Standards for the Treatment of Historic Properties*, including restoration, rehabilitation, repair, maintenance, stabilization, hazardous material remediation, and provision of handicapped access;
- Removal of the property from its historic location;
- Change of the character of the property's use or of contributing physical features within the property's setting;
- Introduction of visual, atmospheric, or audible elements that diminish the integrity of the property's significant historic features;
- Neglect or deterioration (except in certain religious or cultural cases); and
- Transfer, lease, or sale of property out of Federal ownership or control without adequate preservation controls.

4.2. Assessment of Effects Methodology

For the Project, FRA and DDOT have identified three main categories of potential adverse effects on historic properties:

- **Direct physical effects** that remove, damage, or alter a historic property within the LOD.
- **Indirect visual effects** that change the character of a historic property's setting or alter significant views.
- **Direct or indirect effects** resulting from vibration, or indirect effects from noise that may alter a historic property or diminish its integrity.

At the May 30, 2018, Consulting Party meeting, FRA and DDOT presented a methodology for assessing adverse effects based on each category above. These methodologies are described below.

[10] 36 CFR 800.5(a)(1).

4.2.1. Physical Effects

Based on the results of conceptual engineering for the Action Alternatives, FRA and DDOT described and evaluated the alternatives to determine their potential for direct physical effects on historic properties. For each historic property, the physical changes have been assessed against all seven aspects of historic integrity. If physical changes were determined to diminish any aspects of integrity that contribute to a property's historic significance, a finding of adverse effect has been made.

4.2.2. Visual Effects

Based on the results of conceptual engineering for the Action Alternatives, FRA and DDOT reviewed NRHP and cultural landscape documentation to identify and evaluate significant views and viewsheds for historic properties in the APE. FRA and DDOT also carried out visual assessments utilizing conceptual engineering results and existing survey documentation. For each historic property, the visual effect has been assessed against all seven aspects of historic integrity. If visual effects were determined to diminish any aspects of integrity that contribute to a property's ability to convey its historic significance, a finding of adverse effect has been made. Indirect adverse effects were most likely to result when an alternative permanently removed or impeded views that contribute to the historic significance of a property or diminished a property's historic integrity. Visual effects generally diminished a property's integrity of setting, feeling, and association. This methodology has also followed VDHR guidance for assessing visual effects on historic properties to aid in determining if they are adverse.[11]

4.2.2.1. Viewshed Analysis

To better understand and evaluate the effects of the proposed Action Alternatives, FRA and DDOT prepared a series of photographic simulations that visualize the appearance of these alternatives as compared against existing conditions. The selected locations were sites that demonstrated a moderate or high potential for adverse effects resulting from either Action Alternative. Specific to historic properties, moderate- or high-potential sites were those:

- With views or vistas that contribute demonstrably to the historic significance of a given historic property;
- Where the existing Long Bridge Corridor was currently clearly visible; and
- Where either Action Alternative had the potential to obstruct or alter historic views or vistas or diminish the integrity of a historic property.

At the November 2017 Consulting Parties meeting, FRA and DDOT solicited and received input from the Consulting Parties to determine important viewsheds to include in the APE. In August 2018, FRA and DDOT coordinated with Consulting Parties with technical expertise on the matter, namely the DC SHPO, VDHR, NPS, CFA, and NCPC to develop the list of sites selected for additional visual analysis using photo simulations (see **Figure 4-1** and **Table 4-1**)**Error! Reference source not found.**.

[11] VDHR. Assessing Visual Effects on Historic Properties. Accessed from https://www.dhr.virginia.gov/pdf_files/Assessing_Visual_Effects_JUN10.pdf. Accessed May 9, 2018.

Figure 4-1 | Viewshed Locations (overlaid on APE)

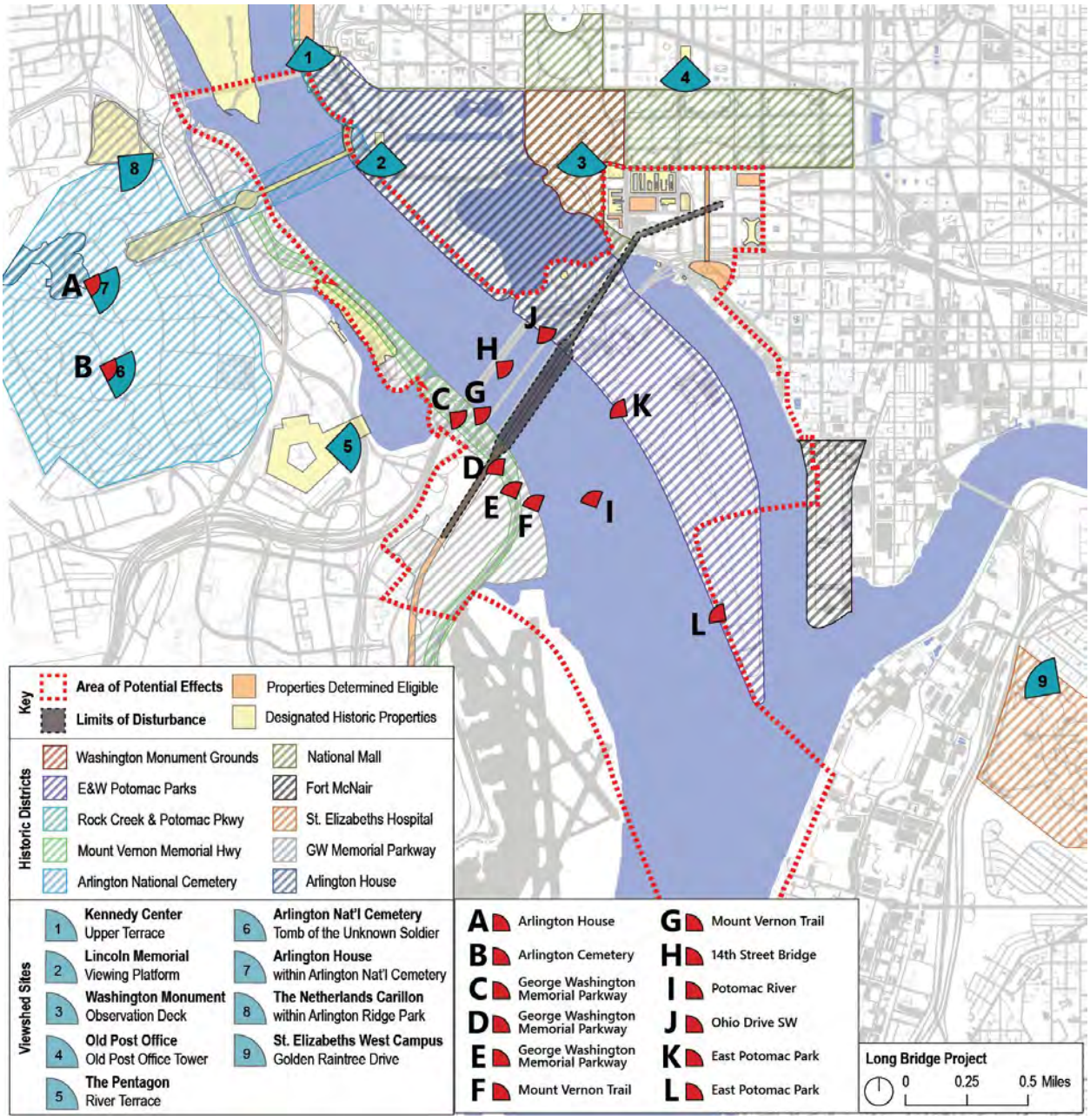


Table 4-1 | Viewshed Analysis Locations

#	Site/Property	Location
A	**Arlington House**	View from Arlington House facing southeast
B	**Arlington National Cemetery**	View from Tomb of the Unknown Solder facing southeast
C	**GWMP**	View from southbound motorway approaching Metrorail Bridge
D	**GWMP**	View from northbound motorway approaching Metrorail and 14th Street bridges
E	**GWMP**	View from northbound motorway approaching GWMP railroad crossing
F	**GWMP, MVT**	View from Gravelly Point Park approaching Long Bridge facing north
G	**GWMP, MVT**	View from north of Long Bridge facing south
H*	**I-395 Bridge**	View from center of bridge facing south
I*	**Potomac River**	View from south of Long Bridge facing north
J	**East Potomac Park**	View from Ohio Drive SW facing southwest
K	**East Potomac Park**	View from Buckeye Drive vicinity facing northwest
L	**East Potomac Park**	View from end of Hains Point facing northwest

** These visualizations will also support analysis of impacts in the Visual Resources chapter of the DEIS but are not presented in this report as they are not historic properties.*

4.2.2.1. Methodology to Create Viewshed Simulations

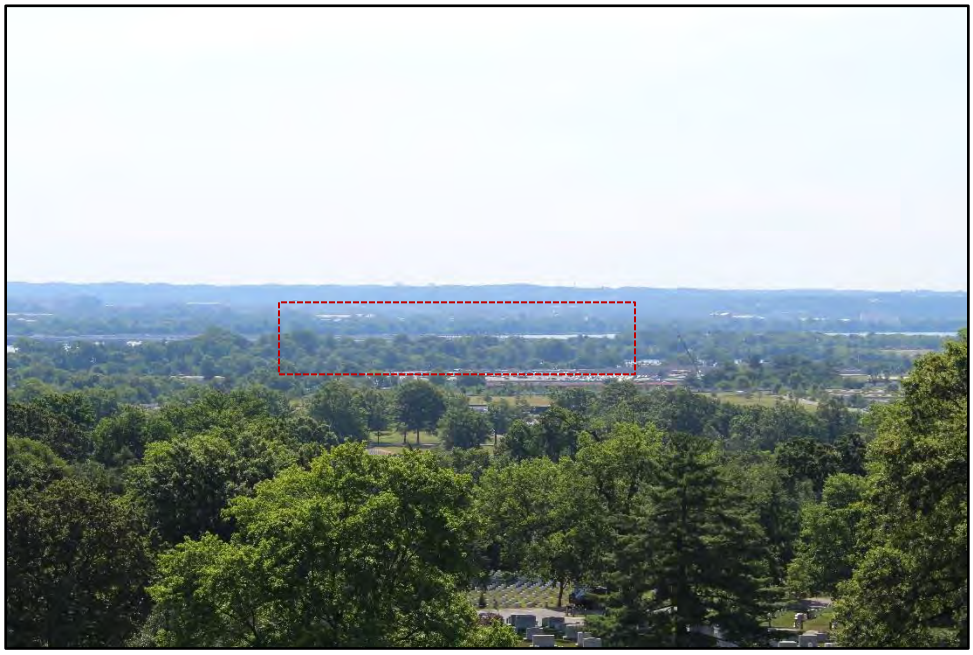
To create these views, FRA and DDOT conducted field surveys to photograph existing conditions. They then created three-dimensional massing models of Action Alternatives A and B that were aligned with the existing Long Bridge Corridor in these locations. The three-dimensional models were overlaid on existing conditions photographs and manipulated digitally to adjust for light and shadow, render materials, and approximate anticipated vegetative conditions. The viewshed simulations are shown on the following pages in **Figures 4-2** through **4-11**.[12]

[12] An additional round of field visits and photo simulations will be conducted in late 2018 to assess winter (leaves-off) views and confirm the findings described in this report. Any changes to the assessment of effects based on winter views will be incorporated into the Final Assessment of Effects Report that will be attached as an appendix to the administrative draft of the DEIS.

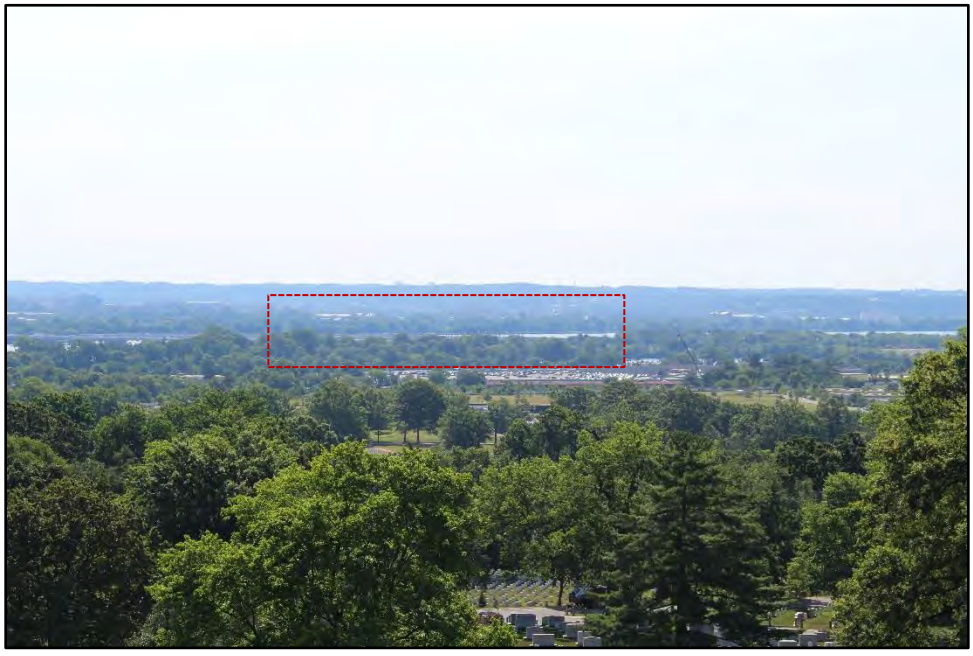
4.2.2.2. Viewshed Simulations

Figure 4-2 | Viewshed Location A (Arlington House)

View from Arlington House facing southeast (existing Long Bridge location outlined in red)



Existing Conditions



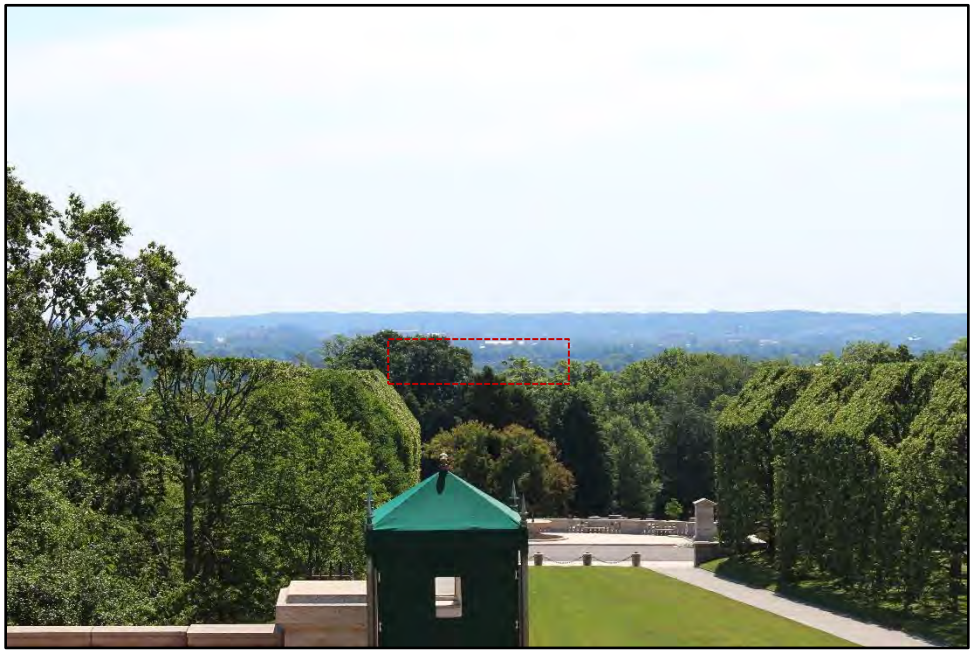
Action Alternative A: New railroad bridge not visually discernable.

Action Alternative B: New railroad bridges not visually discernable.

Figure 4-3 | Viewshed Location B (Arlington National Cemetery)

View from Tomb of the Unknown Soldier facing southeast (existing Long Bridge location outlined in red)

Existing Conditions



Action Alternative A: New railroad bridge not visually discernable.

Action Alternative B: New railroad bridges not visually discernable.

Figure 4-4 | Viewshed Location C (GWMP)

View from southbound motorway approaching Metrorail Bridge

Existing Conditions

Action Alternative A: New railroad bridge visible behind Metrorail Bridge.

Action Alternative B: New railroad bridges visible behind Metrorail Bridge.

Figure 4-5 | Viewshed Location D (GWMP)

View from northbound motorway approaching Metrorail and 14th Street bridges

Existing Conditions

Action Alternative A: New railroad bridge visible behind existing railroad bridge.

Action Alternative B: New railroad bridges visible.

Figure 4-6 | Viewshed Location E (GWMP)

View from northbound motorway approaching GWMP railroad crossing

Existing Conditions

Action Alternative A: New railroad bridge abutment partially visible.

Action Alternative B: New railroad bridges visible.

Figure 4-7 | Viewshed Location F (GWMP, MVT)

View from Gravelly Point Park approaching Long Bridge facing north

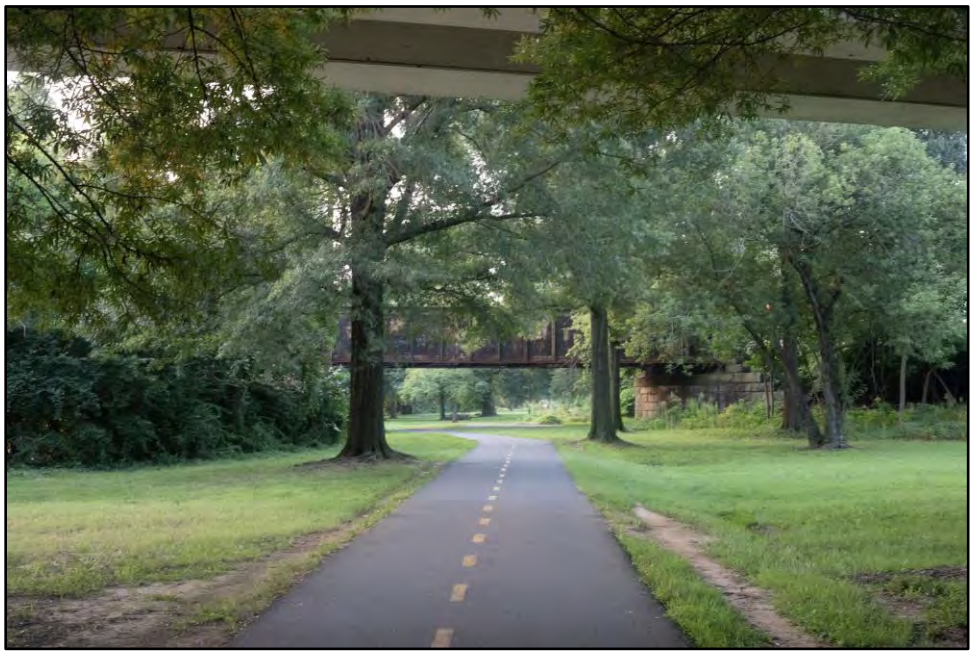
Existing Conditions

Action Alternative A: New railroad bridge not visually discernable.

Action Alternative B: New railroad bridge visible.

Figure 4-8 | Viewshed Location G (GWMP, MVT)

View from north of Long Bridge facing south



Existing Conditions

Action Alternative A: New railroad bridge visible.

Action Alternative B: New railroad bridges visible.

Figure 4-9 | Viewshed Location J (East Potomac Park)

View from Ohio Drive SW facing southwest

Existing Conditions

Action Alternative A: New railroad bridge visible.

Action Alternative B: New railroad bridges visible.

Figure 4-10 | Viewshed Location K (East Potomac Park)

View from Buckeye Drive vicinity facing northwest

Existing Conditions

Action Alternative A: New railroad bridge not visually discernable.

Action Alternative B: New railroad bridge visible.

Figure 4-11 | Viewshed Location L (East Potomac Park)

View from end of Hains Point facing northwest

Existing Conditions

Action Alternative A: New railroad bridge not visually discernable.

Action Alternative B: New railroad bridge visible.

4.2.3. Noise and Vibration Effects

This assessment has been coordinated with the EIS analysis for noise and vibration. FRA and DDOT have overlaid the Noise and Vibration Study Area with the APE (as shown in **Figure 4-12**).**Error! Reference source not found.** In accordance with EIS methodology, noise and vibration analysis has been based on Federal Transit Administration (FTA) Guidelines. Based on the EIS assessment, FRA and DDOT identified historic properties that would experience noise and vibration levels above FTA thresholds. FTA guidelines defer to local construction and operational noise limits where applicable. If noise and vibration levels above FTA or local thresholds were determined to diminish any aspects of integrity that contributed to a property's historic significance, a finding of adverse effect has been made.

The EIS analysis for noise and vibration evaluates both temporary construction and permanent operational effects due to noise and vibration for the following classifications of each:

- **Ground-borne vibration**, defined as the oscillatory motion of the ground, occurs when forces associated with the wheel-rail interaction are transmitted through the track structure into the ground and into adjacent buildings. Vibration may be perceptible and disturb people or sensitive activities in nearby buildings.
- **Noise** is typically defined as unwanted or undesirable sound. Noise is evaluated based on its potential to cause human annoyance. Because humans can hear certain frequencies or pitches of sound better than others, sound levels are measured and reported using a descriptor called the **A-weighted sound level**. A-weighted sound levels weight different frequencies of sound to correspond to human hearing and are expressed in decibel notation as **dBA**.
- **Ground-borne noise** is generated when vibration propagates into a room and causes the walls, ceilings, and floor to vibrate and generate a low frequency rumble. Ground-borne noise is generally only perceptible in buildings where airborne paths (such as paths through windows or openings) are not present. Ground-borne noise is of particular concern for special-use buildings, such as theatres and recording studios.

The process to evaluate the potential effects from noise and vibration included identifying noise- and vibration-sensitive receptors, understanding the predominant sources of noise and vibration, and characterizing existing noise and vibration conditions through measurements. Noise receptors were categorized into the FTA Land Use Noise Categories based on the human use of the property as it relates to the potential for noise to cause human annoyance. Receptors are primarily located at ground-level outdoor areas of frequent human use. Parks that have areas for passive recreation are considered sensitive to noise. Commercial and industrial properties are not typically evaluated for operational noise impact unless there are outdoor areas of frequent human use. Residential, institutional, commercial, and industrial land uses are typically evaluated for construction-period noise effects.

Vibration-sensitive land uses are similar to noise-sensitive land uses except that vibration, as it relates to human annoyance, is only evaluated inside buildings and is not evaluated at parks. All buildings and structures are evaluated for potential structural damage due to high-impact construction equipment such as impact pile driving. The thresholds for potential structural damage are greater than the thresholds for human annoyance. Train operations generally do not generate sufficient vibration to cause structural damage unless the trains are extremely close to sensitive buildings. Historic properties are often more susceptible to vibration and have lower thresholds for increased risk of structural damage.

Figure 4-12 | Noise and Vibration Study Area Overlaid on APE

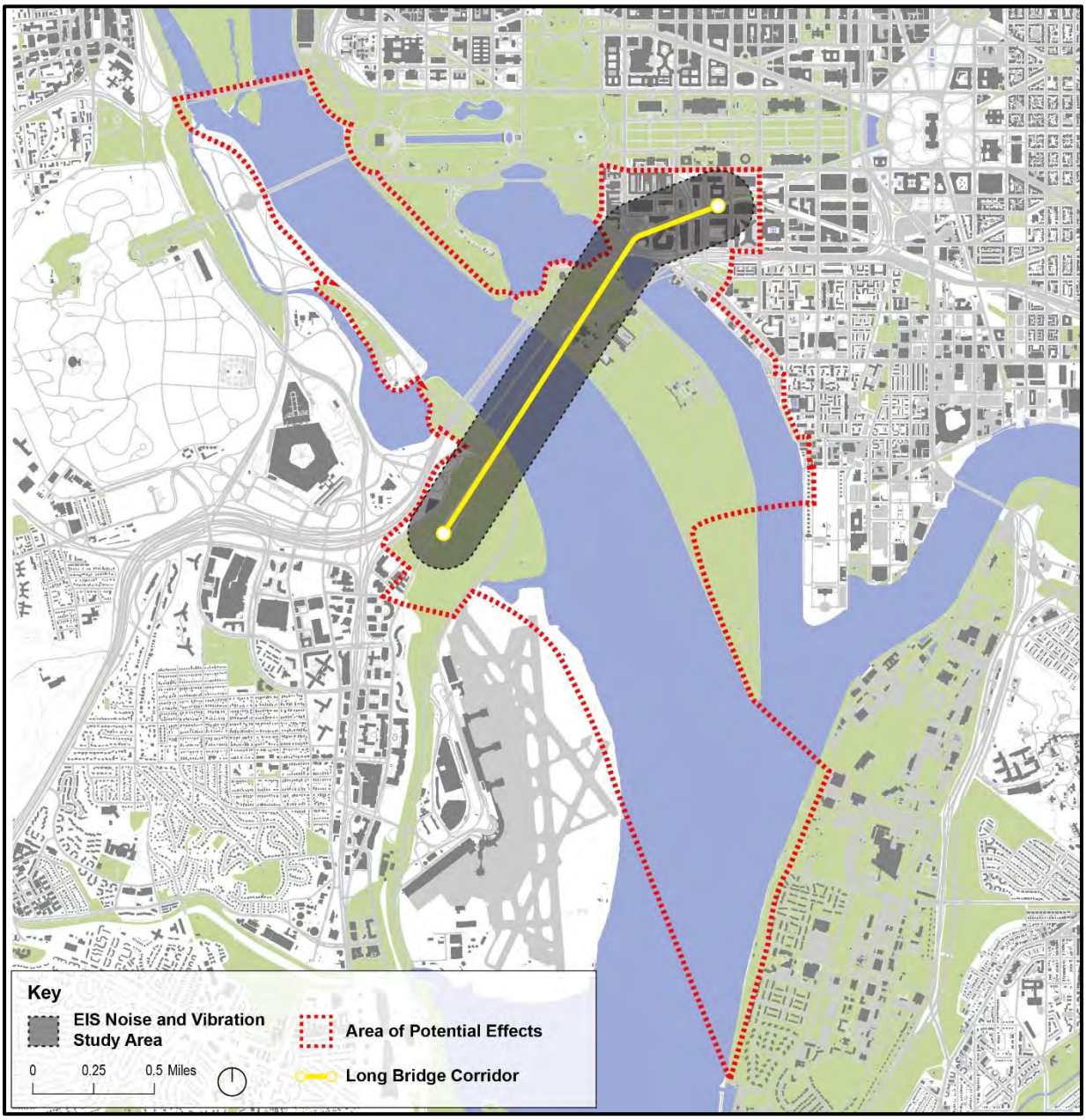
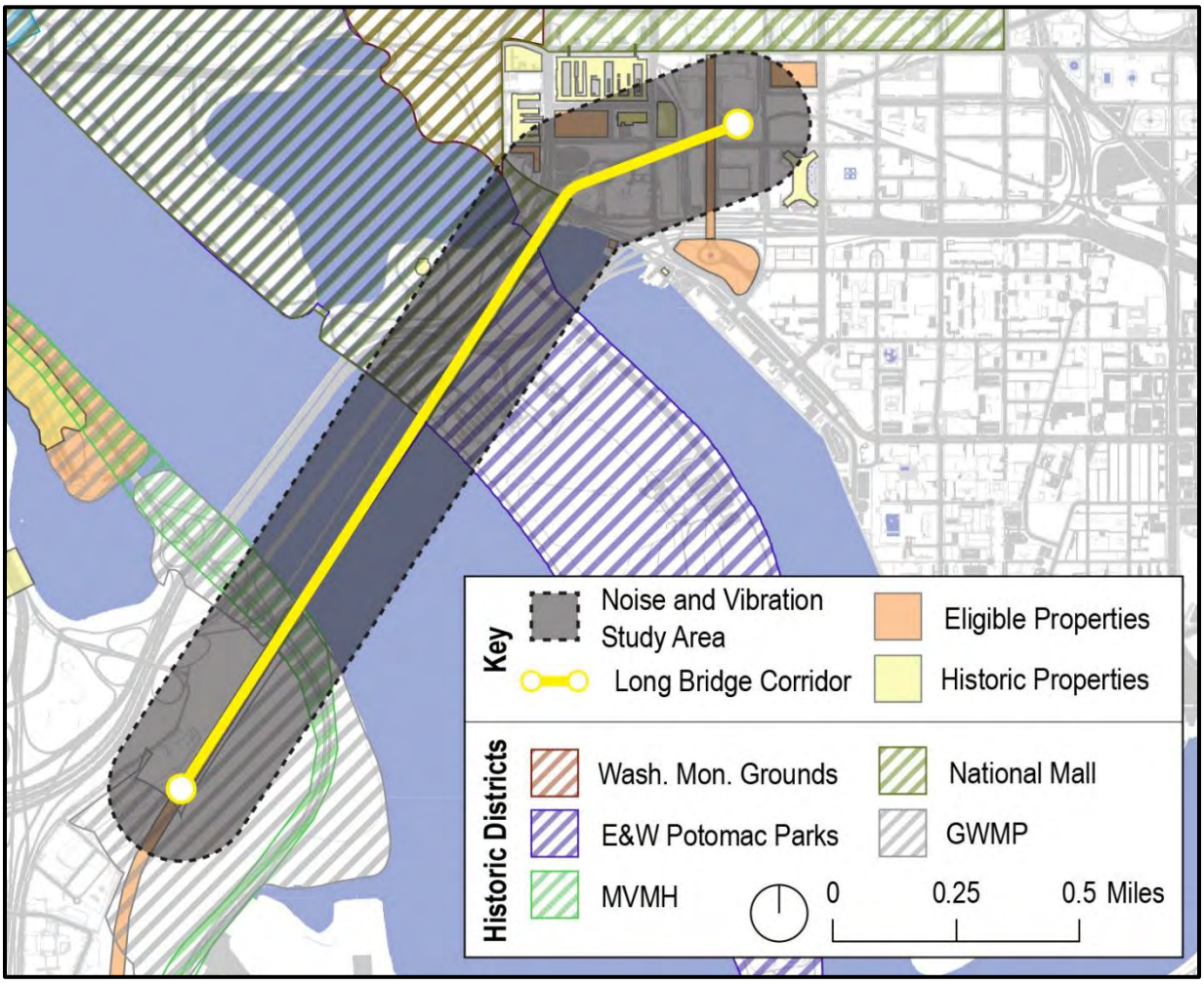


Figure 4-13 | Detail of Noise and Vibration Study Area with Historic Properties



4.3. Summary Determination of Effect

This assessment finds that **both Action Alternatives adversely affect the GWMP, MVMH, and East and West Potomac Parks historic districts**. Direct adverse effects to these resources would result due to the removal or alteration of contributing features, including vegetation. **The direct adverse effects would be intensified in Action Alternative B** because of greater LOD areas, and the removal of the Long Bridge (a contributing resource to the East and West Potomac Parks Historic District) and a component railway bridge above the MVMH and the GWMP (a contributing resource to the GWMP).

Both alternatives create permanent, indirect adverse effects resulting from visual changes on the GWMP, MVMH, and East and West Potomac Parks historic districts.[13] Analysis compiled to support the

[13] This assessment is based on existing NRHP, DC, VLR, DOE, cultural landscape, and other available documentation for each historic property. NPS has indicated that it considers the existing Long Bridge and the circa-1930 component railroad bridge spanning above the motorway to be contributing to the GWMP Historic District. The NRHP documentation for the GWMP

noise and vibration section of the EIS found there would be no permanent, direct or indirect adverse effects on historic properties resulting from noise or vibration.

Construction activities, including **construction-related staging, access, and noise and vibration for both Action Alternatives adversely affect the National Mall, the MVMH, the GWMP, and East and West Potomac Parks historic districts**. These effects are temporary and would be limited to the periods of construction for each Action Alternative. These effects could likely be avoided or minimized in intensity and duration through appropriate construction management techniques. **Section 0**, **Temporary and Construction-Related Effects**, provides a list of the historic properties affected.

4.4. Permanent or Long-Term Effects

An evaluation of permanent and long-term effects anticipated from Action Alternative A and Action Alternative B are described in **Table 4-2**. The evaluation is organized by classifications of historic properties as described previously.

Table 4-2 | Permanent or Long-Term Effects

Property	Action Alternative A (Preferred Alternative)	Action Alternative B
Designated Historic Properties – Historic Districts (HDs)		
National Mall HD (DC)	**Physical Effects:** A portion of the Long Bridge Corridor extends through the National Mall HD. For Action Alternative A, the limits of disturbance would be approximately 6.9 acres within the HD. Despite this, there are no identified contributing features within the railroad corridor. Therefore, **no direct adverse effect** would result under this alternative.	**Physical Effects:** A portion of the Long Bridge Corridor extends through the National Mall HD. For Action Alternative B, the limits of disturbance would be approximately 7.1 acres within the HD. Despite this, there are no identified contributing features within the railroad corridor. Therefore, **no direct adverse effect** would result under this alternative.
	Visual Effects: NRHP and Cultural Landscape documentation identify no significant views within this portion of the HD. Therefore, **no indirect adverse effect** from changes to historic views and viewsheds would result under this alternative.	**Visual Effects:** The effects described under Action Alternative A would be similar under Action Alternative B. Therefore, **no indirect adverse effect** from changes to historic views and viewsheds would result under this alternative.
	Noise and Vibration: The National Mall is located within the Noise and Vibration Study Area. Several receptor locations within the HD were tested to determine the amount of increase of noise and vibration resulting from permanent operational changes. None of these levels exceeded FTA thresholds for noise or vibration. Therefore, **no adverse effects** from permanent operational changes	**Noise and Vibration:** The effects described under Action Alternative A would be similar under Action Alternative B. Therefore, **no adverse effects** from permanent operational changes to noise or vibration would result under this alternative.

references neither structure. However, VDHR has recommended that the component railroad bridge to be contributing to the GWMP Historic District. Additionally, because the Long Bridge was extant during the period of significance of the GWMP (1930-1966), it forms a contributing part of the GWMP historic setting.

Property	Action Alternative A (Preferred Alternative)	Action Alternative B
	to noise or vibration would resulting under this alternative.	
Rock Creek and Potomac Parkway (RCPP) HD (DC)	**Physical Effects:** The RCPP is located outside of the limits of disturbance. Therefore, **no direct adverse effect** would result under either Action Alternative. **Visual Effects:** The RCPP Potomac Waterfront Section cultural landscape report cites the sweeping, panoramic view of the Potomac River shoreline as being contributing to the historic district. Views south from the RCPP to the Project Area are currently impeded by the Roosevelt Bridge. Therefore, **no indirect adverse effects** from changes to historic views and viewsheds would result under either Action Alternative. **Noise and Vibration:** The RCPP is located outside of the noise and vibration study area. Therefore, **no effect** from noise or vibration would result under either Action Alternative.	
George Washington Memorial Parkway (GWMP) HD (DC/VA)	**Physical Effects:** Under Action Alternative A, the limits of disturbance would be approximately 0.9 acres of the GWMP. In addition to the infringement on undeveloped parkland, construction of a new railroad bridge would necessitate the removal of contributing vegetation, especially mature trees that date to the 1932 planting plan of GWMP, which were intended to visually screen the railroad bridge from the motorway. Loss of these trees would diminish the integrity of design, materials (specifically, the contributing vegetation), and feeling of the GWMP, creating a **direct adverse effect**. **Visual Effects:** The existing, non-contributing bridges along this portion of the GWMP have compromised its integrity of feeling, association, and setting. The addition of a new bridge within this existing cluster of structures has no potential to further diminish these aspects of the Parkway's integrity. Therefore, **no indirect adverse effects** from changes to historic views and viewsheds would result under this alternative. See **Figures 4-4, 4-5, and 4-6 Error! Reference source not found.**for illustrations of these changes. Although the introduction of a new railroad bridge structure above the Potomac River would alter views along the shoreline facing north toward the Monumental Core or south to Hains Point, the findings of the viewshed analysis indicates that these are insufficient to	**Physical Effects:** Impacts described under Action Alternative A would be similar under Action Alternative B, although intensified in a result of a second new railroad bridge construction. The expanded limits of disturbance would be approximately 1.6 acres. Action Alternative B also proposes the replacement of the existing component railroad bridge spanning above the GWMP, which has been recommended by VDHR as a contributing resource to the GWMP, resulting in a **direct adverse effect**. **Visual Effects:** For views along the Parkway, the effects described under Action Alternative A would be similar under Action Alternative B. Therefore, **no indirect adverse effects** from changes to historic views and viewsheds would result under this alternative. See **Figure 4-4** for illustrations of these changes. Action Alternative B replaces the existing Long Bridge. This structure and its central through truss span form a significant visual component of the GWMP when traveling north and south along the MVT. In this location, removing this visual element would diminish the integrity of setting and association of the HD, resulting in an **indirect adverse effect**. See **Figures 4-7** and **4-8Error! Reference source not found.** for illustrations of these changes.

Property	Action Alternative A (Preferred Alternative)	Action Alternative B
	diminish any aspect of the integrity of the GWMP.[14] There would be **no indirect adverse effect**. **Noise and Vibration:** A portion of the GWMP is located within the Noise and Vibration Study Area. Vibration analysis has indicated that there would be **no adverse effect** resulting from increased operational vibration. Noise analysis has indicated that the increase in noise resulting from permanent operational changes would be moderate (that is, perceptible to general users). However, several factors minimize this perceived change, including the existing high degree of ambient noise along the GWMP (generally resulting from automobile traffic along the GWMP and surrounding roads), the relatively infrequent occurrence of train traffic relative to automobile traffic, and the HD's primary use for active recreation. For these reasons, the change in operational noise would not be sufficient to diminish the integrity of setting, feeling, and association of the property. Therefore, **no adverse effect** from noise or vibration would result.	**Noise and Vibration:** The effects described under Action Alternative A would be similar under Action Alternative B. Therefore, **no adverse effect** from noise or vibration would result.
MVMH HD (DC/VA)[15]	Effects to the MVMH would be similar and additive to those described above affecting the GWMP, under both Action Alternatives. Both Action Alternatives would create **direct adverse effects** on the MVMH. The limits of disturbance for Action Alternative A encompass approximately 0.9 acres of the HD.	Effects to the MVMH would be similar and additive to those described above affecting the GWMP, under both Action Alternatives. Both Action Alternatives would create **direct adverse effects** on the MVMH. The limits of disturbance for Action Alternative B encompass approximately 1.6 acres of the HD. Action Alternative B would also create **indirect adverse effects** on the MVMH.

[14] The Monumental Core represents the central concentration of the Federal presence in the nation's capital. It is comprised of the National Mall, East and West Potomac Parks, the Federal Triangle, the Northwest Rectangle, and Southwest Federal Center.
[15] The railroad bridge spanning the roadway is described in the NRHP nomination for the MVMH, but it is unclear from the existing NRHP documentation if this structure is classified as a contributing resource. It has been assumed to be contributing for the purposes of this assessment.

Property	Action Alternative A (Preferred Alternative)	Action Alternative B
Plan of the City of Washington HD (DC)	**Physical Effects:** A portion of the Long Bridge Corridor extends through the Plan of the City of Washington HD. Because the Project proposes no alterations to the contributing streets and reservations, there would be **no direct adverse effect** under either Action Alternative. **Visual Effects:** The Project proposes no changes to the contributing views and vistas of the HD. Therefore, **no indirect adverse effects** from changes to historic views and viewsheds would result under either Action Alternative. **Noise and Vibration:** A portion of the Plan of the City of Washington is located within the Noise and Vibration Study Area. Vibration analysis has indicated that there would be **no adverse effect** to contributing components of the Plan of the City of Washington resulting from increased operational vibration. Noise analysis has indicated that the increase in noise resulting from permanent operational changes would be moderate (that is, perceptible to general users) for certain areas along the Long Bridge Corridor that are located within the boundaries of the Plan of the City of Washington. However, several factors minimize this perceived change, including the existing high degree of ambient noise within the SW Quadrant street grid and the lack of sensitive land uses (such as areas of passive recreation). For these reasons, the change in operational noise would not be sufficient to diminish the integrity of setting, feeling, and association of the property. Therefore, **no adverse effect** from noise would result under either Action Alternative.	
East and West Potomac Parks HD (DC)	**Physical Effects:** Under Action Alternative A, the LOD encompass approximately 5.6 acres within East Potomac Park. In addition to the infringement on undeveloped parkland, construction of a new railroad bridge would necessitate the removal of up to four contributing Japanese Cherry Trees along the perimeter of East Potomac Park, in addition to other mature vegetation. Loss of these features would diminish the integrity of design, materials (specifically, the trees themselves), and feeling of the park, creating a **direct adverse effect**. **Visual Effects:** Addition of a new bridge would obstruct views of the existing Long Bridge from the north, diminishing the visual integrity of this contributing structure and resulting in an **indirect adverse effect**. Otherwise, viewshed simulations have indicated that Action Alternative A has no potential to impact contributing views, particularly those around the perimeter of East Potomac Park, including those facing toward the Monumental Core and views up and down the Potomac River toward Virginia. See **Figures 4-9, 4-10,** and **4-11** for illustrations of these changes.	**Physical Effects:** Action Alternative B proposes the removal of the existing Long Bridge to construct a new railroad bridge in its location. The Long Bridge (Potomac Railroad Bridge) is a contributing element of the HD. Removing it would diminish the integrity of design, feeling, association, and materials of the HD, creating a **direct adverse effect**. Additionally, as described under Action Alternative A, removal of the contributing Japanese Cherry Trees and other mature vegetation would result in a **direct adverse effect**. This effect would be intensified because of a second new railroad bridge construction, necessitating the removal of up to seven contributing cherry trees, and the expansion of the LOD to approximately 5.8 acres. **Visual Effects:** The existing Long Bridge, with its central through truss span, is a contributing visual element to the HD. Removing it would diminish the integrity of setting, feeling, and association of the HD, creating an **indirect adverse effect**. The other indirect adverse effects described under

Property	Action Alternative A (Preferred Alternative)	Action Alternative B
	Noise and Vibration: A portion of East Potomac Park is located within the Noise and Vibration Study Area. Several receptor locations within the HD were tested to determine the amount of increase of noise and vibration resulting from permanent operational changes. None of these levels exceeded FTA thresholds for noise or vibration. Therefore, **no adverse effect** from noise or vibration would result.	Action Alternative A would be similar under Action Alternative B. **Noise and Vibration:** The effects described under Action Alternative A would be similar under Action Alternative B. Therefore, **no adverse effect** from noise or vibration would result.
Fort Leslie J. McNair Historic District (The Old Arsenal) HD (DC)	**Physical Effects:** The Project proposes no direct physical changes to this property. Therefore, **no direct adverse effect** would result under either Action Alternative. **Visual Effects:** The NRHP documentation for this property identifies no significant views or viewsheds; however, based on the siting of the HD and its relatively open shoreline, this analysis finds that contributing views would include the views of the Potomac River and the District around the perimeter of the site. The Project has no potential to alter or impede these views. The Project also has no potential to diminish the property's integrity of setting, feeling, or association. Therefore, **no indirect adverse effects** from changes to historic views and viewsheds would result under either Action Alternative. **Noise and Vibration:** This property is located outside of the Noise and Vibration Study Area. Therefore, **no effect** from noise or vibration would result under either Action Alternative.	
Washington Monument and Grounds HD (DC)	**Physical Effects:** The Project proposes no direct physical changes to this property. Therefore, **no direct adverse effect** would result under either Action Alternative. **Visual Effects:** The NRHP and cultural landscape documentation for this property references the multiple significant views and vistas that contribute to the significance of the Monument and its surrounding landscape. Relevant to the Project, this includes views from the top of the Monument to the surrounding cityscape and beyond. Although both Action Alternatives would be visible from the Monument viewing platform, the perceptible changes would be miniscule in relation to the degree and expansive nature of the contextual changes resulting from decades of contemporary development. The Project Area is also located beyond the main focal points in the Monumental Core that the viewing platform provides, such as to the Capitol and White House, and would not obstruct these views. For these reasons, neither Action Alternative has the potential to diminish the property's integrity of setting, feeling, or association. Therefore, **no indirect adverse effects** from changes to historic views and viewsheds would result under either Action Alternative. **Noise and Vibration:** This property is located outside of the Noise and Vibration Study Area. Therefore, **no effect** from noise or vibration would result under either Action Alternative.	
Arlington House HD (VA)	**Physical Effects:** The Project proposes no direct physical changes to this property. Therefore, **no direct adverse effect** would result under either Action Alternative.	

Property	Action Alternative A (Preferred Alternative)	Action Alternative B
	Visual Effects: The NRHP documentation for this property references the dramatic, panoramic views of the District afforded by the house's prominent siting. Viewshed simulations prepared for this property indicate that the Action Alternatives would be minimally visible and have no potential to diminish the property's integrity of setting, feeling, or association. Therefore, **no indirect adverse effects** from changes to historic views and viewsheds would result under either Action Alternative. See **Figure 4-2 Error! Reference source not found.**for illustrations of these changes. **Noise and Vibration:** This property is located outside of the Noise and Vibration Study Area. Therefore, **no effect** from noise or vibration would result under either Action Alternative.	
Arlington National Cemetery HD (VA)	**Physical Effects:** The Project proposes no direct physical changes to this property. Therefore, **no direct adverse effect** would result under either Action Alternative. **Visual Effects:** The NRHP documentation for this property repeatedly references the panoramic views toward the District. Viewshed simulations prepared for this property indicate that the Action Alternatives would be minimally visible and have no potential to diminish the property's integrity of setting, feeling, or association. Therefore, **no indirect adverse effects** from changes to historic views and viewsheds would result under either Action Alternative. See **Figure 4-3 Error! Reference source not found.**for illustrations of these changes. **Noise and Vibration:** This property is located outside of the Noise and Vibration Study Area. Therefore, **no effect** from noise or vibration would result under either Action Alternative.	
St. Elizabeths Hospital HD (DC)	**Physical Effects:** The Project proposes no direct physical changes to this property. Therefore, **no direct adverse effect** would result under either Action Alternative. **Visual Effects:** The NHL and cultural landscape documentation for this property reference the panoramic views of the District and Alexandria, which contribute to the significance of the therapeutic landscape at St. Elizabeths. Although the existing Long Bridge has limited visibility from parts of the landscape, in consideration of the great distance between the two sites, there is no potential to impede or alter these panoramic views under both Action Alternatives and no potential to diminish the property's integrity of setting, feeling, or association. Therefore, **no indirect adverse effects** from changes to historic views and viewsheds would result under either Action Alternative. **Noise and Vibration:** This property is located outside of the Noise and Vibration Study Area. Therefore, **no effect** from noise or vibration would result under either Action Alternative.	
Designated Historic Properties – Individual Historic Properties		
Thomas Jefferson Memorial (DC)	**Physical Effects:** The Project proposes no direct physical changes to this property. Therefore, **no direct adverse effect** would result under either Action Alternative. **Visual Effects:** The NRHP documentation for this property identifies no significant views or viewsheds; however, in consideration of the siting and design of the Memorial, this analysis finds that they would include the vistas of the Tidal Basin and reciprocal views between the Memorial and White House. Because the Long Bridge Corridor is not visible from the Memorial due to substantial groupings of mature vegetation around the southeastern edge of the Memorial site and the adjacent elevated roadways, the project has no potential to alter or impede these views or to diminish the property's integrity of setting, feeling, or association.	

Property	Action Alternative A (Preferred Alternative) Action Alternative B
	Therefore, **no indirect adverse effects** from changes to historic views and viewsheds would result under either Action Alternative. **Noise and Vibration:** This property is located outside of the Noise and Vibration Study Area. Therefore, **no effect** from noise or vibration would result under either Action Alternative.
Central Heating Plant (DC)	**Physical Effects:** The Project proposes no direct physical changes to this property. Therefore, **no direct adverse effect** would result under either Action Alternative. **Visual Effects:** The NRHP documentation for this property identifies no significant views or viewsheds. This analysis has identified no significant views or viewsheds in the direction of the Long Bridge Corridor from any areas that were publicly accessible at the time of field survey. Additionally, the property is located in a highly developed urban context that largely postdates the development of the Long Bridge Corridor. Therefore, the Project has no potential to diminish the property's integrity of setting, feeling, or association. **No indirect adverse effects** from changes to historic views and viewsheds would result under either Action Alternative. **Noise and Vibration:** This property is located within the Noise and Vibration Study Area. Receptor locations within these boundaries were tested to determine the amount of increase of noise and vibration resulting from permanent operational changes. Within close proximity to this property, none of these levels exceeded FTA thresholds for noise or vibration. Therefore, **no adverse effect** from noise or vibration would result under either Action Alternative.
USDA Cotton Annex (DC)	**Physical Effects:** The Project proposes no direct physical changes to this property. Therefore, **no direct adverse effect** would result under either Action Alternative. **Visual Effects:** The NRHP documentation for this property identifies no significant views or viewsheds. This analysis has identified no significant views or viewsheds in the direction of the Long Bridge Corridor from any areas that were publicly accessible at the time of field survey. Additionally, the property is located in a highly developed urban context that largely postdates the development of the Long Bridge Corridor. Therefore, the Project has no potential to diminish the property's integrity of setting, feeling, or association. Therefore, **no indirect adverse effects** from changes to historic views and viewsheds would result under either Action Alternative. **Noise and Vibration:** This property is located within the Noise and Vibration Study Area. Receptor locations within these boundaries were tested to determine the amount of increase of noise and vibration resulting from permanent operational changes. Within close proximity to this property, none of these levels exceeded FTA thresholds for noise or vibration. Therefore, **no adverse effect** from noise or vibration would result under either Action Alternative.
HUD Building (Robert C. Weaver Federal Building) (DC)	**Physical Effects:** The Project proposes no direct physical changes to this property. Therefore, **no direct adverse effect** would result under either Action Alternative. **Visual Effects:** The NRHP documentation for this property identifies no significant views or viewsheds. This analysis has identified no significant views or viewsheds in the direction of the Long Bridge Corridor from any areas that were publicly accessible at the time of field survey.

Property	Action Alternative A (Preferred Alternative)	Action Alternative B
	Additionally, the property is located in a highly developed urban context that largely postdates the development of the Long Bridge Corridor. Therefore, the Project has no potential to diminish the property's integrity of setting, feeling, or association. Therefore, **no indirect adverse effects** from changes to historic views and viewsheds would result under either Action Alternative. **Noise and Vibration:** This property is located within the Noise and Vibration Study Area. Receptor locations within these boundaries were tested to determine the amount of increase of noise and vibration resulting from permanent operational changes. Within close proximity to this property, none of these levels exceeded FTA thresholds for noise or vibration. Therefore, **no adverse effect** from noise or vibration would result under either Action Alternative.	
USDA South Building (DC)	**Physical Effects:** The Project proposes no direct physical changes to this property. Therefore, **no direct adverse effect** would result under either Action Alternative. **Visual Effects:** The NRHP documentation for this property identifies no significant views or viewsheds. This analysis has identified no significant views or viewsheds in the direction of the Long Bridge Corridor from any areas that were publicly accessible at the time of field survey. Additionally, the property is located in a highly developed urban context that largely postdates the development of the Long Bridge Corridor. Therefore, the Project has no potential to diminish the property's integrity of setting, feeling, or association. **No indirect adverse effects** from changes to historic views and viewsheds would result under either Action Alternative. **Noise and Vibration:** This property is located within the Noise and Vibration Study Area. Receptor locations within these boundaries were tested to determine the amount of increase of noise and vibration resulting from permanent operational changes. Within close proximity to this property, none of these levels exceeded FTA thresholds for noise or vibration. Therefore, **no adverse effect** from noise or vibration would result under either Action Alternative.	
Bureau of Engraving and Printing (DC)	**Physical Effects:** The Project proposes no direct physical changes to this property. Therefore, **no direct adverse effect** would result under either Action Alternative. **Visual Effects:** The NRHP documentation for this property identifies no significant views or viewsheds. This analysis has identified no significant views or viewsheds in the direction of the Long Bridge Corridor from any areas that were publicly accessible at the time of field survey. Additionally, the property is located in a highly developed urban context that largely postdates the development of the Long Bridge Corridor. Therefore, the Project has no potential to diminish the property's integrity of setting, feeling, or association. Therefore, **no indirect adverse effects** from changes to historic views and viewsheds would result under either Action Alternative. **Noise and Vibration:** This property is located within the Noise and Vibration Study Area. Receptor locations within these boundaries were tested to determine the amount of increase of noise and vibration resulting from permanent operational changes. Within close proximity to this property, none of these levels exceeded FTA thresholds for noise or vibration. Therefore, **no adverse effect** from noise or vibration would result under either Action Alternative.	

Property	Action Alternative A (Preferred Alternative)	Action Alternative B
Auditor's Building Complex (DC)	**Physical Effects:** The Project proposes no direct physical changes to this property. Therefore, **no direct adverse effect** would result under either Action Alternative. **Visual Effects:** The NRHP documentation for this property identifies no significant views or viewsheds. This analysis has identified no significant views or viewsheds in the direction of the Long Bridge Corridor from any areas that were publicly accessible at the time of field survey. Additionally, the property is located in a highly developed urban context that largely postdates the development of the Long Bridge Corridor. Therefore, the Project has no potential to diminish the property's integrity of setting, feeling, or association. Therefore, **no indirect adverse effects** from changes to historic views and viewsheds would result under either Action Alternative. **Noise and Vibration:** This property is located outside of the Noise and Vibration Study Area. Therefore, **no effect** from noise or vibration would result under either Action Alternative.	
Arlington Memorial Bridge (and related features) (DC/VA)	**Physical Effects:** The Project proposes no direct physical changes to this property. Therefore, **no direct adverse effect** would result under either Action Alternative. **Visual Effects:** The NRHP documentation for this property identifies no significant views or viewsheds. However, based on the bridge's design and urban context, this analysis finds that they include reciprocal views between Arlington National Cemetery and the Lincoln Memorial and the panoramic vistas along the Potomac River. The latter have been interrupted over time by the Roosevelt Bridge and 14th Street-Metrorail complex of bridges. Due to the Project's location relative to the Memorial Bridge and the obstructions listed above, it has no potential to impede contributing views or to diminish the property's integrity of setting, feeling, or association. Therefore, **no indirect adverse effects** from changes to historic views and viewsheds would result under either Action Alternative. **Noise and Vibration:** This property is located outside of the Noise and Vibration Study Area. Therefore, **no effect** from noise or vibration would result under either Action Alternative.	
Titanic Memorial (DC)	**Physical Effects:** The Project proposes no direct physical changes to this property. Therefore, **no direct adverse effect** would result under either Action Alternative. **Visual Effects:** The NRHP documentation for this property identifies no significant views or viewsheds. The memorial was moved to its existing location in 1968 and does not retain integrity of location or setting. The NRHP documentation for the property (prepared in 2006) described the new site as much less successful and appropriate for the memorial than was its original site. Despite this fact, the memorial has retained its general context and siting in proximity to a body of water. Neither Action Alternative has any potential to alter this context, and therefore no potential to further diminish the property's integrity of setting, location, or association. Therefore, **no indirect adverse effects** from changes to historic views and viewsheds would result under either Action Alternative. **Noise and Vibration:** This property is located outside of the Noise and Vibration Study Area. Therefore, **no effect** from noise or vibration would result under either Action Alternative.	
Lunch Room Building and	**Physical Effects:** The Project proposes no direct physical changes to this property. Therefore, **no direct adverse effect** would result under either Action Alternative.	

Property	Action Alternative A (Preferred Alternative)	Action Alternative B
Oyster Shucking Shed (DC)	**Visual Effects:** The NRHP documentation for this property identifies no significant views or viewsheds. This analysis has identified no significant views or viewsheds in the direction of the Long Bridge Corridor from any areas that were publicly accessible at the time of field survey. Additionally, the property is located in a highly developed urban context that largely postdates the development of the Long Bridge Corridor. Therefore, the Project has no potential to diminish the property's integrity of setting, feeling, or association. Therefore, **no indirect adverse effects** from changes to historic views and viewsheds would result under either Action Alternative. **Noise and Vibration:** This property is located outside of the Noise and Vibration Study Area. Therefore, **no effect** from noise or vibration would result under either Action Alternative.	
Cuban Friendship Urn (DC)	**Physical Effects:** The Project proposes no direct physical changes to this property. Therefore, **no direct adverse effect** would result under either Action Alternative. **Visual Effects:** The NRHP documentation for this property identifies no significant views or viewsheds. The urn was moved to its existing location in 1997 and does not retain integrity of location or setting. Therefore, **no indirect adverse effects** from changes to historic views and viewsheds would result under either Action Alternative. **Noise and Vibration:** This property is located within the Noise and Vibration Study Area. Receptor locations within these boundaries were tested to determine the amount of increase of noise and vibration resulting from permanent operational changes. Within close proximity to this property, none of these levels exceeded FTA thresholds for noise or vibration. Therefore, **no adverse effect** from noise or vibration would result under either Action Alternative.	
Theodore Roosevelt Island National Memorial (Analostan Island) (DC)	**Physical Effects:** The Project proposes no direct physical changes to this property. Therefore, **no direct adverse effect** would result under either Action Alternative. **Visual Effects:** The NRHP documentation for this property identifies no significant views or viewsheds. In consideration of the period of significance of the property and the failed attempts to develop planned viewing platforms, this analysis identifies no significant views in the direction of the Long Bridge Corridor.[16] Therefore, the project has no potential to alter contributing views or to diminish the property's integrity of setting, feeling, or association. Therefore, **no indirect adverse effects** from changes to historic views and viewsheds would result under either Action Alternative. **Noise and Vibration:** This property is located outside of the Noise and Vibration Study Area. Therefore, **no effect** from noise or vibration would result under either Action Alternative.	
Lyndon B. Johnson	**Physical Effects:** The Project proposes no direct physical changes to this property. Therefore, **no direct adverse effect** would result under either Action Alternative.	

[16] During the 1930s, a viewing platform at the south end of the island was planned, allowing views facing south and east toward the Lincoln Memorial and generally toward the Potomac River and Long Bridge beyond. These plans were scrapped during the construction of the Roosevelt Bridge in the 1960s. During much of the nineteenth and twentieth centuries, the Potomac River shorelines along Georgetown and Foggy Bottom were industrial in character, and these views from Roosevelt Island were considered undesirable and contrary to its natural character.

Property	Action Alternative A (Preferred Alternative)	Action Alternative B
Memorial Grove (DC/VA)	**Visual Effects:** The NRHP documentation identifies significant views from the property to the Monumental Core of the District. Because the Long Bridge Corridor extends to the southeast of the Grove and is not visible from within the property, the Project it has no potential to alter or impede these views or to diminish the property's integrity of setting, feeling, or association. Therefore, **no indirect adverse effects** from changes to historic views and viewsheds would result under either Action Alternative. **Noise and Vibration:** This property is located outside of the Noise and Vibration Study Area. Therefore, **no effect** from noise or vibration would result under either Action Alternative.	
Lincoln Memorial (Statue of Lincoln) (DC)	**Physical Effects:** The Project proposes no direct physical changes to this property. Therefore, **no direct adverse effect** would result under either Action Alternative. **Visual Effects:** The NRHP and cultural landscape documentation for this property notes the importance of the West Potomac Park setting to the design of the Lincoln Memorial, including the panoramic views of the Potomac River and Mall its site afforded. Maturing vegetation in addition to several modern bridges has since obscured these views to the south, southeast, and northeast. In consideration of these existing conditions and the far distance between the Lincoln Memorial and the Long Bridge Corridor, both Action Alternatives would result in **no indirect adverse effect** on the property. **Noise and Vibration:** This property is located outside of the Noise and Vibration Study Area. Therefore, **no effect** from noise or vibration would result under either Action Alternative.	
Arlington Ridge Park (VA)	**Physical Effects:** The Project proposes no direct physical changes to this property. Therefore, **no direct adverse effect** would result under either Action Alternative. **Visual Effects:** The NRHP documentation for this property identifies the park and contributing Netherlands Carillon as a significant western backdrop for the National Mall and West Potomac Park. However, the Netherlands Carillon was not intended to serve as a public viewing platform and views from it do not contribute to the significance of the property. The Long Bridge Corridor is not visible from the property at ground level, and therefore the Project has no potential to affect contributing views or viewsheds or to diminish the property's integrity of setting, feeling, or association. Therefore, **no indirect adverse effects** from changes to historic views and viewsheds would result under either Action Alternative. **Noise and Vibration:** This property is located outside of the Noise and Vibration Study Area. Therefore, **no effect** from noise or vibration would result under either Action Alternative.	
Old Post Office (DC)	**Physical Effects:** The Project proposes no direct physical changes to this property. Therefore, **no direct adverse effect** would result under either Action Alternative. **Visual Effects:** The NRHP documentation for this property identifies no significant views or viewsheds. The existing viewing platform was created after the property's period of significance and does not contribute to its significance. This analysis has identified no significant views or viewsheds in the direction of the Long Bridge Corridor from any areas that were publicly accessible at the time of field survey. Therefore, the Project has no potential to affect contributing views or viewsheds or to diminish the property's integrity of setting, feeling, or	

Property	Action Alternative A (Preferred Alternative) Action Alternative B
	association. Therefore, **no indirect adverse effects** from changes to historic views and viewsheds would result under either Action Alternative. **Noise and Vibration:** This property is located outside of the Noise and Vibration Study Area. Therefore, **no effect** from noise or vibration would result under either Action Alternative.
The Pentagon (VA)	**Physical Effects:** The Project proposes no direct physical changes to this property. Therefore, **no direct adverse effect** would result under either Action Alternative. **Visual Effects:** The NRHP documentation for this property identifies no significant views or viewsheds; However, the landmark boundaries extend to include the plaza facing the Potomac River, so this analysis finds that the related views of the District's Monumental Core and Potomac River are important to the character of the property. Although the existing Long Bridge is minimally visible from this plaza, given the relationship of the Long Bridge Corridor to the southeast of this viewshed, there is no potential to impede views under either Action Alternative. Therefore, **no indirect adverse effects** from changes to historic views and viewsheds would result under either Action Alternative. **Noise and Vibration:** This property is located outside of the Noise and Vibration Study Area. Therefore, **no effect** from noise or vibration would result under either Action Alternative.
Properties Determined Eligible	
Bureau of Engraving and Printing Annex (DC)	**Physical Effects:** The Project proposes no direct physical changes to this property. Therefore, **no direct adverse effect** would result under either Action Alternative. **Visual Effects:** The DOE documentation for this property identifies no significant views or viewsheds. This analysis has identified no significant views or viewsheds in the direction of the Long Bridge Corridor from any areas that were publicly accessible at the time of field survey. Additionally, the property is located in a highly developed urban context that largely postdates the development of the Long Bridge Corridor. Therefore, the Project has no potential to diminish the property's integrity of setting, feeling, or association. Therefore, **no indirect adverse effects** from changes to historic views and viewsheds would result under either Action Alternative. **Noise and Vibration:** This property is located within the Noise and Vibration Study Area. Receptor locations within these boundaries were tested to determine the amount of increase of noise and vibration resulting from permanent operational changes. Within close proximity to this property, none of these levels exceeded FTA thresholds for noise or vibration. Therefore, **no adverse effect** from noise or vibration would result under either Action Alternative.
Federal Office Building 10A (Orville Wright Building) (DC)	**Physical Effects:** The Project proposes no direct physical changes to this property. Therefore, **no direct adverse effect** would result under either Action Alternative. **Visual Effects:** The DOE documentation for this property identifies no significant views or viewsheds. This analysis has identified no significant views or viewsheds in the direction of the Long Bridge Corridor from any areas that were publicly accessible at the time of field survey. Additionally, the property is located in a highly developed urban context that largely postdates the development of the Long Bridge Corridor. Therefore, the Project has no potential to diminish the property's integrity of setting, feeling, or association. Therefore, **no indirect**

Property	Action Alternative A (Preferred Alternative)	Action Alternative B
	adverse effects from changes to historic views and viewsheds would result under either Action Alternative. **Noise and Vibration:** This property is located within the Noise and Vibration Study Area. Receptor locations within these boundaries were tested to determine the amount of increase of noise and vibration resulting from permanent operational changes. Within close proximity to this property, none of these levels exceeded FTA thresholds for noise or vibration. Therefore, **no adverse effect** from noise or vibration would result under either Action Alternative.	
Benjamin Banneker Park/Overlook; Tenth Street Overlook (DC)	**Physical Effects:** The Project proposes no direct physical changes to this property. Therefore, **no direct adverse effect** would result under either Action Alternative. **Visual Effects:** The cultural landscape and DOE documentation for this property identifies significant views facing south and east overlooking the cityscape below and Potomac River and Washington Channel beyond. This documentation also notes that potential views toward the Tidal Basin and Jefferson Memorial were obscured by the 14th Street Bridges at the time of the Overlook's construction. Due to the Project's location relative to the Overlook, it has no potential to impede extant contributing views toward the Potomac River or cityscape below. Additionally, the property is located in a highly developed urban context that largely postdates the development of the Long Bridge Corridor. Therefore, the Project has no potential to diminish the property's integrity of setting, feeling, or association. Therefore, **no indirect adverse effects** from changes to historic views and viewsheds would result under either Action Alternative. **Noise and Vibration:** This property is located outside of the Noise and Vibration Study Area. Therefore, **no effect** from noise or vibration would result under either Action Alternative.	
Richmond, Fredericksburg and Potomac (RF&P) Railroad HD (VA)	**Physical Effects:** The Project proposes alterations to the RF&P Railroad at its eastern terminus to accommodate the additional two tracks and link these tracks to the new bridge proposed under each Action Alternative. Despite this change, the HD would continue its use as a railroad corridor, and the primary components of its operation and design would remain intact, both within this section and along the remainder of its approximately 110-mile length between the Potomac River and Richmond. For these reasons, the property would retain its integrity of design, materials, feeling, location, workmanship, association, and setting. Therefore, the Action Alternatives would result in **no adverse effect**. **Visual Effects:** The DOE documentation for this property identifies no significant views or viewsheds and this analysis has identified none further. Therefore, **no indirect adverse effects** from changes to historic views and viewsheds would result under either Action Alternative. **Noise and Vibration:** This property is located within the Noise and Vibration Study Area. Because the property's significance is directly related to its historic and current use as a railroad corridor, a moderate (that is, perceptible but not severe) increase in noise in vibration would not indirectly diminish its integrity. The permanent changes in operational vibration would not exceed FTA thresholds for vibration. Therefore, **no adverse effect** from noise or vibration would result under either Action Alternative.	

Property	Action Alternative A (Preferred Alternative)	Action Alternative B
Washington Marina Building (DC)	**Physical Effects:** The Project proposes no direct physical changes to this property. Therefore, **no direct adverse effect** would result under either Action Alternative. **Visual Effects:** The DOE documentation for this property identifies no significant views or viewsheds. This analysis has identified no significant views or viewsheds in the direction of the Long Bridge Corridor from any areas that were publicly accessible at the time of field survey. Additionally, the property is located in a highly developed urban context that largely postdates the development of the Long Bridge Corridor. Therefore, the Project has no potential to diminish the property's integrity of setting, feeling, or association. Therefore, **no indirect adverse effects** from changes to historic views and viewsheds would result under either Action Alternative. **Noise and Vibration:** This property is located within the Noise and Vibration Study Area. Receptor locations within these boundaries were tested to determine the amount of increase of noise and vibration resulting from permanent operational changes. Within close proximity to this property, none of these levels exceeded FTA thresholds for noise or vibration. Therefore, **no adverse effect** from noise or vibration would result under either Action Alternative.	
L'Enfant Promenade (DC)	**Physical Effects:** The L'Enfant (10th Street) Promenade extends directly above the Long Bridge Corridor. However, the Project proposes no direct physical changes to this property. Therefore, **no direct adverse effect** would result under either Action Alternative. **Visual Effects:** The DOE documentation for this property identifies no significant views or viewsheds. This analysis has identified no significant views or viewsheds in the direction of the Long Bridge Corridor from any areas that were publicly accessible at the time of field survey. Additionally, the property is located in a highly developed urban context that largely postdates the development of the Long Bridge Corridor. Therefore, the Project has no potential to diminish the property's integrity of setting, feeling, or association. Therefore, **no indirect adverse effects** from changes to historic views and viewsheds would result under either Action Alternative. **Noise and Vibration:** This property is located within the Noise and Vibration Study Area. Receptor locations within these boundaries were tested to determine the amount of increase of noise and vibration resulting from permanent operational changes. Within close proximity to this property, none of these levels exceeded FTA thresholds for noise or vibration. Therefore, **no adverse effect** from noise or vibration would result under either Action Alternative.	
Lady Bird Johnson Park (DC)	**Physical Effects:** The Project proposes no direct physical changes to this property. Therefore, **no direct adverse effect** would result under either Action Alternative. **Visual Effects:** The DOE and cultural landscape documentation for this property identifies multiple views and vistas that contribute to the significance of the island that comprises Lady Bird Johnson Park. Relevant to the Long Bridge Project, this includes panoramic views of vehicles traveling along the MVMH and GWMP and general internal views north and south along the island. Field survey conducted along the motorway has indicated that the existing Long Bridge is nearly imperceptible when travelling along the motorway and not at all visible from the interior of the island. This is due to the angle of visibility, the extent of mature vegetation, and the visual obstructions caused by the Memorial and 14th Street-Metrorail	

Property	Action Alternative A (Preferred Alternative)	Action Alternative B
	Bridges. For this reason, the Project has no potential to impact contributing views or viewsheds. No **indirect adverse effect** would result under either Action Alternative. **Noise and Vibration:** This property is located outside of the Noise and Vibration Study Area. Therefore, **no effect** from noise or vibration would result under either Action Alternative.	
John F. Kennedy Center for the Performing Arts (DC)	**Physical Effects:** The Project proposes no direct physical changes to this property. Therefore, **no direct adverse effect** would result under either Action Alternative. **Visual Effects:** The DOE documentation for this property identifies no significant views or viewsheds. However, in consideration of the design and siting of the Kennedy Center, this analysis has identified the panoramic views of the Potomac River and environs as being contributing to the significance of this property. Field survey has indicated that the existing Long Bridge is minimally visible from the upper terrace of the property, but these views are diminished by the far distance and intervening obstructions, notably the 14th Street and Metrorail bridges. For this reason, the Project has no potential to alter or impede contributing views. Therefore, **no indirect adverse effects** from changes to historic views and viewsheds would result under either Action Alternative. **Noise and Vibration:** This property is located outside of the Noise and Vibration Study Area. Therefore, **no effect** from noise or vibration would result under either Action Alternative.	
Liberty Loan Federal Building (DC)	**Physical Effects:** The Project proposes no direct physical changes to this property. Therefore, **no direct adverse effect** would result under either Action Alternative. **Visual Effects:** The DOE documentation for this property identifies no significant views or viewsheds. This analysis has identified no significant views or viewsheds in the direction of the Long Bridge Corridor from any areas that were publicly accessible at the time of field survey. Additionally, the property is located in a highly developed urban context that largely postdates the development of the Long Bridge Corridor. Therefore, the Project has no potential to diminish the property's integrity of setting, feeling, or association. Therefore, **no indirect adverse effects** from changes to historic views and viewsheds would result under either Action Alternative. **Noise and Vibration:** This property is located within the Noise and Vibration Study Area. Receptor locations within these boundaries were tested to determine the amount of increase of noise and vibration resulting from permanent operational changes. Within close proximity to this property, none of these levels exceeded FTA thresholds for noise or vibration. Therefore, **no adverse effect** from noise or vibration would result under either Action Alternative.	
Properties at or Greater than 45 Years of Age		
Astral Building (DC)	**Physical Effects:** The Project proposes no direct physical changes to this property. Therefore, **no direct adverse effect** would result under either Action Alternative. **Visual Effects:** Given the nature of the Project and the location of this property relative to the Long Bridge Corridor, there would likely be **no adverse effect** under either Action Alternative on contributing views or viewsheds. This finding will be reevaluated if contributing views or viewsheds are identified prior to Project implementation.	

Property	Action Alternative A (Preferred Alternative)	Action Alternative B
	Noise and Vibration: This property is located within the Noise and Vibration Study Area. Receptor locations within these boundaries were tested to determine the amount of increase of noise and vibration resulting from permanent operational changes. Within close proximity to this property, none of these levels exceeded FTA thresholds for noise or vibration. Therefore, **no adverse effect** from noise or vibration would result under either Action Alternative.	
Comsat Building (DC)	**Physical Effects:** The Project proposes no direct physical changes to this property. Therefore, **no direct adverse effect** would result under either Action Alternative. **Visual Effects:** Given the nature of the Project and the location of this property relative to the Long Bridge Corridor, there would likely be **no adverse effect** under either Action Alternative on contributing views or viewsheds. This finding will be reevaluated if contributing views or viewsheds are identified prior to Project implementation. **Noise and Vibration:** This property is located within the Noise and Vibration Study Area. Receptor locations within these boundaries were tested to determine the amount of increase of noise and vibration resulting from permanent operational changes. Within close proximity to this property, none of these levels exceeded FTA thresholds for noise or vibration. Therefore, **no adverse effect** from noise or vibration would result under either Action Alternative.	
Loew's L'Enfant Plaza Hotel (DC)	**Physical Effects:** The Project proposes no direct physical changes to this property. Therefore, **no direct adverse effect** would result under either Action Alternative. **Visual Effects:** Given the nature of the Project and the location of this property relative to the Long Bridge Corridor, there would likely be **no adverse effect** under either Action Alternative on contributing views or viewsheds. This finding will be reevaluated if contributing views or viewsheds are identified prior to Project implementation. **Noise and Vibration:** This property is located within the Noise and Vibration Study Area. Receptor locations within these boundaries were tested to determine the amount of increase of noise and vibration resulting from permanent operational changes. Within close proximity to this property, none of these levels exceeded FTA thresholds for noise or vibration. Therefore, **no adverse effect** from noise or vibration would result under either Action Alternative.	
USPS Building (DC)	**Physical Effects:** The Project proposes no direct physical changes to this property. Therefore, **no direct adverse effect** would result under either Action Alternative. **Visual Effects:** Given the nature of the Project and the location of this property relative to the Long Bridge Corridor, there would likely be **no adverse effect** under either Action Alternative on contributing views or viewsheds. This finding will be reevaluated if contributing views or viewsheds are identified prior to Project implementation. **Noise and Vibration:** This property is located within the Noise and Vibration Study Area. Receptor locations within these boundaries were tested to determine the amount of increase of noise and vibration resulting from permanent operational changes. Within close proximity to this property, none of these levels exceeded FTA thresholds for noise or vibration. Therefore, **no adverse effect** from noise or vibration would result under either Action Alternative.	

4.5. Cumulative Effects

As previously stated, the Long Bridge Project is exploring the potential for a bike and pedestrian connection that follows the trajectory of Long Bridge. This potential connection (Option 2) could constitute a cumulative effect as a result of the Long Bridge Project. An evaluation of these effects is described in **Table 4-3** below. The evaluation is organized by classifications of historic properties as described previously. For properties not included in this list, no adverse effects are anticipated.

Table 4-3 | Cumulative Effects – Bike-Pedestrian Crossing Option

Property	Option 2 – Independent Bridge
Designated Historic Properties – Historic Districts (HD)	
GWMP HD (DC/VA)	The LOD for Option 2 would encompass approximately 0.7 acres of the HD. In addition to the infringement on undeveloped parkland, construction of a possible bike-pedestrian crossing and access ramp has the potential to remove contributing vegetation, especially mature trees that date to the 1932 planting plan of the parkway, which were intended to visually screen the railroad bridge from the motorway. This would result in a **direct adverse effect**. The existing, non-contributing bridges along this portion of the GWMP have compromised its integrity of feeling, association, and setting. The addition of a potential bike-pedestrian bridge within this existing cluster of structures has no potential to further diminish these aspects of the GWMP's integrity. Therefore, **no indirect adverse effects** from changes to historic views and viewsheds would result under this alternative.
MVMH HD (DC/VA)	Effects to the MVMH would be similar and additive to those described above affecting the GWMP. Option 2 would create **direct adverse effects** on the MVMH. Under Option 2, the LOD would encompass approximately 0.6 acres of the HD.
East and West Potomac Parks HD (DC)	Construction of a bike-pedestrian crossing and access ramp would necessitate the removal of up to two contributing Japanese Cherry Trees along the perimeter of East Potomac Park in addition to other mature vegetation. This would result in a **direct adverse effect**. The LOD for Option 2 would encompass approximately 0.3 acres of the HD. The ramp crossing and access ramp also have the potential to obstruct views of the existing Long Bridge from the north. This obstruction would diminish the visual integrity of the HD and would create an **indirect adverse effect**.

4.6. Temporary Effects

The two Action Alternatives for the Project can be feasibly constructed. However, the proposed new bridge structures and other infrastructure along the Long Bridge Corridor combined with site constraints present challenges for contractor access and staging, material transportation, and completing site work. For both Action Alternatives, it is anticipated that construction materials and equipment would be transported via trucks as well as barging up the Potomac River. Materials and equipment transported via river would be unloaded onto temporary bulkheads constructed within the Potomac River on the NPS-administered parkland on either side of the river in both the District and Virginia.

Although no specific construction start date or schedule has been determined, it is projected that Action Alternative A (Preferred Alternative) construction would last approximately 60 months. Under Action Alternative B, this schedule extends to approximately 99 months, which includes phasing the bridges over the Potomac River where the new upstream bridge is constructed and put into service before demolition can begin on the existing Long Bridge. The new downstream bridge would then be constructed in the same location as the existing Long Bridge. Apart from the new Potomac River bridge(s) proposed under each Action Alternative, construction activities would primarily include track construction throughout the Long Bridge Corridor, associated bridge construction at abutments and piers, construction of embankments and retaining walls, and bridge superstructure construction.

An evaluation of temporary direct and indirect adverse effects resulting from visual and physical changes are described in **Table 4-4**. Temporary impacts under Action Alternative B would be similar to those described for Action Alternative A (Preferred Alternative) except that the estimated duration of construction would be approximately 99 months due to the replacement of the existing Long Bridge and component railroad bridge that crosses the GWMP.

Table 4-4 | Temporary Effect Assessment Resulting from Visual and Physical Changes

Property	Effect Determination
Designated Historic Properties – Historic Districts (HD)	
National Mall HD (DC)	Construction activities for both Action Alternatives would require temporary use of, and access to, various areas of East Potomac Park that form a part of the National Mall HD. Both NPS Parking Lot B and NPS Parking Lot C would be closed during construction and used for construction staging and access. These parking lots are located within, but do not contribute to, the National Mall HD. Temporary construction access and staging areas would also be required for areas between the DOD Facility and I-395 North lanes, both east and west of the CSXT tracks. Use of these areas for construction access and staging would temporarily diminish the integrity of setting, feeling, and association of the National Mall Historic District and would constitute a **temporary indirect adverse effect** on this property.
GWMP HD (DC/VA)	Construction of both Action Alternatives would require the temporary use of land along the GWMP and MVT to support construction activities. Construction staging and access areas would be located at the GWMP crossing in the median of the roadway as well as west and east of the crossing. Construction would require temporary relocation of a portion of the MVT for public safety and to allow construction access and staging along the water.

Property	Effect Determination
	Temporary effects in this area would last over 4 years and would diminish the integrity of feeling, association, and setting of the GWMP through both construction staging and trail relocation. This would constitute a **temporary direct and indirect adverse effect** on this property.
MVMH HD (DC/VA)	Under both Action Alternatives, impacts to the MVMH would be similar and additive to those described above affecting the GWMP. Temporary effects in this area would last over four years and would diminish the integrity of feeling, association, and setting of the GWMP through both construction staging and trail relocation. This would constitute a **temporary direct and indirect adverse effect** on this property.
East and West Potomac Parks HD (DC)	Construction activities for both Action Alternatives would require temporary use of, and access to, various areas of East Potomac Park. Both NPS Parking Lot B and NPS Parking Lot C would be closed during construction and used for construction staging and access. These parking lots are located within, but do not contribute to, the historic district. It is anticipated that one of these staging locations would be the site of a temporary concrete plant during construction. Temporary construction access and staging areas would also be required for areas between the DOD Facility and I-395 North lanes, both east and west of the CSXT tracks near the WMATA portal. Finally, access would be required in a section along the southern bank of the Washington Channel, in close proximity the U.S. Engineer's Storehouse, which is a contributing building to the historic district. The Storehouse is located approximately 200 feet from the Long Bridge Corridor. Temporary effects in this area would last over 4 years and would diminish the integrity of feeling, association, and setting of the East Potomac Park through construction staging. This would constitute a **temporary indirect adverse effect** on this property.

The information presented in **Table 4-5** below summarizes where temporary adverse effects resulting from increased noise are anticipated under both Action Alternatives (vibration caused from temporary constructed activities were not found to exceed FTA thresholds at any of the receptor locations). This list was derived from the noise and vibration analysis, which considers various factors (type of construction activity, distance of this activity from the historic property, and construction noise level) in determining if construction noise would exceed FTA threshold criteria. In some cases, an approximate range of construction noise levels has been included.

Construction noise w evaluated according to the District noise ordinance and Arlington County Noise Control Code, Chapter 15.[17] The District imposes a noise ordinance prohibiting construction sound levels above 80 dBA (except for pile driving) measured 25 feet from the outermost limits of the site between 7:00 AM and 7:00 PM unless a variance is granted. For this reason, it is very likely that construction noise within the District exceeding 80 dBA (also the FTA threshold) would be reduced to comply with the ordinance. Therefore, *the effects for properties located in the District have been listed below as potential*

[17] DC Municipal Regulations Chapters 20–27; Arlington County. Arlington County Code: Chapter 15, Noise Control Ordinance. Accessed from https://countyboard.arlingtonva.us/wp-content/uploads/sites/22/2016/04/Chapter-15-NOISE-CONTROL.pdf. Accessed May 1, 2018.

effects. It is very likely these effects could be fully avoided through appropriate construction management procedures.

The Arlington County noise ordinance allows construction activity to produce sound no greater than 70 dBA in manufacturing zones, 65 dBA in commercial zones, and 55 dBA in residential and special-purpose zones during nighttime houses. The Arlington County noise ordinance does not limit daytime construction noise (7:00 AM to 9:00 PM on weekdays and 10:00 AM to 9:00 PM on weekends and legal holidays). The GWMP and MVMH historic districts, including the MVT, are located in a special-purpose zone S-3A, which imposes a 55-dBA nighttime construction noise limit.

Table 4-5 | Temporary Effect Assessment Resulting from Noise

Historic Property[18]	Construction Noise Level (dBA)*	Noise Threshold (dBA)*	Exceeds Criteria	Potential for Effect
National Mall HD	61.1-68.9	80	No	None
GWMP HD	81.5-83.4	55	**Yes**	Potential to diminish the integrity of setting, feeling, and association of the HD
MVMH HD	81.5-83.4	55	**Yes**	Potential to diminish the integrity of setting, feeling, and association of the HD
Plan of the City of Washington HD	61.1-87.3	80	**Yes**	Based on use and general ambient noise, potential for adverse effect is minimal
East and West Potomac Parks HD	61.1-84.7	80	**Yes**	Potential to adversely affect contributing buildings within HD, especially the U.S. Engineer's Storehouse adjacent to the Washington Channel and Long Bridge Corridor
Thomas Jefferson Memorial	61.1	80	No	None
Central Heating Plant	72.3-73.2	80	No	None
USDA Cotton Annex	72.3-73.2	80	No	None
HUD Building	70.8-77.1	80	No	None
USDA South Building	63.9-68.6	80	No	None
Bureau of Engraving and Printing	63.9-68.6	80	No	None
Cuban Friendship Urn	61.9-68.9	80	No	None
Bureau of Engraving and Printing Annex	63.9-68.6	80	No	None
Federal Office Building 10A	70.8-77.1	80	No	None

[18] Because not every historic property within the Noise and Vibration Study Area was utilized as a receptor location, this table extrapolates data using the closest available receptor.

Historic Property[18]	Construction Noise Level (dBA)*	Noise Threshold (dBA)*	Exceeds Criteria	Potential for Effect
Richmond, Fredericksburg and Potomac Railroad HD	81.5-83.4	70	**Yes**	Based on use and general ambient noise, potential for adverse effect is minimal
Washington Marina Building	70.8-77.1	80	No	None
L'Enfant Promenade	67.7-81.8	80	**Yes**	Based on use and general ambient noise, potential for adverse effect is minimal
Liberty Loan Federal Building	63.9-68.6	80	No	None
Astral Building	72.3-73.2	80	No	None
Comsat Building	72.3-73.2	80	No	None
Loew's L'Enfant Plaza Hotel	72.3-73.2	80	No	None
USPS Building	72.3-73.2	80	No	None

** dBA is a method of measuring units of sound (decibels) that have been weighted to account for relative loudness as perceived by the human ear.*

5.0 Resolution of Effects

5.1. Avoidance and Minimization Measures

Throughout the Project, FRA and DDOT, in consultation with DC SHPO, VDHR, and the Consulting Parties, have identified measures to avoid or minimize potential adverse effects on historic properties, including those resulting from temporary construction activities. The following measures have been adopted to date to avoid or minimize anticipated effects:

- Action Alternative A (Preferred Alternative) retains the existing Long Bridge, which is a contributing element to the East and West Potomac Parks Historic District. Action Alternative A also retains the existing component railroad bridge that carries the Long Bridge above the GWMP, which is a contributing element to the GWMP Historic District. In comments following the 4th Consulting Parties meeting, DC SHPO, VHDR, and other Consulting Parties indicated a preference for Action Alternative A, which has fewer and less intense adverse effects on historic properties than Action Alternative B.
- Alternatives that considered the construction of a new railroad bridge and associated railroad infrastructure outside of the existing Long Bridge Corridor were dismissed from further consideration. This avoids potential effects generated by expanding the scope and constructing the project within a significantly larger geographic area.
- The new railroad bridge would be designed with a vertical clearance, visual appearance of the structural system, and alignment that closely references that of the existing Long Bridge as well as of the adjacent 14th Street-Metrorail bridge complex. This design approach avoids potential adverse visual effects that could have been caused by a less compatible type of new bridge structure, including a signature span bridge. In comments following the 4th Consulting Parties meeting, DC SHPO requested that the new bridge design be compatible with the existing Long Bridge. Further, DC SHPO indicated a preference for a through plate girder bridge type to create a consistent aesthetic for the railroad bridges and distinguish them from the Metrorail bridge.
- As recommended by NPS, any new component bridges or other structures introduced into NPS-administered properties would be designed and aesthetically treated to be compatible with the character of existing resources. This minimizes the potential adverse effect of introducing new features into the historic districts. For example, within the GWMP and MVMH historic districts, new bridge piers could be clad with stone to match the piers of the existing railroad bridge. To the extent possible, trees and other vegetation could be introduced to partially mitigate the loss of mature vegetation and to visually screen new bridge structures.
- The bicycle-pedestrian crossing option (Option 2) closely parallels the Long Bridge Corridor upstream of the existing Long Bridge. This minimizes potential adverse physical and visual effects with longer or more geographically dispersed crossing options. As the design of this crossing option advances, consultation will continue on the alignment and aesthetics of the bridge to avoid and minimize adverse effects. In comments following the 4th Consulting Parties meeting, DC SHPO, VDHR, and other Consulting Parties indicated a preference for Option 2. This

option has a smaller footprint and less intense adverse effects on historic properties than Option 1B[19].

- Temporary effects resulting from noise and vibration could be avoided or minimized using a variety of construction management techniques. Visual effects can be minimized by providing appropriate screening between construction staging areas and cultural resources, limiting the size of construction staging areas, and locating them away from sensitive views and viewsheds. In the District, compliance with construction noise ordinances would fully avoid most temporary effects otherwise resulting from construction noise.
- For construction access and staging activities, potential effects on archaeological resources can be minimized or avoided by locating these activities away from areas of high archaeological potential or within sites that are paved or have been previously disturbed.

5.2. Effects Summary

After incorporating the avoidance and minimization measures, **Table 5-1** below provides a summary of determinations for historic properties where adverse effects were unavoidable.

Table 5-1 | Summary of Adverse Effects Determination

Historic Property	Action Alternative A	Action Alternative B	Cumulative Effects	Temporary Effects
National Mall HD (DC)	No adverse effect	No adverse effect	No adverse effect	**Indirect adverse effect**
GWMP HD (DC/VA)	**Direct adverse effect**	**Direct and indirect adverse effect**	**Direct adverse effect**	**Direct and indirect adverse effect**
MVMH HD (DC/VA)	**Direct adverse effect**	**Direct and indirect adverse effect**	**Direct adverse effect**	**Direct and indirect adverse effect**
East and West Potomac Parks HD (DC)	**Direct and indirect adverse effect**	**Direct and indirect adverse effect**	**Direct adverse and indirect effect**	**Direct and indirect adverse effect**

5.3. Mitigation Measures and Next Steps

In comments following the 4th Consulting Parties meeting, DC SHPO, VDHR, and other Consulting Parties provided suggestions for potential mitigation strategies. These include the following categories:

- **Interpretation**: Development of physical or digital interpretive materials to document the history of the Long Bridge Corridor and its adjacent historic properties.
- **Vegetation Restoration**: Restoration of mature vegetation removed during project implementation, in accordance with NRHP and cultural landscape documentation where available, in addition to the removal of invasive vegetation.
- **Cultural Landscape Documentation**: Development of cultural landscape inventories or reports for affected landscapes adjacent to the railroad corridor.

[19] FRA and DDOT assessed the effects of Option 1B, and presented those findings to SHPOs and Consulting Parties in the Draft Assessment of Effects Report and at the 4th Consulting Parties Meeting.

- **Physical Rehabilitation**: Rehabilitation and repair of railroad infrastructure in the District or contributing resources within East and West Potomac Parks Historic District.
- **Archaeological Investigation**: Continuation of phased archaeological investigation, including underwater archaeology.
- **Viewshed Protection**: Creation and implementation of a viewshed protection plan for GWMP and MVMH in the vicinity of the railroad corridor.

The Section 106 consultation process is ongoing. FRA and DDOT will continue to consult with DC SHPO, VDHR, and the Consulting Parties to identify ways to minimize and mitigate adverse effects on these historic properties. FRA will also notify the Advisory Council of Historic Preservation notice of the adverse effect determination for the Project and provide the Council an opportunity to comment. A Section 106 agreement document (Programmatic Agreement or Memorandum of Agreement) will identify minimization and mitigation measures and describe any consultation that would continue through the design and construction processes.

LONG BRIDGE PROJECT
Connecting North and South Through our Nation's Capital

Appendix A:

Area of Potential Effects and Historic Properties Technical Report

LONG BRIDGE PROJECT

Connecting North and South Through our Nation's Capital

Long Bridge Project

Environmental Impact Statement

Area of Potential Effects and Historic Properties Technical Report

February 23, 2018

District Department of Transportation

U.S. Department of Transportation
Federal Railroad Administration

Long Bridge Project

Area of Potential Effects and Historic Properties Technical Report

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1.0 Introduction

The Federal Railroad Administration (FRA) and District Department of Transportation (DDOT) are concurrently preparing an Environmental Impact Statement (EIS) in accordance with the National Environmental Policy Act (NEPA), and an assessment of effects on historic properties per Section 106 of the National Historic Preservation Act (NHPA) for the Long Bridge Project (the Project). The Long Bridge Project consists of potential improvements to the Long Bridge and related railroad infrastructure located between the Rosslyn (RO) Interlocking near Long Bridge Park in Arlington, Virginia, and the L'Enfant (LE) Interlocking near 10th Street SW in the District (the Long Bridge Corridor). The Long Bridge Corridor is shown in Figure 1-1.

The purpose of the Proposed Action is to provide additional long-term railroad capacity and to improve the reliability of railroad service through the Long Bridge Corridor. Currently, there is insufficient capacity, resiliency, and redundancy to accommodate the projected demand in future railroad services. The Proposed Action is needed to address these issues and to ensure the Long Bridge Corridor continues to serve as a critical link connecting the local, regional, and national transportation network.

Although not part of the Proposed Action's Purpose and Need, the Project will explore the potential opportunity *to* accommodate connections that follow the trajectory of the Long Bridge Corridor to the pedestrian and bicycle network. The feasibility of this opportunity will be assessed as the Project progresses and will consider whether a crossing can be designed to be consistent with railroad operator plans and pursuant to railroad safety practices. Future efforts to accommodate connections to the pedestrian and bicycle network may be advanced as part of the Project, or as part of a separate project(s) sponsored by independent entities.

This report outlines the methodology for delineating and refining the Area of Potential Effects (APE) in accordance with Section 106 of the NHPA (54 U.S.C. § 300101 *et seq*.)[1] and its implementing regulations (36 CFR Part 800) for the Project.[2]

This report includes the following:

1. A description of the methodology used to delineate the APE;
2. Results of the field survey completed to inform APE development; and
3. An identification of historic properties as well as properties at or greater than 45 years of age that may be affected by the Long Bridge Project.

[1] 54 USC 300101, National Park Service and Related Programs, National Preservation Programs, Division A-Historic Preservation http://uscode.house.gov/view.xhtml?req=(title:54%20section:300101%20edition:prelim)

[2] 36 CFR Part 800, Protection of Historic Properties, http://www.achp.gov/regs-rev04.pdf.

Figure 1-1 | Long Bridge Project Area Limits

2.0 APE Methodology

2.1. Section 106 and Virginia Department of Historic Resources (VDHR) Guidance

The Section 106 regulations define an APE as, "…the geographic area within which an undertaking may directly or indirectly cause alterations in the character or use of historic properties, if any such properties exist. The APE is influenced by the scale and nature of an undertaking and may be different for different kinds of effects caused by the undertaking" (36 CFR 800.16[d])[1]. The APE is defined to allow for the evaluation of potential effects to historic properties resulting from an undertaking. According to the steps prescribed by the Section 106 regulations, the APE must be defined before the identification of historic properties and evaluation of potential effects occurs. Types of effects on historic properties may include:

- Direct (such as physical destruction, damage, relocation, or alteration of a property);
- Indirect (such as introduction of visual, atmospheric, or audible elements that diminish the integrity of a property's significant historic features);
- Temporary;
- Future; and
- Cumulative.

Adverse effects occur when an undertaking may directly or indirectly alter characteristics of a historic property that qualify it for inclusion in the National Register of Historic Places. Examples of adverse effects are stated in 36 CFR Part 800.5(a)(2). Adverse effects have the potential to occur both during the construction and operational periods of a project.

For each undertaking, the Section 106 regulations (36 CFR Part 800) require the lead Federal agency to determine an APE boundary that considers multiple types of effects on historic properties, rather than multiple APEs that address various effects. However, non-contiguous APEs may be developed to include multiple alternative project areas or multiple areas where possible effects may be reasonably anticipated. The regulations also require the lead Federal agency seek information from consulting parties and others likely to have knowledge of, or concerns with, historic properties in the area, to identify issues relating to the undertaking's potential effects on historic properties.

The VDHR provides guidance on APE development, requiring the APE to include all locations where the project will cause ground disturbance, all locations from which the project may be visible or audible, and all locations where the project may result in changes to land use, public access, traffic patterns, etc.[3] The DC Historic Preservation Office (DCSHPO) does not offer comparable guidance.

2.2. Development of the APE

The APE for the Long Bridge Project was delineated to identify and document the areas from which the Project could result in ground disturbance or could be reasonably visible or audible. Assumptions for the area within which the alternatives could be located were identified based on the results of Level 1 Concept Screening presented to the public and agencies in May 2017. Level 1 Concept Screening

[3] *VDHR, Defining Your Area of Potential Effects*, http://www.dhr.virginia.gov/pdf_files/Defining_Your_APE.pdf.

assessed preliminary concepts by their ability to meet the Project's Purpose and Need based on railroad capacity, transportation network connectivity, and railroad resiliency and redundancy. The 6 concepts found to meet Purpose and Need, as a result of Level 1 Screening were:

- 3-track crossing
- 3-track crossing with bike-pedestrian crossing
- 4-track crossing
- 4-track crossing with bike-pedestrian crossing
- 5-track crossing
- 5-track crossing with bike-pedestrian crossing

These concepts all occur within the existing Long Bridge Corridor. Only above ground crossings (bridges) were found to meet Purpose and Need because a freight tunnel could not feasibly connect to existing freight infrastructure, and a passenger-only tunnel would not improve redundancy. The concepts vary in terms of the number of tracks and whether or not a bike-pedestrian crossing is included. Because of the need for any new bridge to tie back into the existing railroad corridor (network connectivity), all concepts would be constructed within a relatively tight band either within the current Long Bridge alignment, or upstream or downstream of the current alignment. The opportunity is currently being explored to provide a bike-pedestrian connection on a new railroad bridge, or on a separated structure upstream or downstream of a railroad bridge. Upstream bike-pedestrian c alignments are constrained by the Metrorail bridge, while downstream alignments would need to avoid a Department of Defense Facility in East Potomac Park, and would therefore land close to the NPS headquarters building. Therefore, the outer limits of the potential Limits of Disturbance are set by the bike-pedestrian crossing alignment options, as depicted in

Figure 2-1.

Figure 2-1 | Potential Bike-Pedestrian Crossing Alignment Options

The APE and Limits of Disturbance boundaries were mapped two dimensionally, although it was assumed that the boundaries encompass both above-ground and below-ground resources, including potential underwater and archaeological resources.

The Limits of Disturbance boundary (

Figure 2-2, black dashed line) represents the area within which the Project has the potential to directly alter an existing feature or result in ground-disturbing activities.4 Along the span of the existing Long Bridge and on NPS land on either side of the Potomac River, the Limits of Disturbance includes potential realignments of the existing railroad bridge in addition to potential bike and pedestrian crossings. These potential bridge alignments extend from the existing Metrorail Bridge to a distance of approximately 500 feet to the southeast. Additionally, the Limits of Disturbance extend outward from these points on the east and west banks of the Potomac, at a distance of approximately 250-300 feet, to incorporate associated bike-pedestrian access ramps on each side. Along the remainder of the Long Bridge corridor, the Limits of Disturbance includes a buffer of approximately 50' on either side of the existing corridor centerline between RO and LE Interlockings.

The APE (

Figure 2-2, red dashed line) represents areas from which atmospheric or environmental changes are possible. The methodologies used to develop the APE included:

- Digital mapping and aerial photography to guide and supplement field data;
- The impact of topographic and other vertical changes (such as buildings and viewing platforms) and their effect on potential views and viewsheds, including sightlines from various locations in and surrounding the National Mall and wider viewsheds in areas along the banks of the Potomac River; and
- Windshield-level field surveys around the Project Area to determine the visibility of the Project, based on height of the existing Long Bridge steel trestle and component bridge, abutment, and track structures.[5]

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[4] The LOD is defined as the geographic area(s) within which ground disturbance is anticipated to occur resulting from a specific project. It is developed to better understand the potential effects to archaeological resources within the APE. For the Long Bridge Project, once FRA the LOD may be refined, in consultation with SHPOs, as project engineering progresses by the size and location of bridge piers, abutments, etc. and the associated limits of ground disturbance.

[5] Visibility of the existing Long Bridge Project area was generally used as a determinant of the delineation of the APE boundaries over potential effects resulting from sound and vibration. Sound diminishes as a function of distance at a higher rate than light. An object further away could still be seen but may not be heard; or could be heard to a small degree that would not cause adverse effects. Therefore, changes to views and viewsheds resulting from Project implementation will have the greatest potential to affect historic properties. Additionally, permanent changes in sound regularity or intensity are not anticipated; however, there may be temporary effects during construction.

The process to evaluate the affected environment for noise and vibration will include identifying noise and vibration-sensitive receptors, understanding the predominant sources of noise and vibration, and characterizing existing noise and vibration conditions through measurements and modeling. This process will be conducted concurrently with the EIS studies, and the findings will be incorporated into the delineation of the final APE and in the assessment of effects on historic properties.

Therefore, although other indirect effects (such as audial changes) have be considered, there is a lesser potential for these effects to influence the outer boundaries of the APE. At the time in the Section 106 process when adverse effects are identified, it will be necessary to use available engineering data to quantify and evaluate the potential adverse effects associated with temporary and permanent impacts resulting from the project. Temporary impacts may include construction noise and vibrations; permanent impacts may include increased railroad traffic noise and vibration.

Field survey photographs led to the identification of viewshed locations outside of the contiguous APE boundary. The field survey and photographs were used to determine visibility of the Long Bridge from specific viewshed vantage points. The selection of the viewshed sites was informed by several factors. Viewshed sites are areas from which the project area was clearly visible from a specific exterior vantage point or publicly accessible plaza or viewing platform. However, the view was sufficiently limited in these locations to not warrant expanding the APE to encompass the entirety of each site (for example, the Long Bridge was visible from Arlington House and the Tomb of the Unknown Soldier but not the entirety of Arlington Cemetery). Interiors of buildings were excluded from consideration. All viewshed sites are also historic properties, so there may be potential for impacts to these properties from the implementation of the Long Bridge Project. The viewsheds identified (

Figure **2-2**) include:

- The Kennedy Center
- The Washington Monument
- The Lincoln Memorial
- St. Elizabeths West Campus
- Arlington Cemetery, Tomb of the Unknown Soldier
- Arlington House[6]
- Netherland Carillon (within Arlington Ridge Park)
- The Old Post Office Tower
- The Pentagon[7]

Future refinement of the APE will include:

- Reconsidering and adjusting the Limits of Disturbance boundary as EIS alternatives are further refined;[8]
- Incorporating future noise and vibration analysis findings; and
- Accounting for any additional feedback from DCSHPO and VDHR.

2.3. Long Bridge Section 106 Consultation

The first Section 106 consulting parties meeting for the Long Bridge Project was held on April 25, 2017 at the DDOT offices. The attendees provided preliminary guidance for the development of an APE in the context of the preliminary project concepts presented. The comments received indicated a preference for a single, comprehensive APE inclusive of all possible project alternatives (including options for potential bicycle and pedestrian access that follows the trajectory of the Long Bridge Corridor); that considers multiple types of effects (direct and indirect); and is sufficiently sized to accommodate the

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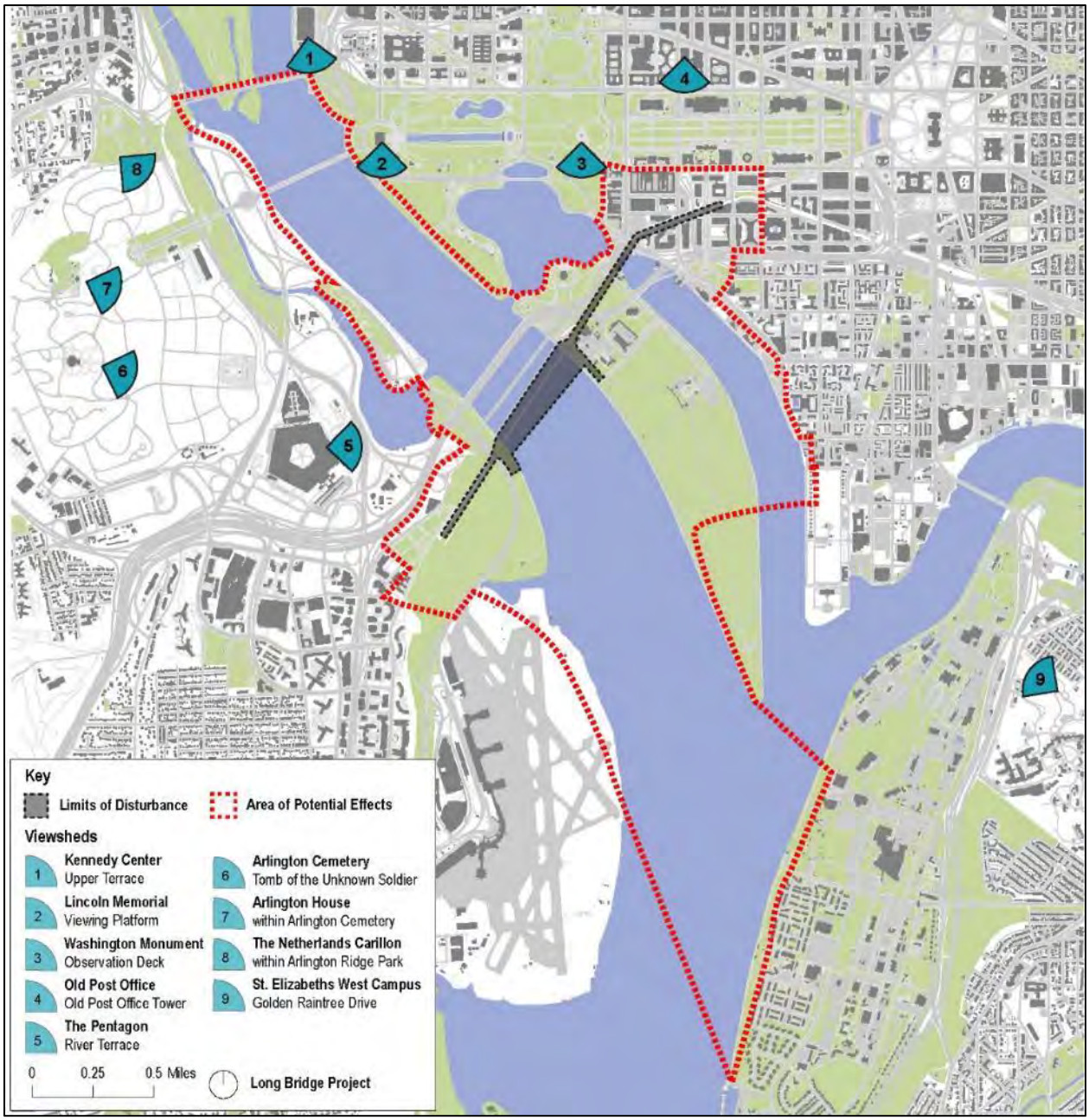
6 Arlington House is located within the boundaries of Arlington National Cemetery. It is not administered by Arlington Cemetery but rather separately administered by the National Park Service.

7 Site visits and field surveys photographs were taken from several additional viewshed points from which Long Bridge was either not visible These sites include the Air Force Memorial, the Marine Corps War Memorial, at ground level at Arlington Ridge Park, the Washington National Airport historic terminal, and the Pentagon Metro Station.

expansive and uninterrupted views along the Potomac River to the Long Bridge Corridor. Following the meeting, FRA and DDOT provided the Consulting Parties with a comment period ending May 9, 2017.

The second Section 106 consulting parties meeting was held on November 15, 2017 at the DCSHPO office. At this meeting, FRA and DDOT presented Draft APE and Limits of Disturbance boundaries in addition to the preliminary identification of historic properties. The attendees provided comments on the historic property identification, additional viewshed sites from which the Project area is visible, potential archaeological resources, and the graphic representation of the APE. FRA and DDOT incorporated those comments into the findings of this report. Following the meeting, FRA and DDOT provided the Consulting Parties with a comment period ending December 6, 2017.

Figure 2-2 | Map of APE, Limits of Disturbance, and Viewshed Sites



2.4. Field Survey Documentation

To establish preliminary boundaries for the APE, Esri ArcGIS and Google Maps were used to identify reasonable outer extents for a potential APE boundary. These reasonable outer extents included areas

of higher elevation (from which views would be more likely); major roadways (particularly elevated highways that would have a greater potential to block views); and other urban conditions like building density, street patterns, tree coverage, and potential viewsheds.

Impacts of topographic and other vertical changes, effects on potential views and viewsheds, and sightlines were tested by visiting specific viewing locations and viewing platforms. The existence of views toward the Long Bridge and the Long Bridge Corridor were recorded in field notes and digital photography. Exteriors of buildings and sites (such as the Kennedy Center upper and lower terraces) were also visited to confirm the visibility of the Long Bridge from these points.

The windshield survey was conducted to establish the outer boundaries of the Draft APE. Ten separate field surveys (on June 30, July 3, September 14, September 15, September 19, September 22, November 6, November 28, December 1, and December 5, 2017) were conducted to test and document the visibility of the Long Bridge Project from multiple and various geographic areas. The locations of these field survey points are documented in Figure 2-3.

The field survey locations indicated in Figure 2-3 are points chosen as representative areas within the APE that illustrate visibility of the Long Bridge Corridor. These points are distributed geographically across the APE. These areas are shown in further detail with accompanying supporting maps and photographs to depict views of the Long Bridge in

Figure 2-4 through Figure 2-31. Site visits and field surveys photographs were taken from several additional viewshed points from which the Long Bridge was not visible. These sites include the Air Force Memorial, the Marine Corps War Memorial, at ground level at Arlington Ridge Park, the Washington National Airport historic terminal, and the Pentagon Metro Station.

Figure 2-3 | Map of Field Survey Locations

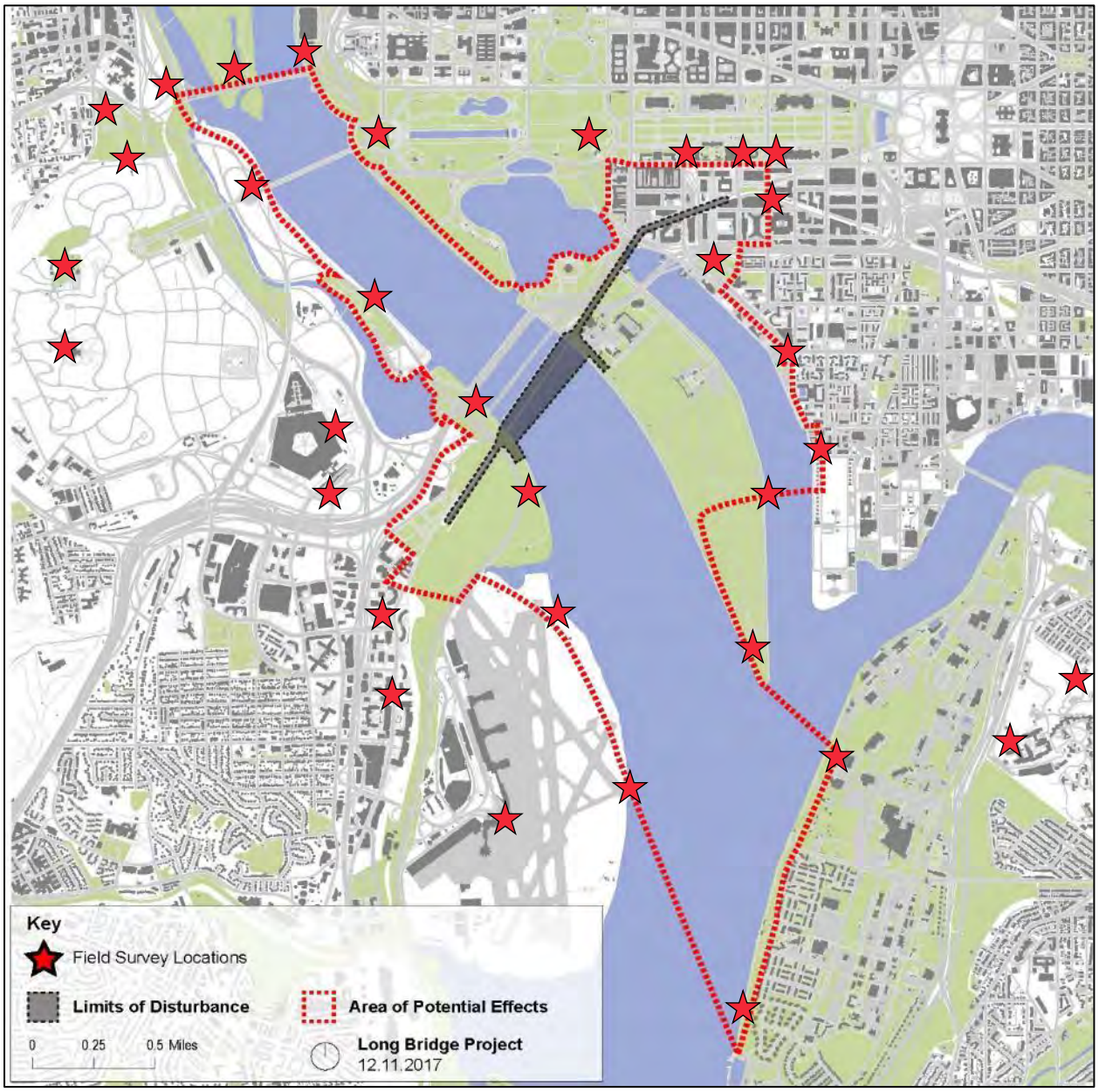


Figure 2-4 | Representative Areas within the APE That Illustrate the Visibility of the Long Bridge Corridor

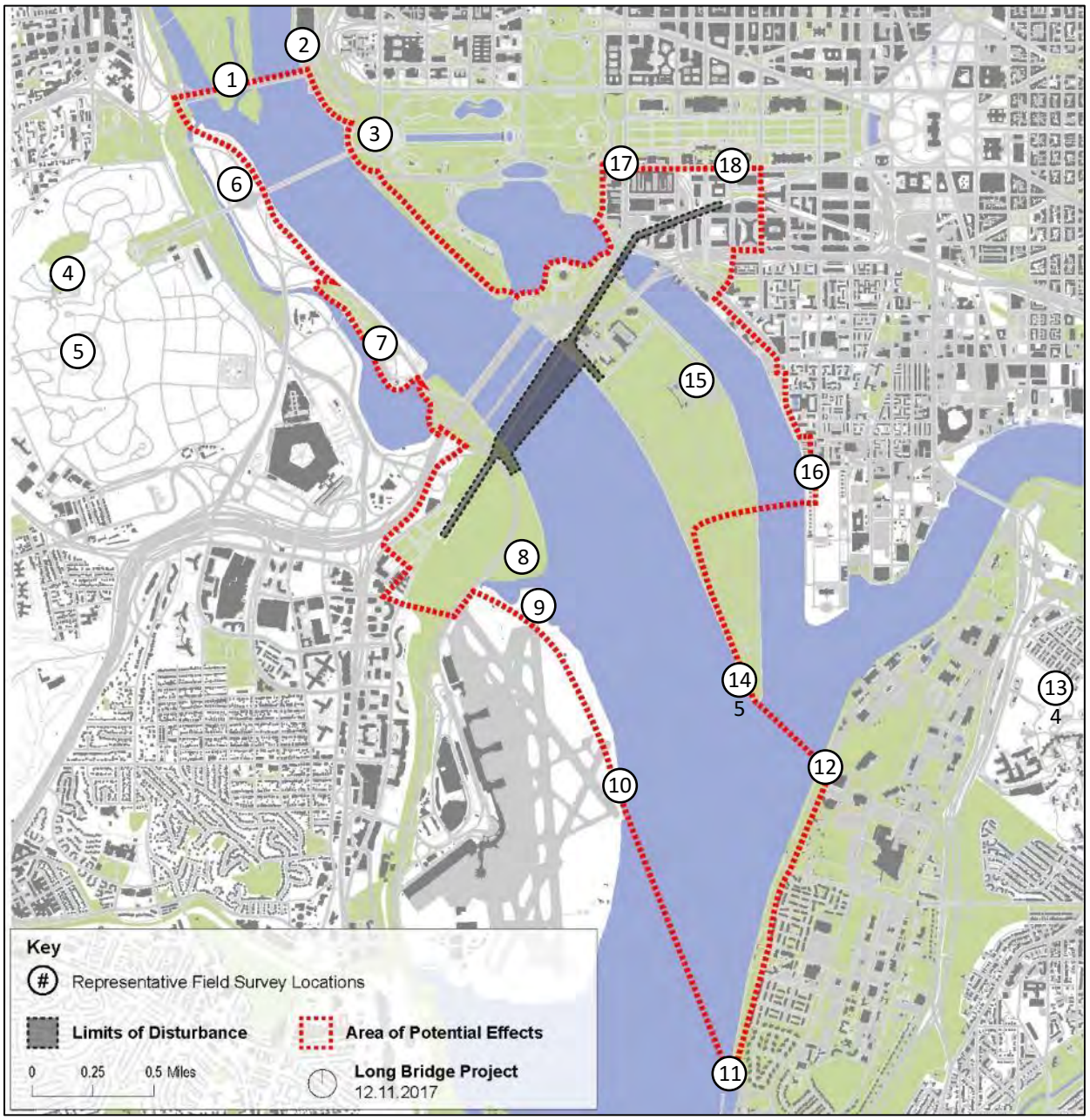


Figure 2-5 | Map detail of photograph locations 1, 2, and 3

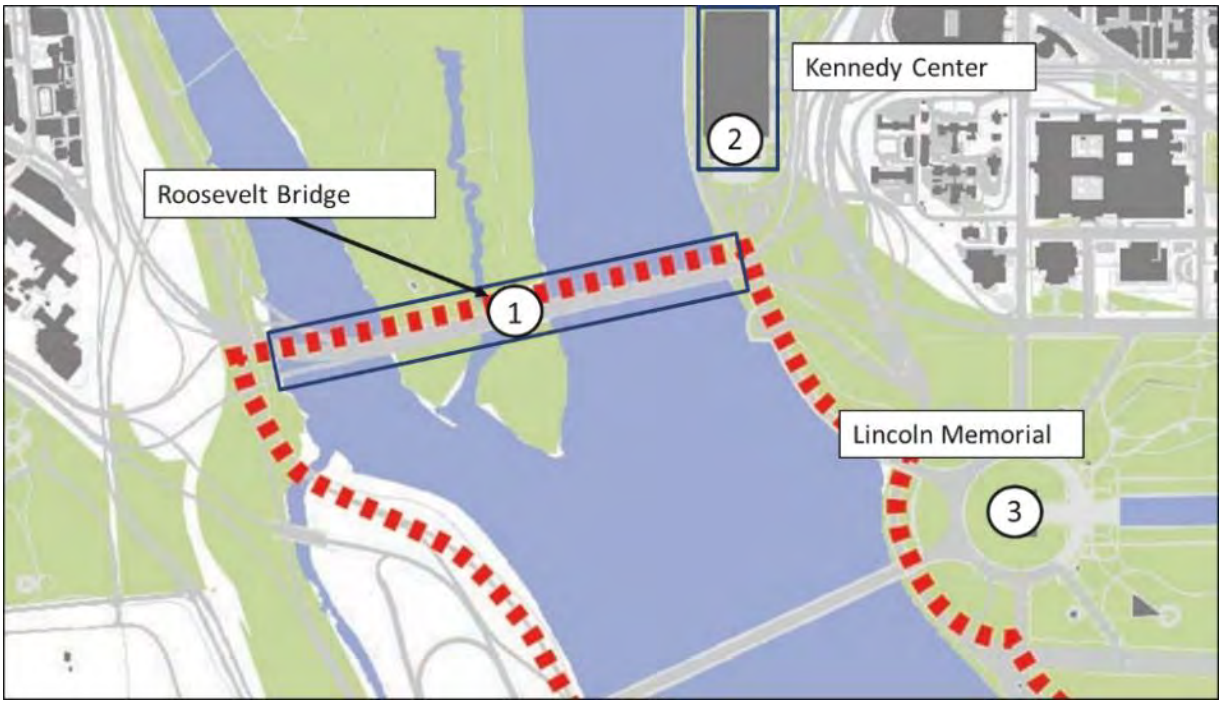


Figure 2-6 | Photograph location 1. Long Bridge from the west end of the Roosevelt Bridge, facing southeast

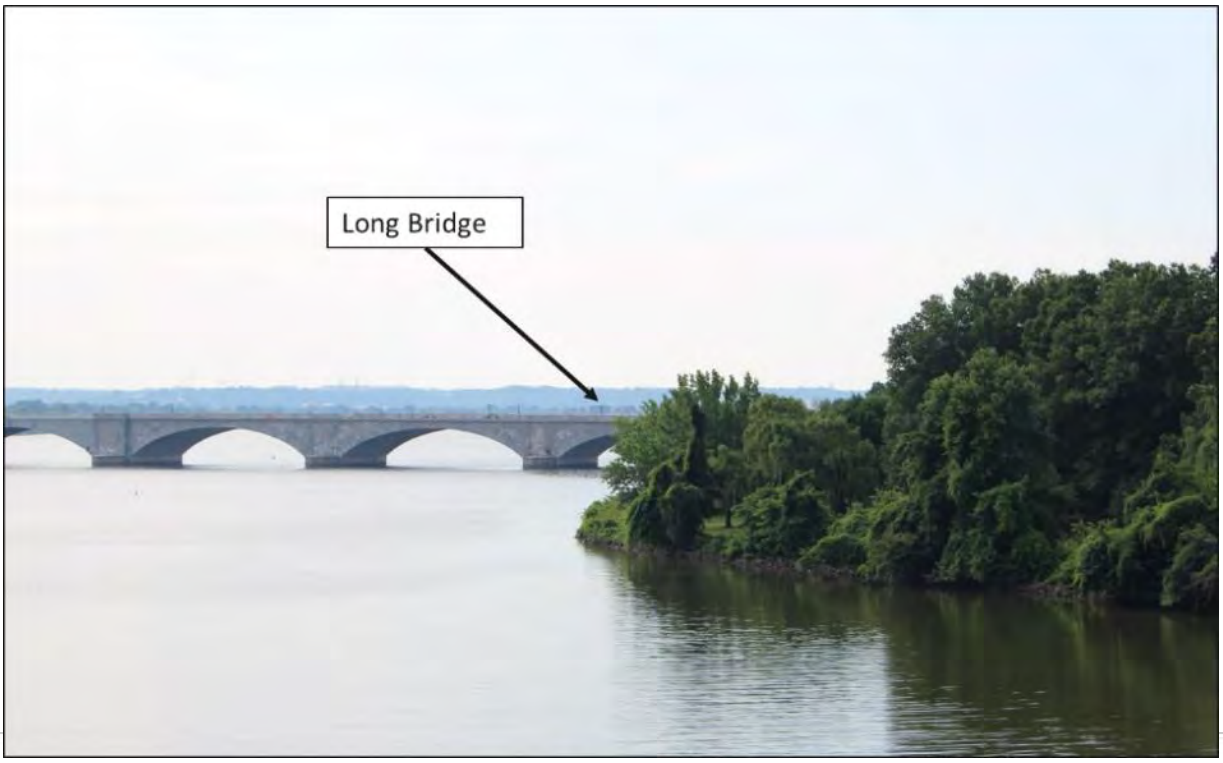


Figure 2-7 | Photograph location 2. Long Bridge from the west section of the Kennedy Center upper terrace, facing southeast

Figure 2-8 | Photograph location 3. Long Bridge from the Lincoln Memorial public viewing platform, facing southeast

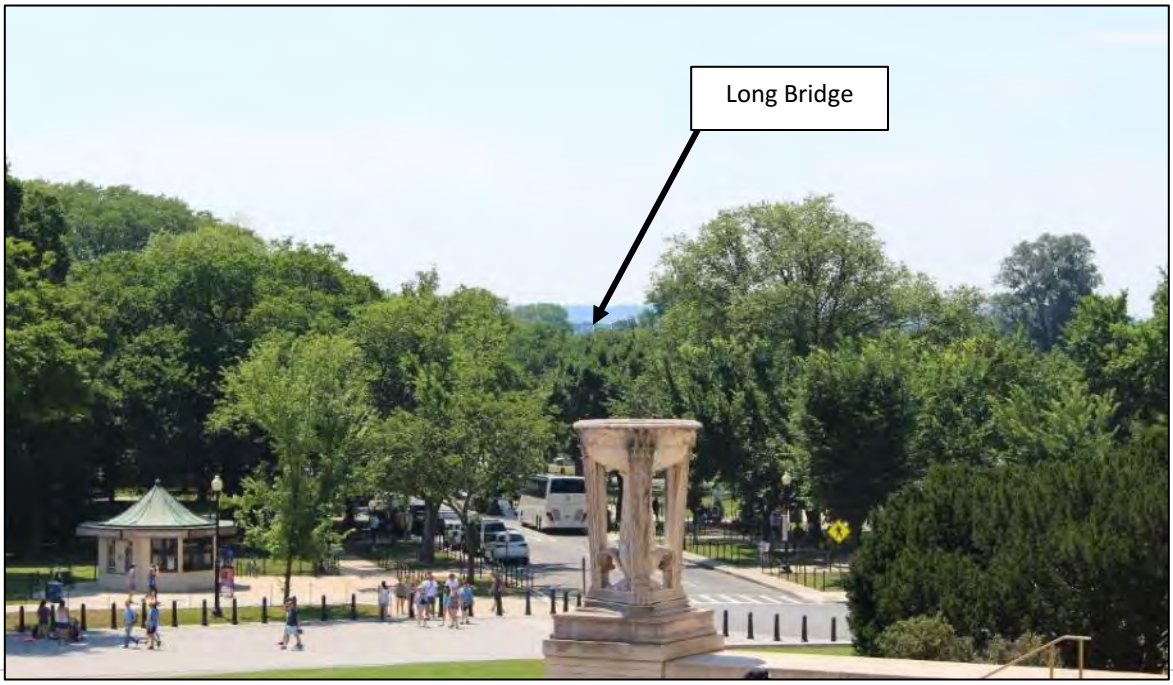


Figure 2-9 | Map detail of photograph locations 4 and 5 at Arlington National Cemetery

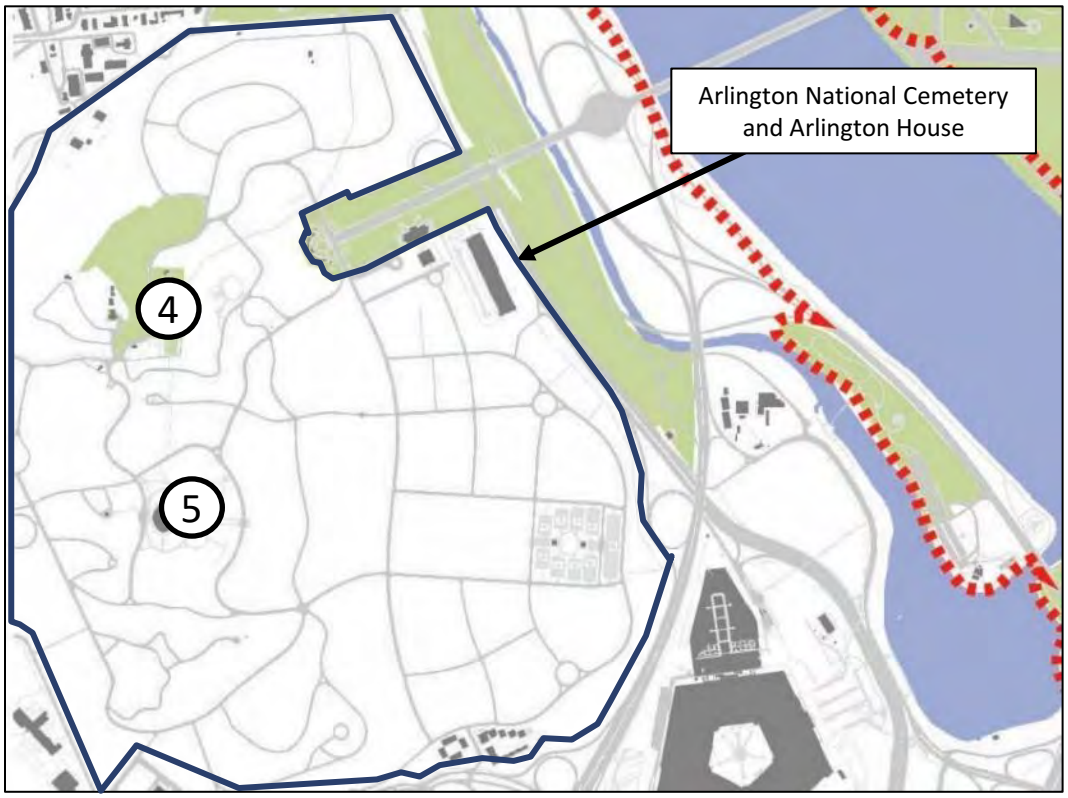


Figure 2-10 | Photograph location 4. Long Bridge from Arlington House, facing southeast

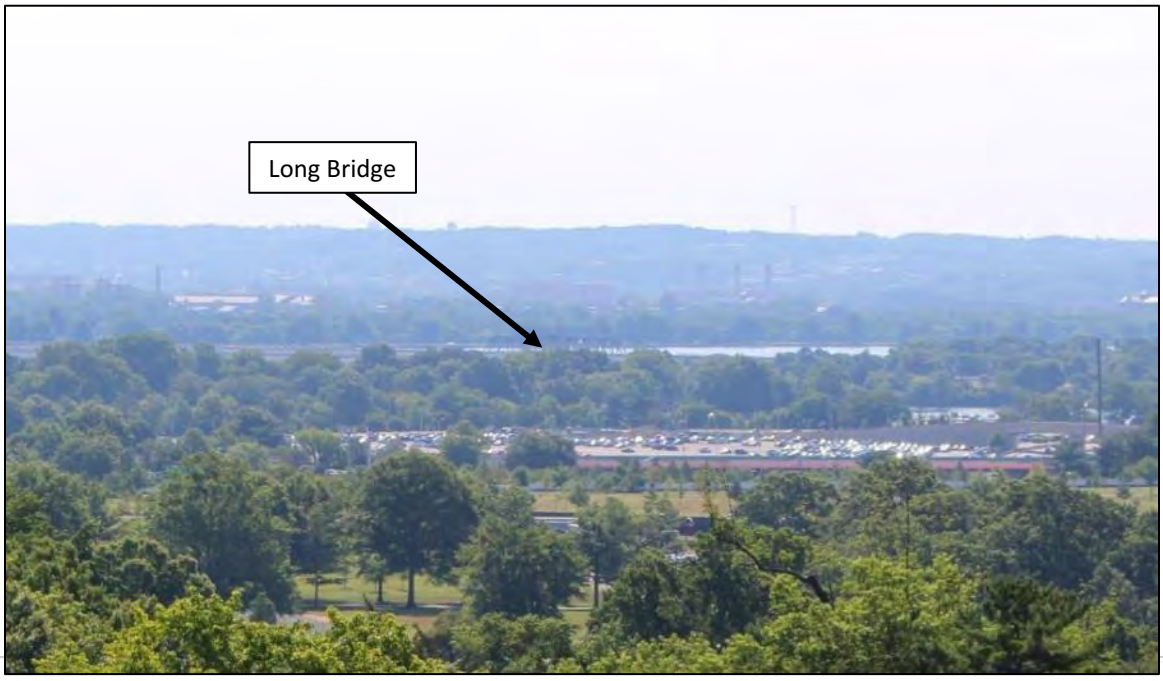


Figure 2-11 | Photograph location 5. Long Bridge from the Tomb of the Unknown Soldier, facing west

Figure 2-12 | Map detail of photograph locations 6, 7, and 8 at George Washington Memorial Parkway, Gravelly Point, and Mount Vernon Trail.

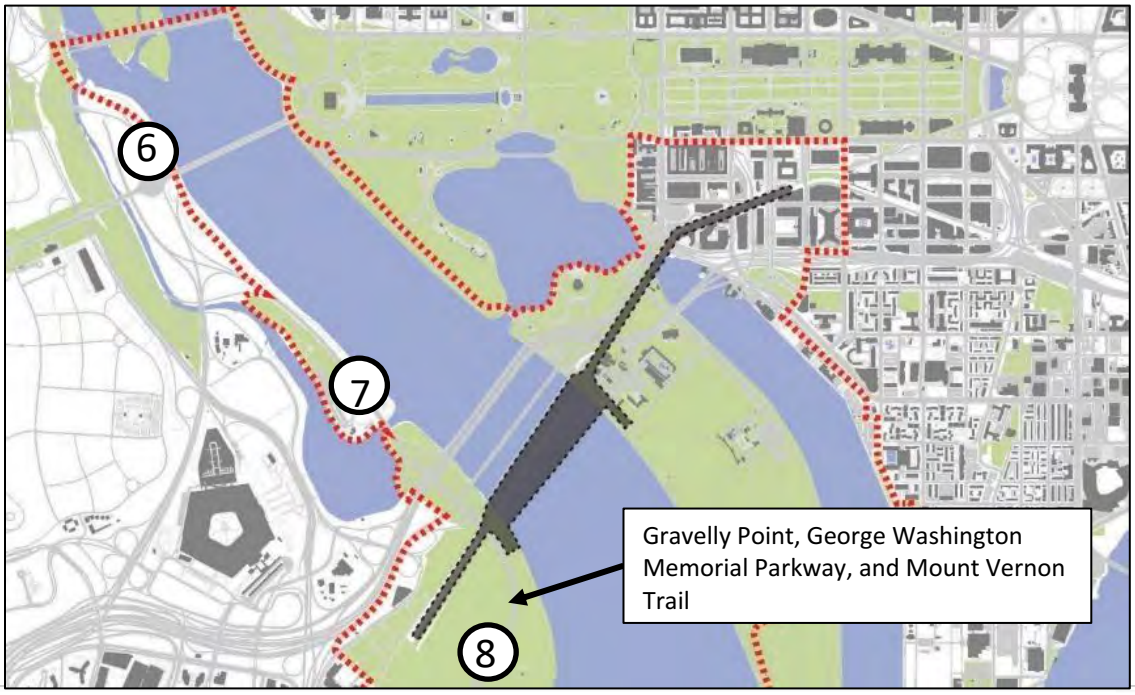


Figure 2-13 | Photograph location 6. Long Bridge from Mount Vernon Trail to the north of Arlington Memorial Bridge, facing southeast

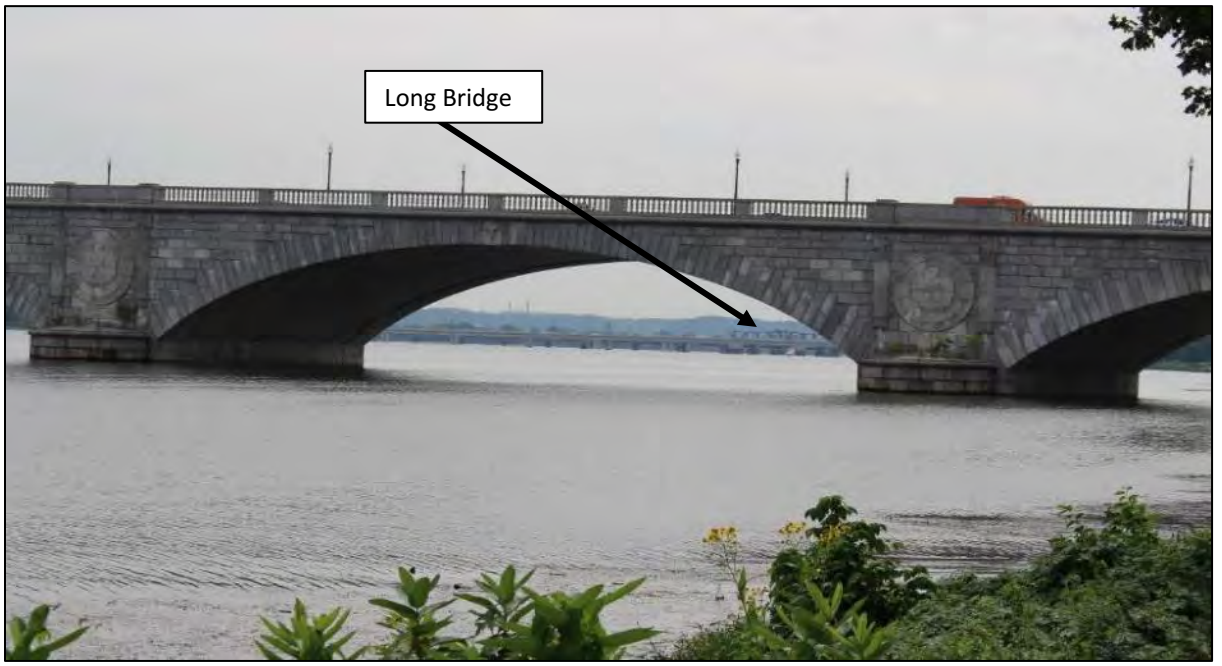


Figure 2-14 | Photograph location 7. Long Bridge from the Mount Vernon Trail to the north of I-395, facing southeast

Figure 2-15 | Photograph location 8. Long Bridge from Gravelly Point, facing north

Figure 2-16 | Map detail of photograph locations 9 and 10 at Reagan National Airport

Figure 2-17 | Photograph location 9. Long Bridge from north boundary of Reagan Airport at the Potomac River, facing north

Figure 2-18 | Photograph location 10. Long Bridge from the southern edge of the airport, facing north/northwest

Figure 2-19 | Map detail of photograph locations 11 and 12, Joint Base Anacostia-Bolling

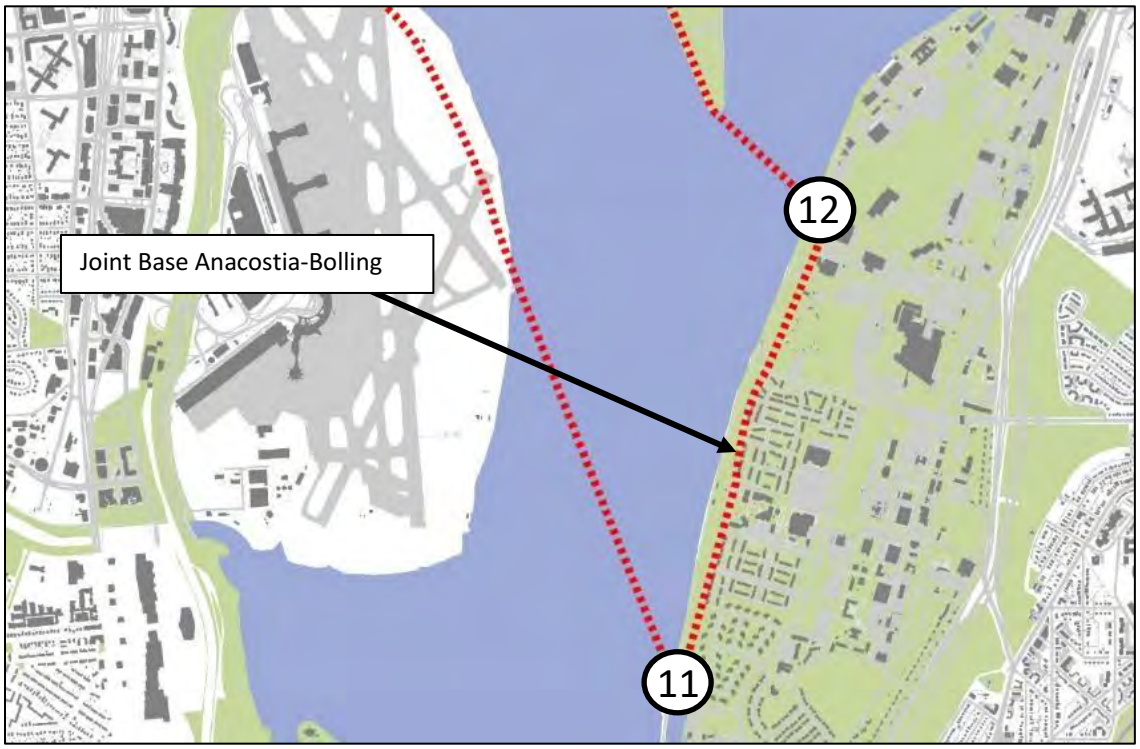


Figure 2-20 | Photograph location 11. Long Bridge from Arnold Avenue, SW, facing northwest

Figure 2-21 | Photograph location 12. Long Bridge to the west of Boundary Drive at the Anacostia River, facing northwest

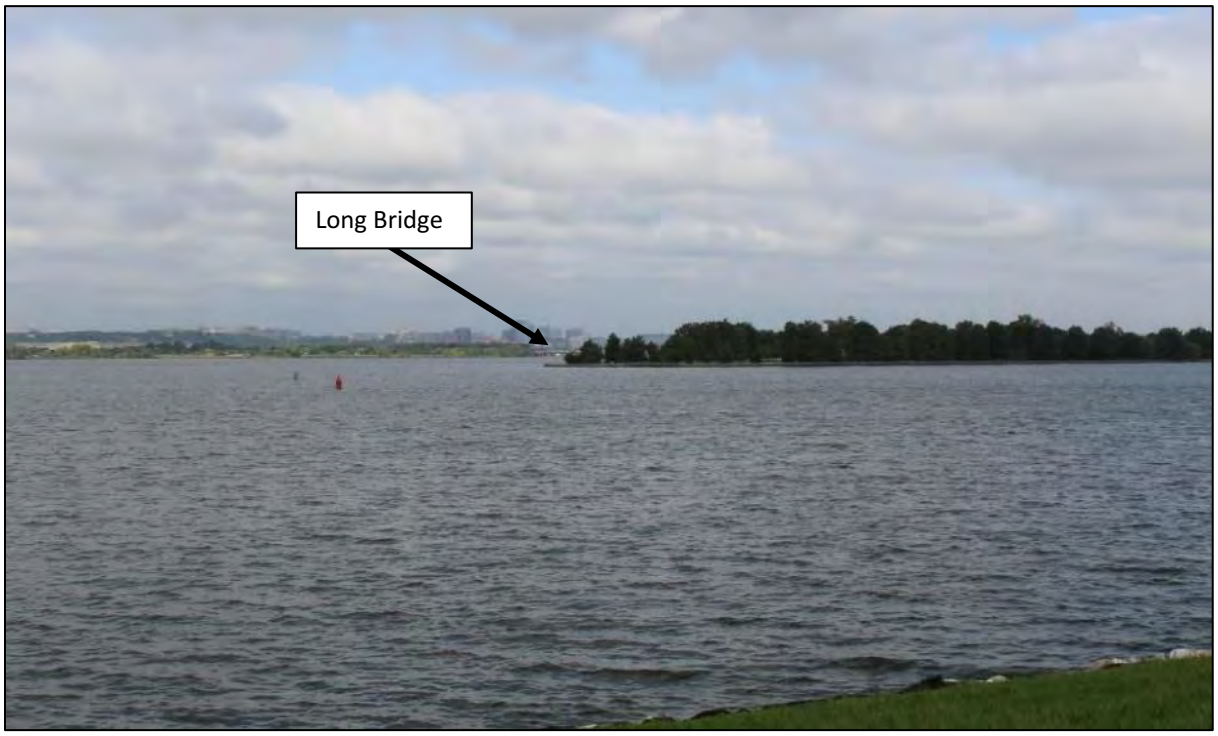


Figure 2-22 | Map detail of photograph location 14, St. Elizabeths West Campus

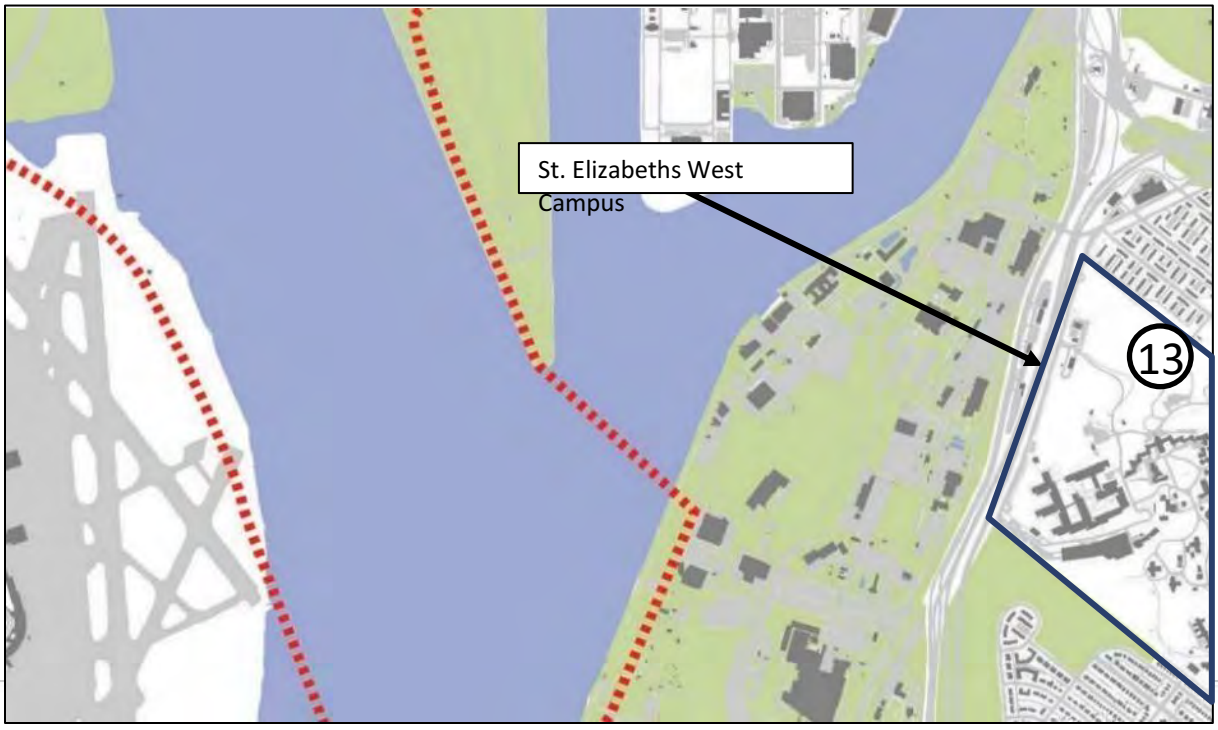


Figure 2-23 | Photograph 2. Long Bridge from Saint Elizabeths West Campus, facing northwest

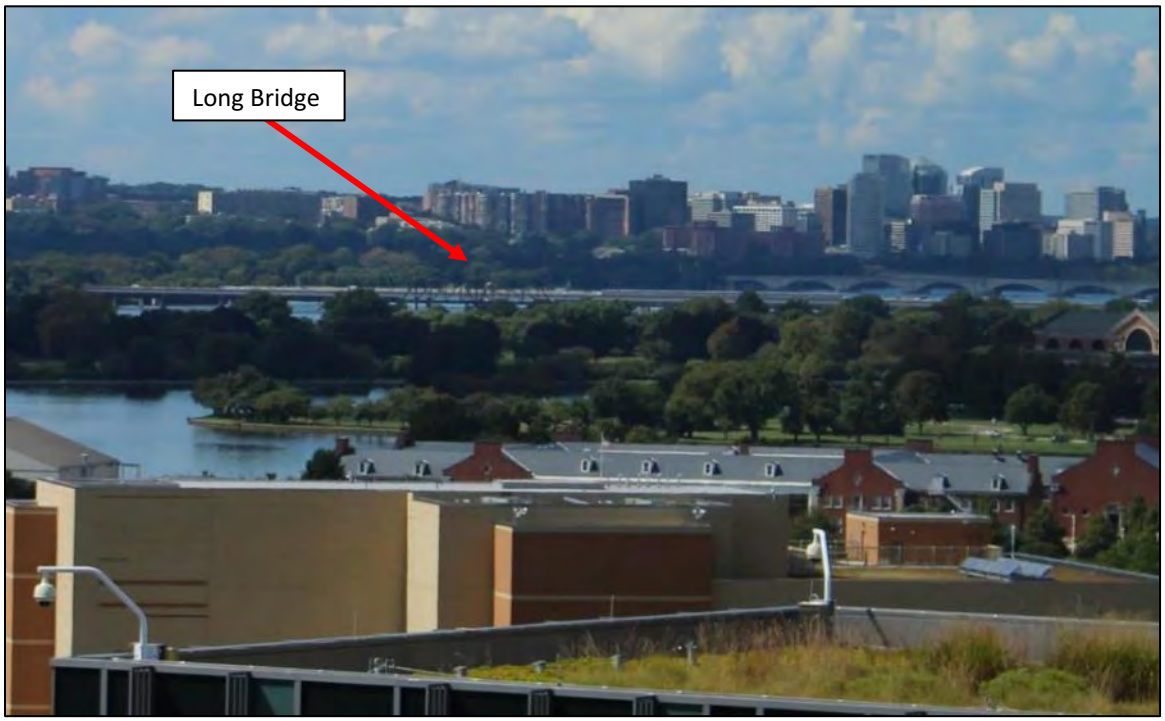


Figure 2-24 | Map detail of photograph locations 14, 15, and 16, East Potomac Park, Hains Point, and Fort McNair

Figure 2-25 | Photograph location 14. Long Bridge from Hains Point, facing northwest

Figure 2-26 | Photograph location 15. Long Bridge Corridor from East Potomac Park at the Washington Channel, facing northwest

Figure 2-27 | Photograph location 16. Long Bridge Corridor from Fort McNair at B Street SW, facing northwest

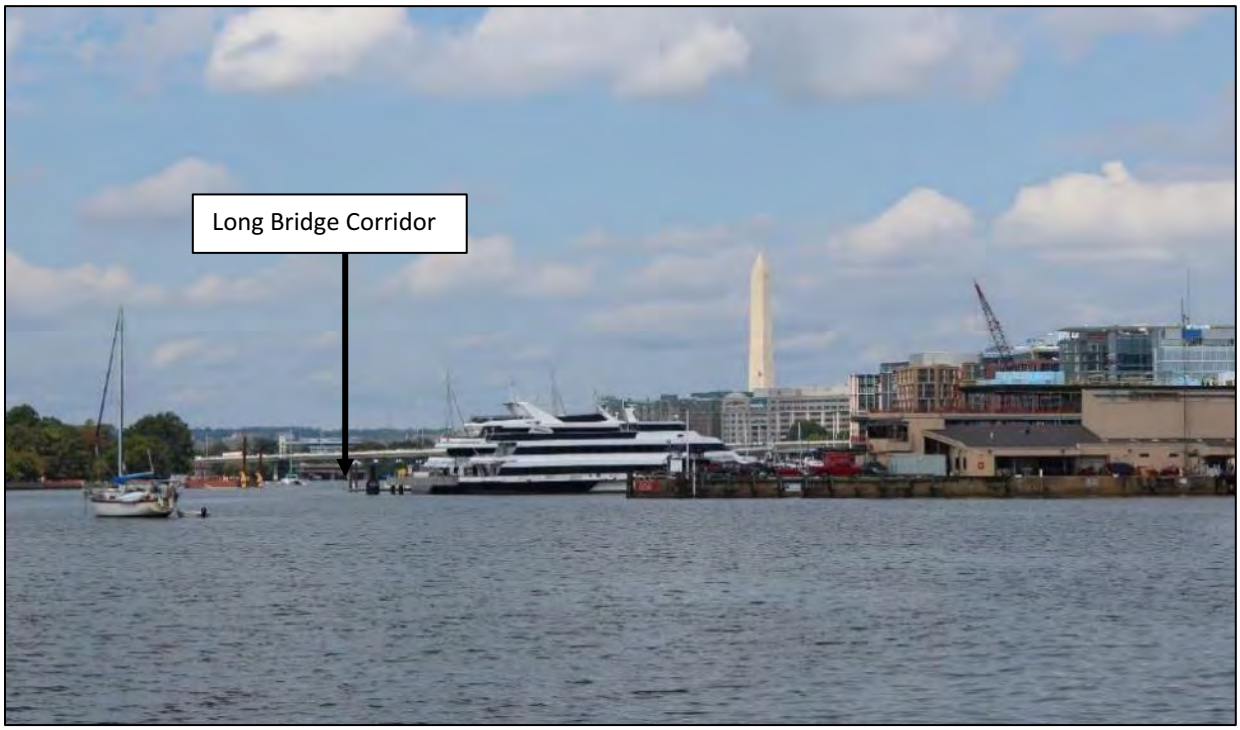


Figure 2-28 | Map detail of photograph locations 17, 18, and 19

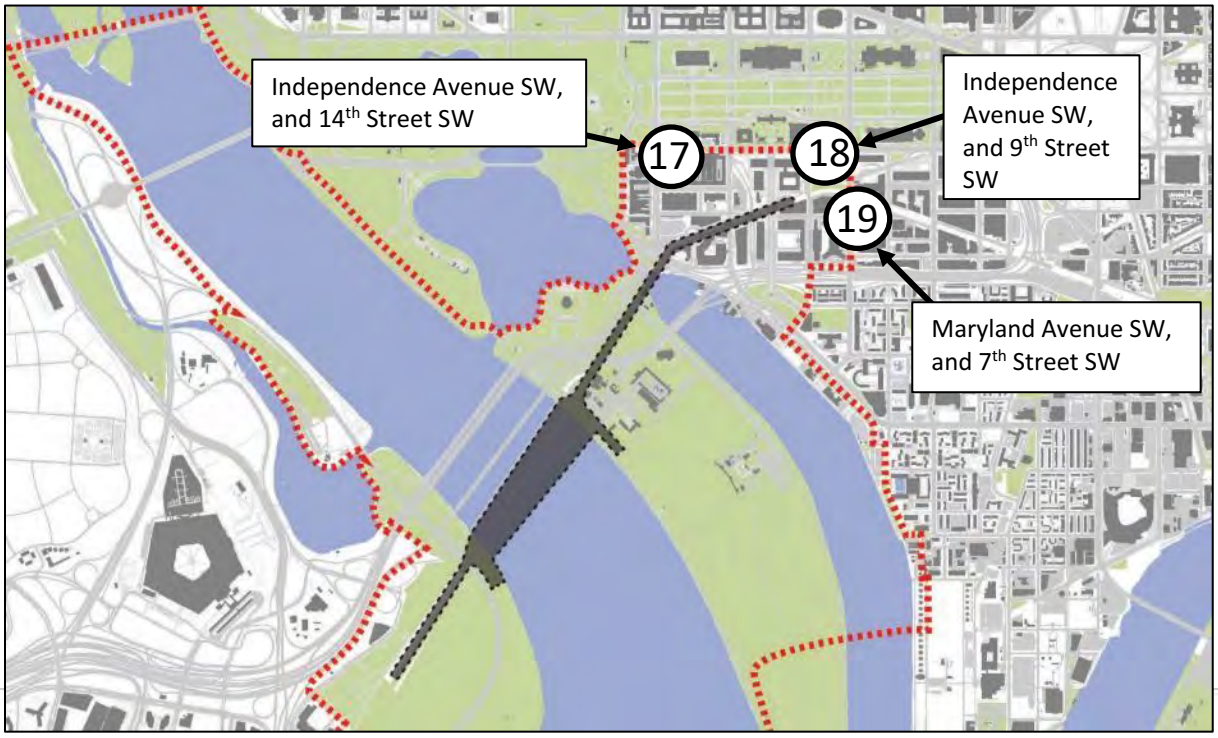


Figure 2-29 | Photograph location 17. Long Bridge Corridor from Independence Avenue SW, and 14th Street SW facing south

Figure 2-30 | Photograph location 18. Long Bridge Corridor from intersection of Independence Avenue SW and 9th Street SW, facing south

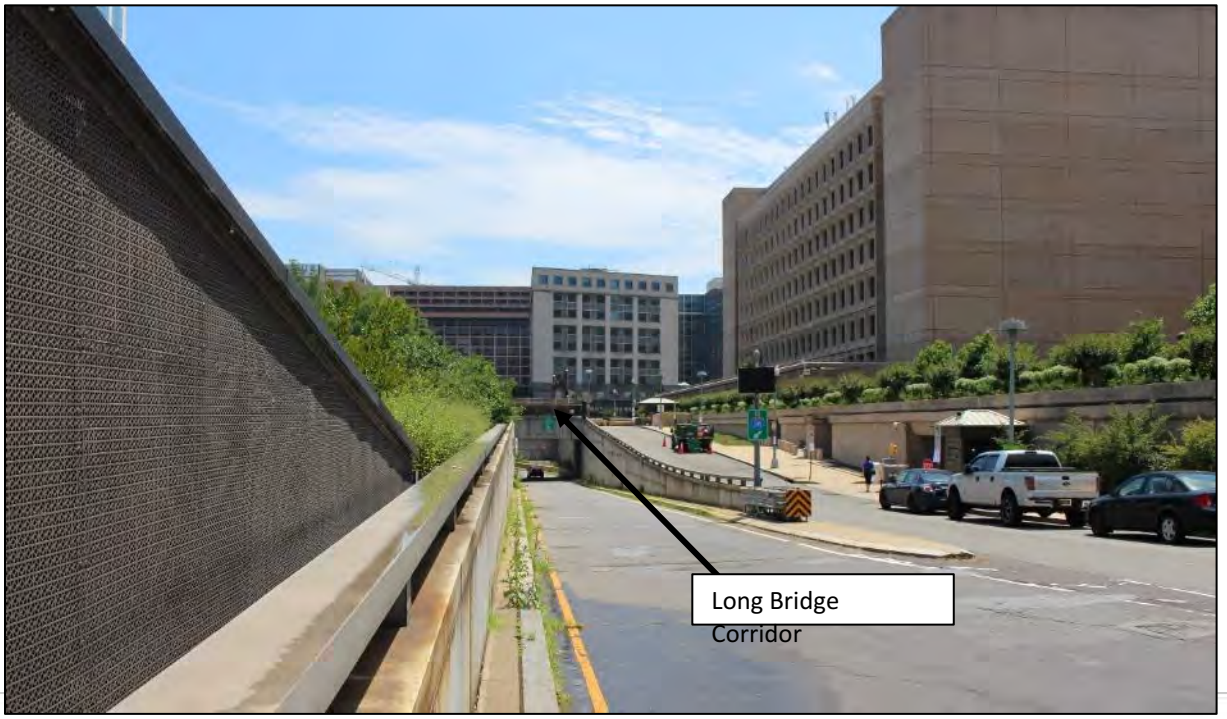


Figure 2-31 | Photograph location 19. Long Bridge Corridor from intersection of Maryland Avenue SW, and 7th Street SW, facing southwest

3.0 Identification of Historic Properties

Once an APE has been defined, the Federal agency must "…make a reasonable and good faith effort…" to identify historic properties within its boundaries (36 CFR § 800.4(b)(1)). A historic property is defined as "any prehistoric or historic district, site, building, structure, or object included on, or eligible for inclusion in, the National Register of Historic Places (NRHP) maintained by the Secretary of the Interior. This term includes artifacts, records, and remains that are related to and located within such properties. The term includes properties of traditional religious and cultural importance to an Indian tribe or Native Hawaiian organization and that meet the National Register criteria" (including artifacts, records, and material remains relating to the district, site, building, structure or object" (36 CFR § 800.16(l)(1)).

In August 2016, FRA and DDOT completed the *Long Bridge Project, Environmental Data Collection Report* (Data Collection Report), which included preliminary identification of historic properties within and in the vicinity of the designated study area. The study area was defined by a 1,000-foot buffer along the length of the Long Bridge Corridor.[9] Historic properties were identified using the following information sources:

- Geographic Information System (GIS) mapping data provided by the District and Arlington County;
- DCSHPO Inventory of Historic Sites;
- NRHP database;
- General Services Administration (GSA) *Historic Buildings* website;
- Virginia Landmarks Register (VLR); and
- Virginia Cultural Resource Information System (V-CRIS).

The *Data Collection Report* was shared with several consulting parties, including VDHR and DCSHPO in September 2016, and the findings related to historic properties were again presented at the consulting party meetings in April and November 2017.

The APE has extended beyond this study area; as such, the above sources were reexamined to identify additional historic properties within the APE. The identification effort was expanded to include the following additional sources of information:

- Properties that are pending or have been recently listed in the NRHP, which were not listed in the August 2016 *Data Collection Report*;
- Properties that have been formally determined eligible for NRHP listing;
- Properties at or greater than 45 years of age that have not been previously evaluated for NRHP eligibility; and
- Contributing streets and avenues, views and vistas, reservations, and other contributing components listed in the Plan of the City of Washington (L'Enfant Plan; L'Enfant-McMillan Plan) NRHP Documentation.

In the future, the identification effort will be expanded to include:

- Potential archaeological resources within the Limits of Disturbance; and

[9] A 1000-foot buffer was uniformly selected for all environmental resources in the Data Collection Report. FRA selected this buffer to compile preliminary existing data on environmental resources within the vicinity of the Long Bridge Corridor; but it is not an indication that FRA has made any determination that effects would only occur within this 1000-foot buffer zone.

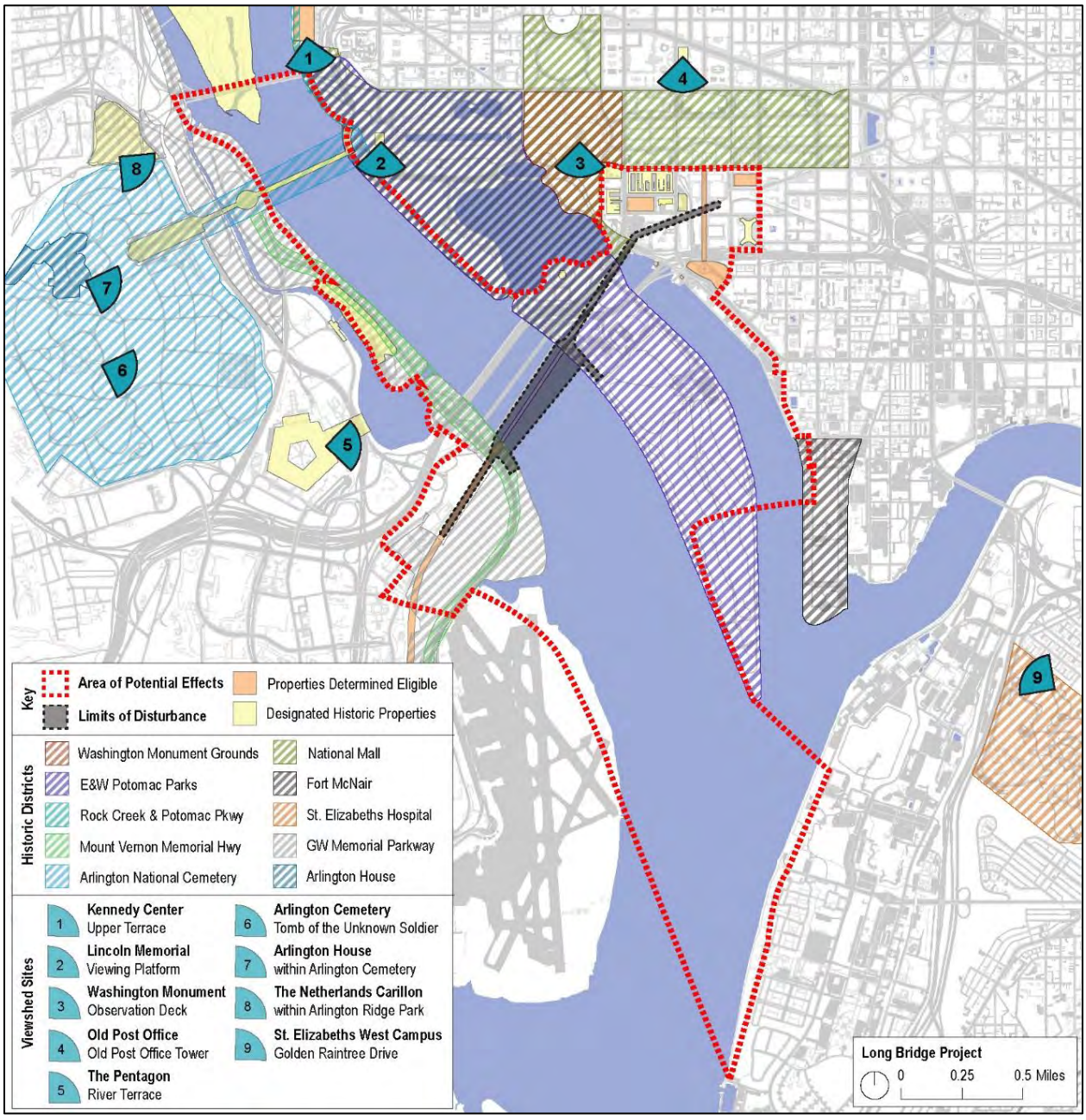
- Any additional feedback from DCSHPO, VDHR, and other consulting parties.

Although the scope for this project does not include drafting formal determinations of eligibility, properties located within the APE that are at least 45 years of age were evaluated against the NRHP Criteria for Evaluation.[10] An assessment of integrity for each property was also undertaken. This age was selected to account for the fifty-year threshold that is generally observed in the evaluation of historic significance, and to account for the implementation schedule of the Long Bridge Project (which may extend five or more years into the future). These properties were identified using a range of documentation resources including real property and building permit data, historic maps and photographs, and aerial photographs. A preliminary evaluation of each property's potential historic significance and integrity is provided herein as a resource for future, more detailed evaluation by the FRA or others at the time of project implementation.

Archaeological resources will be identified using a phased approach. FRA and DDOT will initiate the process by completing a Phase 1A Archaeological Assessment in consultation with DCSHPO and VDHR. The Phase 1A will consist of a desktop review of known archaeological sites and areas that exhibit high archaeological potential. The Phase 1A will address all alternatives, once a Preferred Alternative is identified, additional surveys will be conducted as needed. Because the U.S. Department of the Interior has jurisdiction over a majority of the area within the Limits of Disturbance (including the bottom lands of the Potomac River), FRA and DDOT will coordinate with the National Park Service regarding potential impacts to archaeological resources, including potential underwater archaeology.

[10] National Register of Historic Places, Frequently Asked Questions. http://www.nationalregisterofhistoricplaces.com/faq.html

Figure 3-1 | Map of APE with Designated and Eligible Historic Properties



3.1. Designated Historic Properties

The following properties have been listed in the NRHP, DC Inventory of Historic Sites (DC), and/or the VLR. Two properties have been designated as National Historic Landmarks (NHL). In some cases, these properties were determined eligible for National Register listing (Determination of Eligibility [DOE]) and were subsequently listed.

Table 3-1 | List of historic properties previously listed in the NRHP, DC Inventory, or VLR. Several of the below properties listed on the DC Inventory have also been determined eligible for listing on the NRHP.

#	Name	Location	Designation
1.	**National Mall Historic District**	Washington, DC	DC, NRHP
2.	**Parkways of the National Capital Region**	Washington, DC	VLR, NRHP
3.	**Rock Creek and Potomac Parkway Historic District**	Along the Potomac River and Rock Creek from the Lincoln Memorial to the National Zoo.	DC, NRHP
4.	**George Washington Memorial Parkway**	Arlington County, (Extends to City of Alexandria and Fairfax County)	VLR, NRHP
5.	**Mount Vernon Memorial Highway**	Arlington County (Extends to City of Alexandria, and Fairfax County)	VLR, NRHP
6.	**Plan of the City of Washington**	Washington Region Multi-Property Submission	DC, NRHP
7.	**East and West Potomac Parks Historic District**	Washington, DC	DC, NRHP
8.	**Thomas Jefferson Memorial**	East Basin Drive SW, Washington, DC	DC, NRHP
9.	**Central Heating Plant**	325 13th Street SW, Washington, DC	DC, NRHP
10.	**U.S. Department of Agriculture (USDA) Cotton Annex**	300 12th Street SW, Washington, DC	DC, NRHP
11.	**HUD Building (Robert C. Weaver Federal Building)**	451 7th Street, SW, Washington, DC	DC, NRHP
12.	**U.S. Department of Agriculture South Building**	1352 C Street SW, Washington, DC	DC, NRHP
13.	**Bureau of Engraving and Printing**	301 14th Street SW, Washington, DC	DC
14.	**Auditor's Building Complex**	14th Street and Independence Avenue SW	DC, NRHP
15.	**Arlington Memorial Bridge (and related features)**	Memorial Avenue, DC & Virginia	DC, NRHP
16.	**Fort Leslie J. McNair Historic District (The Old Arsenal)**	4th and P Streets SW	DC, DOE
17.	**Titanic Memorial**	Water and P Streets SW	DC, NRHP
18.	**Lunch Room Building and Oyster Shucking Shed**	1100 Maine Avenue SW	DC, DOE
19.	**Cuban Friendship Urn**	Reservation 332, Ohio Drive at 14th Street Bridge SW	DC, NRHP
20.	**Theodore Roosevelt Island National Memorial (Analostan Island)**	Potomac River west of Georgetown Channel	DC, NRHP
21.	**Lyndon B. Johnson Memorial Grove**	Columbia Island in Lady Bird Johnson Park	DC, NRHP
22.	**Lincoln Memorial (Statue of Lincoln) ***	West Potomac Park, Washington, DC	DC, NRHP

#	Name	Location	Designation
23.	**Washington Monument and Grounds Historic District***	14th Street, between Constitution and Independence Avenues, Washington, DC	DC, NRHP
24.	**Arlington House Historic District***	Roughly bound by Sheridan Drive, Ord and Weitzel Drive, Humphrey's Drive and Lee Avenue in Arlington National Cemetery	VLR, NRHP
25.	**Arlington National Cemetery Historic District***	One Memorial Avenue, Arlington, VA	NRHP
26.	**St. Elizabeths Hospital Historic District***	2700 Martin Luther King Jr., Avenue, SE	DC, NRHP, NHL
27.	**Netherlands Carillon (within Arlington Ridge Park)***	Northwest corner of N Meade Street and Marshall Drive in Arlington, VA	VLR, NRHP,
28.	**Old Post Office***	1100 Pennsylvania Avenue, NW	DC, NRHP
29.	**The Pentagon***	U.S. 1, Va. 110, and Interstate 395	VLR, NRHP, NHL

** These properties are designated as viewshed locations outside of the contiguous APE boundaries.*

1. National Mall Historic District

Location: Washington, DC
Designation: DC, NRHP

The National Mall Historic District (the Mall) is comprised of the monumental core of Washington, DC, an original design element of Major General Pierre Charles L'Enfant's Plan for the Capital City. The L'Enfant Plan was further refined and expanded in the McMillan Commission's 1901-1902 plan for the City of Washington. L'Enfant designed the National Mall to serve as the central axis of Washington's monumental core. The Plan called for the Mall to be a 400-foot-wide, mile long, "grand avenue" from the Capitol to a point directly south of the President's house. The site was to be lined with landscaped areas and gardens. The 1901 McMillan Commission restored and supplemented the L'Enfant Plan primarily by removing obtrusive elements and bordering the Mall with public buildings.

Figure 3-2 | National Mall

2. Parkways of the National Capital Region
Location: Throughout the Washington, DC, metropolitan region.
Designation: NRHP, VLR

Multi-property documentation for scenic parkways of the Washington, DC region including the George Washington Memorial Parkway, the Mount Vernon Memorial Highway, and the Rock Creek and Potomac Parkway, among others.

Figure 3-3 | Rock Creek and Potomac Parkway

3. Rock Creek and Potomac Parkway
Location: Along the Potomac River and Rock Creek from the Lincoln Memorial to the National Zoo.
Designation: DC, NRHP

The first parkway for which legislation was passed in the Nation's Capital and one of the earliest parkways constructed in the region. In 1913, Congress passed the Public Buildings Act, which authorized the creation of the parkway. Planning, design, and land acquisition of the parkway continued through the 1930s, and the parkway was completed in 1935.

Figure 3-4 | Rock Creek and Potomac Parkway

4. George Washington Memorial Parkway
Location: Arlington County, City of Alexandria, and Fairfax County
Designation: VLR, NRHP

The George Washington Memorial Parkway is a 25-mile scenic parkway administered by the National Park Service. Constructed predominantly in the 1930s, the parkway provides a ceremonial and recreational corridor between northern Virginia and Mount Vernon, the home and estate of George Washington.

Figure 3-5 | George Washington Memorial Parkway (Mount Vernon)

5. Mount Vernon Memorial Highway
Location: Arlington County, City of Alexandria, and Fairfax County
Designation: VLR, NRHP

Original 15.2-mile segment of the scenic parkway commemorating the birth of George Washington.

Figure 3-6 | Mount Vernon Memorial Highway (Google Maps)

6. Plan of the City of Washington
Location: Includes original elements of Pierre Charles L'Enfant's plan for the City of Washington, including later elements proposed by the McMillan Commission
Designation: NRHP, DC

Multi-property submission for the street grid, diagonal avenues, parks, vistas among monuments and sites over Federal land within the L'Enfant Plan boundary, and the airspace above this matrix up to the legal height limit in the City.

Figure 3-7 | Detail, L'Enfant Plan Facsimile, 1887 (Library of Congress)

7. East and West Potomac Parks Historic District
Location: Washington, DC
Designation: NRHP, DC

Historic district comprising 730 acres of park land along the Potomac River. Standing memorials in the parks include the Lincoln and Jefferson Memorials. Contributing features to this historic district include the Inlet Bridge, the U. S. Engineers Storehouse, the National Capital Region Building complex, East Potomac Park Golf Course, East Potomac Park Field House, East Potomac Park Swimming Pool, and D-1 Substation Building.

Figure 3-8 | Hains Point, East and West Potomac Parks Historic District

The Long Bridge, constructed in 1904, is a contributing feature to the East and West Potomac Parks historic district.[11]

Figure 3-9 | Long Bridge

8. Thomas Jefferson Memorial
Location: 16 East Basin Drive SW, Washington, DC
Designation: NRHP, DC

National Memorial dedicated to third U.S. President Thomas Jefferson. Designed by notable architect John Russell Pope, the memorial was constructed between 1937 and 1942. Sited facing the Tidal Basin, the memorial forms a significant component of the city's monumental plan.

Figure 3-10 | Jefferson Memorial (National Park Service)

9. Central Heating Plant
Location: 325 13th Street SW, Washington, DC
Designation: NRHP, DC

A heating plant completed in 1934 to supply steam to Federal buildings. Designed in the Art Deco style by architect Paul Phillipe Cret under the direction of the Supervising Architect of the Treasury Department.

Figure 3-11 | Central Heating Plant

[11] The Evening Star. 1904. *First Train Passes, New Railway Bridge Used for First Time*. August 25, 1904.

10. USDA Cotton Annex
Location: 300 13th Street SW, Washington, DC
Designation: NRHP, DC

The Bureau of Agricultural Economics (BAE) Building, now known as the Cotton Annex, was built in 1936 to 1937 for the USDA under the auspices of Supervising Architect of the Treasury Louis A. Simon (1933–1939).

Figure 3-12 | USDA Cotton Annex

11. U.S. Department of Housing and Urban Development (HUD) Building (Robert C. Weaver Federal Building)
Location: 451 7th Street SW, Washington, DC
Designation: NRHP, DC

Completed in 1968 by the architect Marcel Breuer. The modernist design and execution of the HUD building exemplifies the primary tenets of the "Guiding Principles for Federal Architecture" as set forth by President John F. Kennedy's administration in 1962.

Figure 3-13 | HUD Building

12. USDA South Building
Location: 1352 C Street SW, Washington, DC
Designation: DC, NRHP

Completed in 1936, the South Building is significant for its association with the growth of the Department of Agriculture; broader patterns of city development in the District; and as an excellent example of the Stripped Classical style of Federal architecture of the 1930s.

Figure 3-14 | USDA South Building

13. Bureau of Engraving and Printing (BEP) (Main Building)
Location: 301 14th Street SW, Washington, DC
Designation: DC

The building was designed by the Office of the Supervising Architect of the Treasury, under Supervising Architect James Knox Taylor. The Neoclassical style building was completed in February 1914.

Figure 3-15 | BEP Main Building

14. Auditor's Building Complex
Location: 14th Street and Independence Avenue SW, Washington, DC
Designation: DC, NRHP

The Auditors Building was the first building designed and constructed for the U.S. Department of the Treasury Bureau of Engraving and Printing. Originally completed in 1880, the building had three major additions in 1891, 1895, and 1900. Originally designed by James B. Hill, Supervising Architect of the Treasury Department, the building is also significant for its architectural style.

Figure 3-16 | Auditor's Building (Library of Congress)

15. Arlington Memorial Bridge (and Related Features)
Location: Memorial Avenue, DC and Virginia
Designation: DC, NRHP

The 1932 bridge and its related features are a major element of 1902 McMillan Commission plan for the city. The bridge serves as a symbolic link between the north and the south, connecting Arlington House (home of Robert E. Lee) and the Lincoln Memorial.

Figure 3-17 | Memorial Bridge

16. Fort Leslie J. McNair Historic District (The Old Arsenal)
Location: Fourth and P Streets SW, Washington, DC
Designation: DC, DOE

Fort McNair was established in 1791 and today is the third oldest U.S. Army installation in continuous use. The district is significant in the fields of architecture, military history, military education, and health and medicine.

Figure 3-18 | Fort McNair (National Defense University)

17. Titanic Memorial
Location: Water and P Streets SW, Washington, DC
Designation: DC, NRHP

The Titanic Memorial was designed by the female sculptor Gertrude Vanderbilt Whitney. The sculpture is significant as it is only one of five located in the District designed by a woman. Completed in 1916, the statue was originally erected at the Rock Creek and Potomac Parkway in 1930. In 1968, the statue was relocated to its present location.

Figure 3-19 | Titanic Memorial

18. Lunch Room Building and Oyster Shucking Shed
Location: 1100 Maine Avenue SW, Washington, DC
Designation: DC, DOE

The Lunch Room Building and Oyster Shucking Shed are significant as they are the only extant buildings associated with the 1916-1918 Municipal Fish Wharf and Market on Water Street. The buildings illustrate Congress' support for the City Beautiful movement as implemented by the improvement of the District's shoreline, and recognition of the need to address issues with the District's fishing industry, as well as they health and welfare of the District's citizens.

Figure 3-20 | Lunch Room

19. Cuban Friendship Urn
Location: Reservation 332, Ohio Drive at Fourteenth Street Bridge SW, Washington, DC
Designation: DC, NRHP

The urn is significant as it is the second gift of sculpture presented to the District of Columbia by a foreign nation. It was presented to President Calvin Coolidge in Havana in 1928, and Congress authorized its acceptance on May 22, 1928.

Figure 3-21 | Cuban Friendship Urn (Wikimedia Commons)

20. Theodore Roosevelt Island National Memorial (Analostan Island)
Location: Potomac River west of Georgetown Channel
Designation: DC, NRHP

The 88-acre island is a memorial to Theodore Roosevelt, twenty-sixth President of the United States. It was presented to the U.S. by the Roosevelt Memorial Association in 1931 and opened to the public in 1936.

Figure 3-22 | Roosevelt Memorial (National Park Service)

21. Lyndon B. Johnson Memorial Grove on the Potomac

Location: George Washington Memorial Parkway
Designation: NRHP

Authorized by Congress in 1973, the Memorial Grove established an official memorial to President Lyndon B. Johnson. The site is significant for its association with the historic pattern of creating presidential memorials, which began with the Washington Monument, and as an excellent example of twentieth century landscape architecture.

Figure 3-23 | Johnson Memorial Grove (National Park Service)

22. Lincoln Memorial (Statue of Lincoln)

Location: West Potomac Park, Washington, DC
Designation: DC, NRHP

The Lincoln Memorial is significant as an important example of Neoclassical style architecture. It is the foremost memorial to the sixteenth President of the United States, and as the terminus of the extended Mall plan in the Senate Park Commission's (popularly known as the McMillan Commission) 1902 plan for the city. The memorial was designed by architect Henry Bacon, and Lincoln's statue is the work of sculptor Daniel Chester French.

Figure 3-24 | Lincoln Memorial (National Park Service)

23. Washington Monument and Grounds Historic District

Location: 14th Street, between Constitution and Independence Avenues, Washington, DC
Designation: DC, NRHP

The Washington Monument and Grounds Historic District is significant under Criterion A in the areas of: politics and government as part of the establishment of the national capital; social history as a gathering place for the American citizenry to express their First Amendment rights; ethnic heritage for its association with the 1963 March on Washington for Jobs and Freedom; and locally as the site of continuing entertainment and recreation. The historic district is also significant for its architecture, planning, and design, and as a planned cultural landscape. There are several views and vistas that contribute to the significance of the historic district, including views from the top of the monument to surrounding city and important sites.

Figure 3-25 | Washington Monument and Grounds (National Park Service)

24. Arlington House Historic District

Location: Roughly bound by Sheridan Drive, Ord and Weitzel Drive, Humphrey's Drive and Lee Avenue in Arlington National Cemetery, Arlington, VA
Designation: VLR, NRHP

The Arlington House Historic District is significant for its association with George Washington Parke Custis (step-grandson of George Washington) and General Robert Edward Lee (military leader and important figure in the American Civil War); its architecture and landscape design; its reflection of the ethnic heritage of enslaved African Americans and household slaves who worked and lived on site; its association with Arlington National Cemetery; as one of the Federal government's first attempts at historic preservation (1925 legislation, 1928-1935 restoration); and its archaeology. There are several views and vistas that contribute to the significance of the historic district, including views from the house eastward. Arlington House Historic District is located within the boundaries of the Arlington National Cemetery Historic District. It

Figure 3-26 | Arlington House (National Park Service)

is not administered by Arlington Cemetery but rather separately by the National Park Service.

25. Arlington National Cemetery Historic District
Location: One Memorial Avenue, Arlington, VA
Designation: NRHP

Arlington National Cemetery Historic District is significant as the country's most sacred national cemetery. Created from the former estate of Mary Anna Custis Lee (wife of Civil War Confederate General Robert E. Lee) and purchased by the Federal Government in 1864, the site includes several significant contributing architectural features, including Arlington House, the Tomb of the Unknown Soldier, the Arlington Memorial Amphitheater, and numerous additional memorials. The current Long Bridge is visible from Arlington House, the Tomb of the Unknown Soldier, and their immediately surrounding landscapes.

Figure 3-27 | Arlington National Cemetery (Arlington Cemetery)

26. St. Elizabeths Hospital Historic District
Location: 2700 Martin Luther King Jr., Avenue SE, Washington, DC
Designation: DC, NRHP, NHL

St. Elizabeths Hospital Historic District is one of the nation's earliest institutions for the treatment of mental illness. Established through the efforts of Dorothea Dix, the leading mental health reformer of the 19th century, the hospital was chartered by Congress in 1852 as the Government Hospital for the Insane, with the

mission to provide humane care for patients from the Army, Navy, and District of Columbia. The historic district features a significant collection of late-19th and early 20th-century architecture, including the Center Building (1853-1855), an early example of the linear plan for mental hospital wards developed by reformer Thomas Kirkbride.

Figure 3-28 | St. Elizabeths West Campus

27. Netherland Carillon (within Arlington Ridge Park)
Location: Within Arlington Ridge Park at the northwest corner of N Meade Street and Marshall Drive in Arlington, VA
Designation: Contributing resource within Arlington Ridge Park (NRHP, VLR)

The Netherlands Carillon is located at the south end of Arlington Ridge Park. The Netherlands Carillon, designed by Dutch architect Joost W.C. Boks, is a Modernist steel framework with a memorial carillon. The carillon was presented as a gift to the United States by the Netherlands in thanks for the aid provided by the United States during and after World War II. The carillon is set within a picturesque landscape designed by National Park Service landscape architects in the early 1960s. The Netherlands Carillon appears to be potentially individually eligible per NPS documentation.

Figure 3-29 | The Netherlands Carillon (National Park Service)

28. Old Post Office
Location: 1100 Pennsylvania Avenue, NW
Designation: DC, NHRP (located within Federal Triangle (DC, DOE) and Pennsylvania Avenue National Historic Site (NHS, NR, DC)

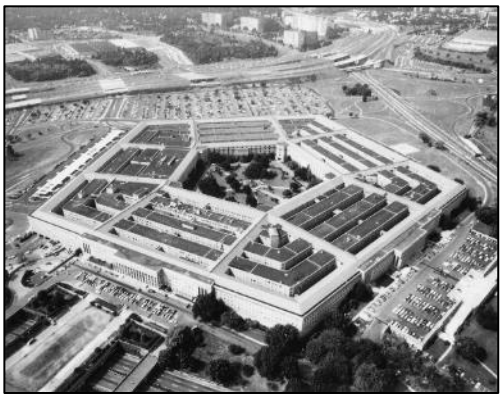
The Old Post Office and Clock Tower (1891 – 1899) was designed by the Office of the Supervising Architect of the Treasury under Willoughby J. Edbrooke to house both the Post Office Department as well as the City Post Office. The first Federal Office building to be constructed in the area later known as Federal Triangle, it is one of the few Romanesque Revival style buildings of monumental scale to be constructed in Washington. At the time of its completion, its 315-foot clock tower was the third highest building in the District, after the Washington Monument and the Capitol.

Figure 3-30 | The Old Post Office (National Park Service)

29. The Pentagon
Location: U.S. 1, Va. 110, and Interstate 395
Designation: VLR, NRHP, NHL

The Pentagon (1941 – 1943) was primarily designed by architects George Edwin Bergstrom and David J. Witmer. The Pentagon is significant as a NHL for its association with "events that have made a significant contribution to the geopolitical role of the United States as a world power" from World War II to the present, and for its association with the lives of nationally significant individuals from 1941 to today. Although the building's architecture did not qualify the building as an NHL, the building is considered architecturally important as it embodies the Stripped Classical style of architecture popular during the period, and as the largest and one of the last of Washington's monumental buildings designed in accordance with the McMillan Commission's 1902 plan for the City of Washington.

Figure 3-31 | The Pentagon (VDHR)



3.2. Eligible Historic Properties

The following properties have been determined eligible or recommended as eligible for listing in the National Register of Historic Places.

Table 3-2 | List of historic properties that have been determined eligible for listing in the NRHP by a Federal agency or recommended as eligible by a SHPO.

#	Name	Location	Designation
1.	**Bureau of Engraving and Printing Annex**	300 14th Street SW, Washington, DC	DOE
2.	**Federal Office Building 10A (Orville Wright Building)**	800 Independence Ave SW, Washington, DC	DOE
3.	**Benjamin Banneker Park/Overlook; Tenth Street Overlook**	Terminus of 10th Street SW, Washington, DC	DOE
4.	**Richmond, Fredericksburg and Potomac Railroad Historic District**	Along CSX right-of-way in VA from Arlington County to the City of Richmond	DOE
5.	**Washington Marina Building**	1300 Maine Avenue SW	DOE
6.	**L'Enfant Promenade**	Section of 10th Street SW between Independence Avenue and Banneker Park	DOE
7.	**Lady Bird Johnson Park**	George Washington Memorial Parkway	DOE
8.	**John F. Kennedy Center for the Performing Arts***	2700 F Street NW, Washington, DC	DOE
9.	**Liberty Loan Federal Building**	401 14th Street SW, Washington, DC	DOE

** These properties are designated as viewshed locations outside of the contiguous APE boundaries.*

1. Bureau of Engraving and Printing (BEP) Annex
Location: 300 14th Street SW, Washington, DC
Designation: DOE

The BEP Annex was constructed between 1936-1938 for the BEP under the auspices of the Office of the Supervising Architect, Louis A. Simon, Supervising Architect, and Neal A. Melick, Supervising Engineer. The BEP Annex is significant for its association with the operation and growth of the BEP during the twentieth century, and as a distinctive example of a Stripped Classic style Federal building constructed in the 1930s.

Figure 3-32 | BEP Annex

2. FOB 10A; Orville Wright Building

Location: 800 Independence Avenue SW, Washington, DC
Designation: DOE

FOB 10A was originally constructed between 1961 and 1963 for GSA, and was one of the earliest to be constructed as part of the urban renewal program for southwest Washington, DC. The International style building was designed by the architectural firms of Holabird & Root & Burgee, and Carroll, Grisdale & Van Alen.

Figure 3-33 | FOB 10A (GSA)

3. Benjamin Banneker Park/Overlook; Tenth Street Overlook

Location: Terminus of 10th Street SW, Washington, DC
Designation: DOE

Landscape completed in 1969 and designed by landscape architect Dan Kiley, is a 200-foot wide elliptical concrete plaza with a large, central, conical, fountain of green granite. Designed and constructed as part of the National Capital Planning Commission's (NCPC) 1956 Urban Renewal Plan: Southwest Urban Renewal Project C.

Figure 3-34 | Banneker Park

4. Richmond, Fredericksburg and Potomac Railroad Historic District

Location: Along CSX right-of-way in eastern Virginia from the Potomac River in Arlington County to the South Broad Street Station in the City of Richmond, VA
Designation: DOE (recommended as eligible by VDHR staff)

The Richmond, Fredericksburg, and Potomac Railroad was a railroad connecting Richmond, Virginia, to Washington, DC. The railroad corridor conveys its association with transportation from ca. 1837 through 1943, when the demand for railroad transportation began to wane. In 2017, VDHR staff recommended the railroad corridor potentially eligible as an historic district.

Figure 3-35 | Richmond, Fredericksburg and Potomac Railroad (Richmond, Fredericksburg & Potomac Railroad Historical Society, Inc.)

5. Washington Marina Building
Location: 1300 Maine Avenue SW, Washington, DC
Designation: DOE

Completed in 1938, the Washington Marina Building was an element of a larger Works Progress Administration (WPA) project to improve the Washington Channel. The project was completed by the WPA and the U.S. Army Corps of Engineers. The building is significant for its association with the WPA and improvement of the District's waterfront.

Figure 3-36 | Washington Marina Building

6. L'Enfant Promenade
Location: Section Tenth Street SW between Independence Avenue and Banneker Park
Designation: DOE

The promenade, originally known as the Tenth Street Mall, was a key element of I.M Pei and Harry Weese's plan for Southwest Redevelopment Area. The promenade is significant for its association with the creation and implementation of the NCPC's *1950 Comprehensive Plan for the District of Columbia.*

Figure 3-37 | L'Enfant Promenade

7. Lady Bird Johnson Park
Location: In the George Washington Memorial Parkway along the Potomac River, directly across the river from West Potomac Park
Designation: DOE

The park is comprised of a man-made island, originally known as Columbia Island, that was constructed between 1915 and 1930. The park was constructed in connection with the Arlington Memorial Bridge's construction. In the 1960s and 1970s, the island was improved as part of the Johnson Administration's beautification program, and by a tree planting plan

Figure 3-38 | Lady Bird Johnson Park (Cultural Landscape Foundation)

designed by the landscape architect Edward Durrell Stone, Jr.

8. John F. Kennedy Center for the Performing Arts
Location: 2700 F Street NW, Washington, DC
Designation: DOE

The Modernist style building was designed by the American architect Edward Durrell Stone and was constructed between 1964 and 1971. The Kennedy Center has been determined historically significant as an important work by Stone, and as the only memorial to President Kennedy in the vicinity of Washington, DC.

Figure 3-39 | Kennedy Center (Wikimedia Commons)

9. Liberty Loan Federal Building
Location: 401 14th Street SW, Washington, DC
Designation: DOE

The building was originally constructed as one of many temporary office buildings to support wartime bureaucratic expansion and housed the Liberty Loans bond program during World War I. It is the only surviving "tempo" building. The building has housed several Treasury organizations and Federal agencies. Today, the building is used by the U.S. Department of the Treasury's Bureau of the Fiscal Service.[12] DCSHPO and the General Services Administration (GSA) consider the building eligible for NRHP listing and GSA is currently preparing a formal DOE.

Figure 3-40 | Liberty Loan Federal Building (Google Maps)

[12] "Liberty Loan Federal Building," GSA, accessed October 18, 2017, https://www.gsa.gov/real-estate/gsa-properties/visiting-public-buildings/liberty-loan-federal-building.

3.3. Properties at or Greater than Forty-Five Years of Age

The following properties were constructed prior to 1972. Preliminary determinations have been made regarding each property's potential eligibility for listing in the NRHP.

Table 3-3 | List of historic properties that have been determined eligible for listing in the NRHP by a Federal agency or recommended as eligible by a SHPO.

#	Name	Location	Date(s)	Preliminary Determination of Eligibility
1.	**425 12th Street SW**	425 12th Street SW, Washington, DC	1959	Likely not eligible.
2.	**Astral Building (North Building, L'Enfant Plaza)**	955 L'Enfant Plaza, SW Washington, DC	1968	Potentially eligible.
3.	**Comsat Building (South Building, L'Enfant Plaza)**	950 L'Enfant Plaza, SW Washington, DC	1965	Potentially eligible.
4.	**Loew's L'Enfant Plaza Hotel (East Building, L'Enfant Plaza)**	470-490 L'Enfant Plaza SW, Washington, DC	1971 to 1973	Potentially eligible.
5.	**USPS Building (West Building, L'Enfant Plaza)**	475 L'Enfant Plaza, SW Washington, DC	1969 to 1971	Potentially eligible.
6.	**398 Long Bridge Drive**	398 Long Bridge Drive, Arlington, VA	1957	Likely not eligible.

1. 425 12th Street, SW

Location: 425 12th Street SW, Washington, DC
Date of Construction: 1959

A one-story brick substation surrounded by a solid brick fence owned by PEPCO. Although the nondescript utilitarian building appears to maintain its integrity, based on cursory research it does not appear to meet the National Register criteria for evaluation. As such, the property is likely not eligible for listing in the NRHP.

Figure 3-41 | 425 12th Street, SW (Google Maps)

2. Astral Building (North Building, L'Enfant Plaza)
Location: 955 L'Enfant Plaza SW, Washington, DC
Date of Construction: 1968

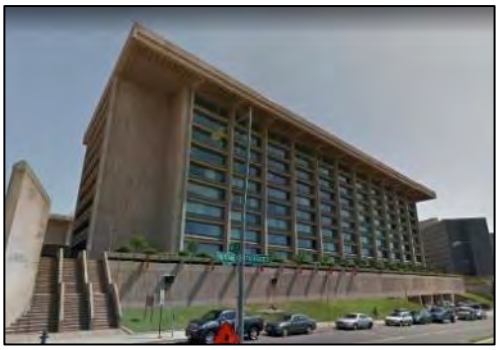
Designed by Araldo A. Cossutta, a partner with the architectural firm of I.M. Pei and Partners. Completed as part of Phase I of L'Enfant Plaza. The building is part of the larger L'Enfant Plaza complex, which includes the Comsat Building (South Building) (1965), Loew's L'Enfant Plaza Hotel (East Building) (1971 to 1973), USPS Building (West Building) (1969 to 1971) and the plaza.[13] L'Enfant Plaza was a major feature of the urban renewal of the southwest quadrant of Washington, DC, that took place during the mid-20th century, and is an interesting example of the Brutalist style in Washington, DC. The building appears to maintain sufficient integrity of location, design, setting, materials, workmanship, feeling and association to convey its significance. As such, the property is potentially eligible for listing in the NRHP.

Figure 3-42 | Astral Building (Google Maps)

3. Comsat Building (South Building, L'Enfant Plaza)
Location: 950 L'Enfant Plaza SW, Washington, DC
Date of Construction: 1965

Designed by Araldo A. Cossutta, a partner with the architectural firm of I.M. Pei and Partners. Completed as part of Phase I of L'Enfant Plaza. The building is part of the larger L'Enfant Plaza complex, which includes the Astral Building (North Building) (1968), Loew's L'Enfant Plaza Hotel (East Building) (1971 to 1973), USPS Building (West Building) (1969 to 1971) and the plaza.[14] L'Enfant Plaza was a major feature of the urban renewal of the southwest quadrant of Washington, DC, that took place during the mid-20th century, and is an interesting example of the Brutalist style in Washington, DC. The building appears to maintain sufficient integrity of location, design, setting, materials, workmanship, feeling and association to convey its significance. As such, the property is potentially eligible for listing in the NRHP.

Figure 3-43 | Comsat Building (Google Maps)



[13] Francesca Russello Ammon, *Historic American Buildings Survey, Southwest Washington Urban Renewal Area, HABS DC-856* (2004), 91.
[14] Francesca Russello Ammon, *Historic American Buildings Survey, Southwest Washington Urban Renewal Area, HABS DC-856* (2004), 91.

4. Loew's L'Enfant Plaza Hotel (East Building, L'Enfant Plaza)

Location: 470-490 L'Enfant Plaza SW, Washington, DC
Date of Construction: 1971 to 1973

Part of the second phase of the L'Enfant Plaza construction. Construction of the building began in fiscal year 1971 and was completed in 1973. The building was designed by Vlasimil Koubek, a local architect. The building is part of the larger L'Enfant Plaza complex, which includes the Astral Building (North Building) (1968), Comsat Building (South Building) (1965), USPS Building (West Building) (1969 to 1971) and the plaza.[15] L'Enfant Plaza was a major feature of the urban renewal of the southwest quadrant of Washington, DC, that took place during the mid-20th century, and is an interesting example of the Brutalist style in Washington, DC. The building appears to maintain sufficient integrity of location, design, setting, materials, workmanship, feeling and association to convey its significance. As such, the property is potentially eligible for listing in the NRHP.

Figure 3-44 | Loew's L'Enfant Plaza Hotel (Google Maps)

5. USPS Building (West Building, L'Enfant Plaza)

Location: 475 L'Enfant Plaza SW, Washington, DC
Date of Construction: 1969 to 1971

Part of the second phase of the L'Enfant Plaza construction, the building was separated from the plaza by the L'Enfant Promenade. Construction of the building began in 1969 and the building was completed in 1971. The building was purchased by the U.S. Postal service in 1972. The building was designed by Vlasimil Koubek, a local architect. The building is part of the larger L'Enfant Plaza complex, which includes the Astral Building (North Building) (1968), Comsat Building (South Building) (1965), Loew's L'Enfant Plaza Hotel (East Building) (1971 to 1973), and the plaza.[16] L'Enfant Plaza was a major feature of the urban renewal of the southwest quadrant of Washington, DC, that took place during the mid-20th

Figure 3-45 | USPS Building (Google Maps)

[15] Francesca Russello Ammon, *Historic American Buildings Survey, Southwest Washington Urban Renewal Area, HABS DC-856* (2004), 92.
[16] Francesca Russello Ammon, *Historic American Buildings Survey, Southwest Washington Urban Renewal Area, HABS DC-856* (2004), 92.

century, and is an interesting example of the Brutalist style in Washington, DC. The building appears to maintain sufficient integrity of location, design, setting, materials, workmanship, feeling and association to convey its significance. As such, the property is potentially eligible for listing in the NRHP.

6. 398 Long Bridge Drive
Location: 398 Long Bridge Drive, Arlington, VA
Date of Construction: 1957

A brick-clad commercial building. The building is composed of a two-story entrance block, and large, one-story warehouse space. The building's façade appears to have undergone several alterations, including changes to the fenestration, window replacement, main entrance alteration, and the addition of first floor awnings. The building appears to lack historic significance and integrity and is likely not eligible for listing in the NRHP.

Figure 3-46 | 398 Long Bridge Drive (Google Maps)

APPENDIX F: ACHP LETTER

Preserving America's Heritage

December 21, 2018

Ms. Amanda Murphy
Environmental Protection Specialist
Federal Railroad Administration
1200 New Jersey Avenue SE
Washington, DC 20590

Ref: *Proposed Long Bridge Project*
Arlington, Virginia and Washington, District of Columbia
ACHPConnect Log Number:13480

Dear Ms. Murphy:

The Advisory Council on Historic Preservation (ACHP) has received your notification and supporting documentation regarding the adverse effects of the referenced undertaking on a property or properties listed or eligible for listing in the National Register of Historic Places. Based upon the information provided, we have concluded that Appendix A, *Criteria for Council Involvement in Reviewing Individual Section 106 Cases*, of our regulations, "Protection of Historic Properties" (36 CFR Part 800), does not apply to this undertaking. Accordingly, we do not believe that our participation in the consultation to resolve adverse effects is needed. However, if we receive a request for participation from the State Historic Preservation Officer (SHPO), Tribal Historic Preservation Officer (THPO), affected Indian tribe, a consulting party, or other party, we may reconsider this decision. Additionally, should circumstances change, and it is determined that our participation is needed to conclude the consultation process, please notify us.

Pursuant to 36 CFR §800.6(b)(1)(iv), you will need to file the final Memorandum of Agreement (MOA), developed in consultation with the Virginia and Washington, DC State Historic Preservation Officer's (SHPO's), and any other consulting parties, and related documentation with the ACHP at the conclusion of the consultation process. The filing of the MOA, and supporting documentation with the ACHP is required in order to complete the requirements of Section 106 of the National Historic Preservation Act.

Thank you for providing us with the notification of adverse effect. If you have any questions or require further assistance, please contact Sarah Stokely at (202) 517-0224 or by email at sstokely@achp.gov.

Sincerely,

LaShavio Johnson

LaShavio Johnson
Historic Preservation Technician
Office of Federal Agency Programs

APPENDIX G: NATIVE AMERICAN TRIBE INITIATION LETTERS

U.S. Department
of Transportation

**Federal Railroad
Administration**

1200 New Jersey Avenue, SE
Washington, DC 20590

March 31, 2017

Dr. Wenonah G. Haire
Tribal Historic Preservation Officer
Catawba Indian Nation
1536 Tom Steven Road
Rock Hill, SC 29730

**Re: National Historic Preservation Act Section 106 Consulting Party Invitation
Long Bridge Project – Washington, DC and Arlington County, Virginia**

Dear Dr. Haire:

The Federal Railroad Administration (FRA) is the lead federal agency responsible for conducting consultation in accordance with Section 106 of the National Historic Preservation Act (NHPA) and its implementing regulations at 36 CFR § 800 (Section 106) for the Long Bridge Project (the Project). The Project consists of potential improvements to the Long Bridge and related railroad infrastructure between the District of Colombia and Arlington, Virginia. The purpose of this letter is to provide background information on the Project and invite your organization or agency participate in the Section 106 process as a consulting party.

Long Bridge Project Background

The existing Long Bridge was constructed in 1904, and is owned and maintained by CSX Transportation (CSXT). Currently, the two-track bridge serves CSXT freight trains, National Railroad Passenger Corporation (Amtrak) passenger rail, and Virginia Railway Express (VRE) commuter rail. Norfolk-Southern retains trackage rights to operate over the bridge but does not exercise them currently.

The purpose of the Project is to provide additional long-term rail capacity to improve the reliability of rail service through the Long Bridge corridor. Currently, there is insufficient capacity, resiliency, and redundancy to accommodate the projected demand in future rail services. The Project is needed to address these issues and to ensure the Long Bridge corridor continues to serve as a critical link connecting the local, regional, and national railroad network. Additional information is available on the Long Bridge Project website: www.longbridgeproject.com.

Long Bridge Project Section 106, EIS, and Consulting Party Role

FRA provided grant funding to the District Department of Transportation (DDOT) for preliminary engineering and environmental review for the Project. Currently, there is no funding for construction of the Project, but Section 106 consultation is being conducted because FRA may provide construction funding in the future.

The purpose of the Section 106 consultation process is to identify historic properties that could be affected by the proposed Project; assess adverse effects on those properties; and develop ways to resolve those effects through appropriate avoidance, minimization, and/or mitigation measures. By way of this letter, FRA is inviting your agency or organization to participate as a consulting party in the Section 106 process pursuant to 36 CFR § 800.3(f). If you would like more information regarding the role of a Section 106 consulting party, FRA encourages you to review the Advisory Council on Historic Preservation's *Citizen's Guide to Section 106 Review*: http://www.achp.gov/docs/CitizenGuide.pdf.

FRA is coordinating Section 106 consultation with the National Environmental Policy Act (NEPA) process. To comply with NEPA, FRA and DDOT are preparing an Environmental Impact Statement (EIS) to analyze potential impacts associated with the range of alternatives under consideration. FRA published a Notice of Intent (NOI) to prepare the EIS in the Federal Register on August 26, 2016. Following the NOI publication, a 45-day public scoping period commenced. In conjunction with the scoping period, FRA initiated the Section 106 process with the District of Columbia State Historic Preservation Officer (DC SHPO) and Virginia Department of Historic Resources (VDHR). Interagency and public scoping meetings were held on September 14, 2016.

Historic Properties

The Long Bridge is a contributing resource to the East and West Potomac Parks Historic District. FRA and DDOT conducted a preliminary identification of historic properties within or adjacent to the Long Bridge corridor, which extends approximately 3.2 miles from the VRE Crystal City Station in Arlington, VA to Control Point Virginia located near 3rd Street SW in Washington, DC. Please see the attachment to review the historic properties that have been identified to date.

Next Steps

FRA and DDOT invite you to attend the first Section 106 consulting parties meeting for the Long Bridge Project scheduled for **Tuesday, April 25, 2017 at the DDOT Office, 55 M Street, SE, Washington, DC or via teleconference from 1:00 – 3:00 PM EST** (conference line information will be provided in a separate communication). We would appreciate your participation in this meeting to provide feedback that will help guide the identification of historic properties.

If you wish to participate as a consulting party, please complete the attached form and return it to FRA by April 28, 2017. If you do not respond to this invitation, you may request consulting party status in the future; however, the Project will advance and you may not have an opportunity to comment on previous steps. If you are not the appropriate point of contact for your organization, please feel free to forward this communication.

FRA and DDOT appreciate your interest in the Long Bridge Project. If you have any questions about the Project or the Section 106 process, please contact Amanda Murphy, FRA Environmental Protection Specialist, at (202) 493-0624 or amanda.murphy2@dot.gov.

Sincerely,

Laura Shick
Federal Preservation Officer
Environmental & Corridor Planning Division
Office of Railroad Policy and Development

Attachments:
Consulting Party Invitation Response Form
Cultural Resources Preliminary Data Collection

cc: Amanda Murphy, FRA
Anna Chamberlain, DDOT
David Maloney, DC SHPO
Andrew Lewis, DC SHPO
Julie Langan, VDHR
Ethel Eaton, VDHR

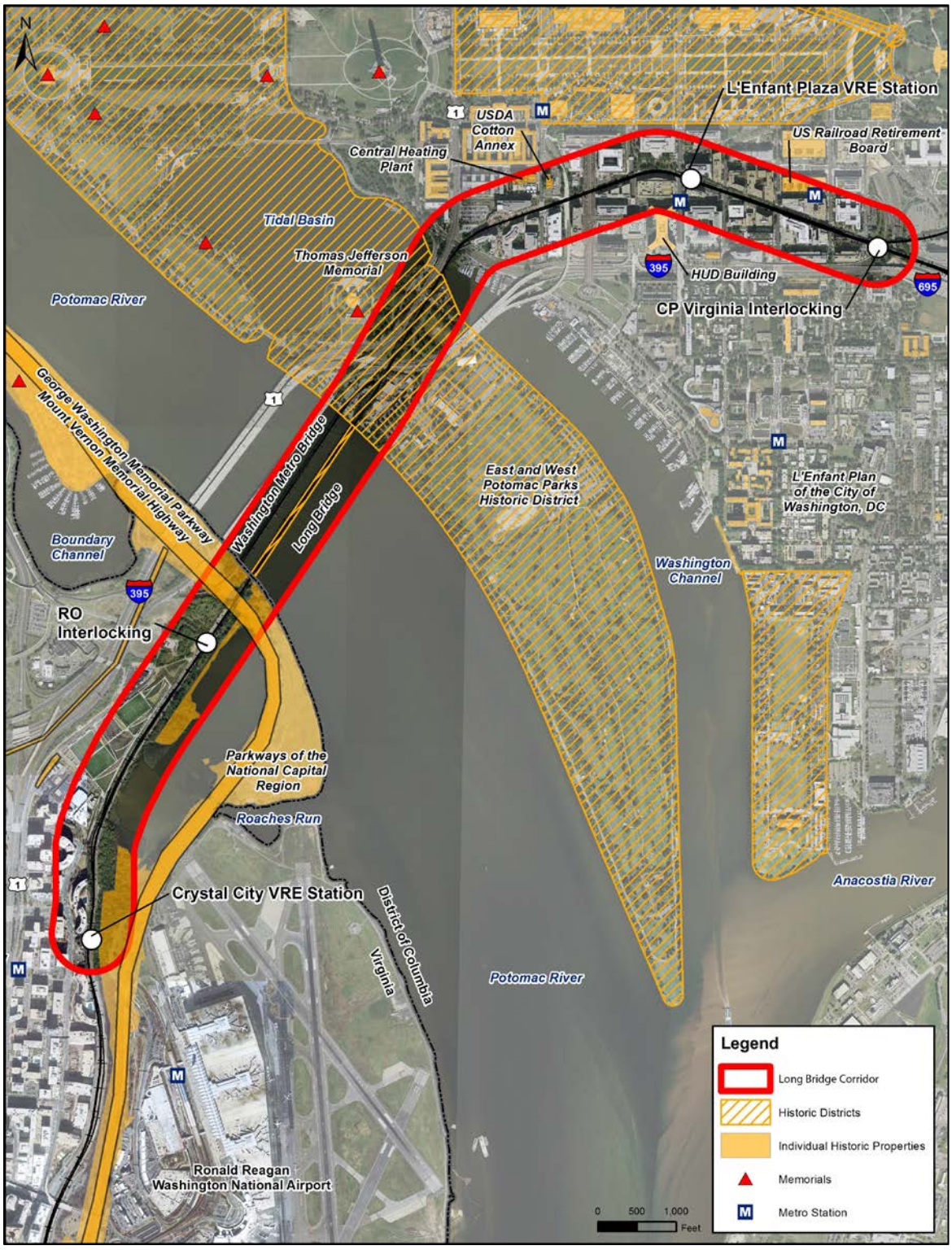
I would like to participate as a Section 106 consulting party for the Long Bridge Project:

Contact Name (Print)	Organization/Agency
Address	State Zip Code
Phone Number	Email Address
Signature	Date

Please return a response by **April 28, 2017** to:

Email: amanda.murphy2@dot.gov

| Preliminary Identification - Historic properties within and near the Long Bridge Corridor



LONG BRIDGE PROJECT
Connecting North and South Through our Nation's Capital

Preliminary Identification - Historic properties within and near the Long Bridge Corridor

Name	Owner	Location	Historic Significance	NRHP ID	State ID
Parkways of the National Capital Region	NPS	Washington Region Multi-Property Submission	Multi-property submission for scenic parkways of the Washington, DC region including George Washington Memorial Parkway and Mount Vernon Memorial Highway.	NRHP# 64500086	DHR# 029-5524
L'Enfant Plan of the City of Washington, DC	NPS-NCR	Washington Region Multi-Property Submission	Multi-property submission for the street grid, diagonal avenues, parks, vistas among monuments and sites over federal land within the L'Enfant Plan boundary, and the airspace above this matrix up to the legal height limit in the City	NRHP#97 000332	--
East and West Potomac Parks Historic District	NPS-NAMA	Washington, DC	Historic district comprising 730 acres of park land along the Potomac River. Standing memorials in the parks include the Lincoln and Jefferson Memorial. The Long Bridge (aka, the Potomac River Swing Bridge) was also identified as a contributing element to the historic district.	NRHP# 73000217	ID#D_028
Thomas Jefferson Memorial	NPS-NAMA	East Basin Drive SW, Washington, DC	National Memorial dedicated to Thomas Jefferson.	NRHP# 66000029	ID#L_0296
Central Heating Plant	GSA	325 13th Street SW, Washington, DC	A heating plant completed in 1936 to supply steam to Federal buildings. Designed under the guidance of the US Commission of Fine Arts.	NRHP# 07000637	ID#L_0289 /L_0704
USDA[1] Cotton Annex	GSA	300 12th Street SW, Washington, DC	The Bureau of Agricultural Economics (BAE) Building, now known as the Cotton Annex, was built in 1936–1937 for the US Department of Agriculture (USDA) under the auspices of Supervising Architect of the Treasury Louis A. Simon (1933–1939).	NRHP# 15000683	ID#L_1458
HUD Building (Robert C. Weaver Federal Building)	HUD	451 7th Street, SW, Washington, DC	Completed in 1968 by the architect Marcel Breuer. The modernist design and execution of the HUD building exemplifies the primary tenets of the "Guiding Principles for Federal Architecture" as set forth by President John F. Kennedy's administration in 1962.	NRHP# 08000824	ID#L_0703
US Railroad Retirement Board (Mary Switzer Building)	GSA	330 C Street SW, Washington, DC	Built during the Federal office construction program of the 1920s and 1930s for the Railroad Retirement Board (established 1934), and associated with the establishment of a nationwide pension program; illustrates sustained implementation of the McMillan Plan.	NRHP# 07000638	ID#L_0706
George Washington Memorial Parkway	NPS-GWMP[1]	Arlington County (extends beyond Study Area to City of Alexandria and Fairfax County)	38.3-mile scenic parkway commemorating the birth of George Washington.	NRHP# 95000605	DHR# 029-0218; 029-5524; DHR# 029-0228
Mount Vernon Memorial Highway	NPS-GWMP	Arlington County (extends beyond Study Area to City of Alexandria and Fairfax County)	Original 15.2-mile segment of the scenic parkway commemorating the birth of George Washington.	NRHP# 81000079	DHR# 029-0218; 029-5524

U.S. Department
of Transportation

**Federal Railroad
Administration**

1200 New Jersey Avenue, SE
Washington, DC 20590

March 31, 2017

Mr. Brice Obermeyer
Director, Delaware Tribe Historic Preservation Office
Delaware Tribe of Indians
1200 Commercial Street
Roosevelt Hall, Room 212
Emporia, KS 66801

**Re: National Historic Preservation Act Section 106 Consulting Party Invitation
Long Bridge Project – Washington, DC and Arlington County, Virginia**

Dear Mr. Obermeyer:

The Federal Railroad Administration (FRA) is the lead federal agency responsible for conducting consultation in accordance with Section 106 of the National Historic Preservation Act (NHPA) and its implementing regulations at 36 CFR § 800 (Section 106) for the Long Bridge Project (the Project). The Project consists of potential improvements to the Long Bridge and related railroad infrastructure between the District of Colombia and Arlington, Virginia. The purpose of this letter is to provide background information on the Project and invite your organization or agency participate in the Section 106 process as a consulting party.

Long Bridge Project Background

The existing Long Bridge was constructed in 1904, and is owned and maintained by CSX Transportation (CSXT). Currently, the two-track bridge serves CSXT freight trains, National Railroad Passenger Corporation (Amtrak) passenger rail, and Virginia Railway Express (VRE) commuter rail. Norfolk-Southern retains trackage rights to operate over the bridge but does not exercise them currently.

The purpose of the Project is to provide additional long-term rail capacity to improve the reliability of rail service through the Long Bridge corridor. Currently, there is insufficient capacity, resiliency, and redundancy to accommodate the projected demand in future rail services. The Project is needed to address these issues and to ensure the Long Bridge corridor continues to serve as a critical link connecting the local, regional, and national railroad network. Additional information is available on the Long Bridge Project website: www.longbridgeproject.com.

Long Bridge Project Section 106, EIS, and Consulting Party Role

FRA provided grant funding to the District Department of Transportation (DDOT) for preliminary engineering and environmental review for the Project. Currently, there is no funding for construction of the Project, but Section 106 consultation is being conducted because FRA may provide construction funding in the future.

The purpose of the Section 106 consultation process is to identify historic properties that could be affected by the proposed Project; assess adverse effects on those properties; and develop ways to resolve those effects through appropriate avoidance, minimization, and/or mitigation measures. By way of this letter, FRA is inviting your agency or organization to participate as a consulting party in the Section 106 process pursuant to 36 CFR § 800.3(f). If you would like more information regarding the role of a Section 106 consulting party, FRA encourages you to review the Advisory Council on Historic Preservation's *Citizen's Guide to Section 106 Review*: http://www.achp.gov/docs/CitizenGuide.pdf.

FRA is coordinating Section 106 consultation with the National Environmental Policy Act (NEPA) process. To comply with NEPA, FRA and DDOT are preparing an Environmental Impact Statement (EIS) to analyze potential impacts associated with the range of alternatives under consideration. FRA published a Notice of Intent (NOI) to prepare the EIS in the Federal Register on August 26, 2016. Following the NOI publication, a 45-day public scoping period commenced. In conjunction with the scoping period, FRA initiated the Section 106 process with the District of Columbia State Historic Preservation Officer (DC SHPO) and Virginia Department of Historic Resources (VDHR). Interagency and public scoping meetings were held on September 14, 2016.

Historic Properties

The Long Bridge is a contributing resource to the East and West Potomac Parks Historic District. FRA and DDOT conducted a preliminary identification of historic properties within or adjacent to the Long Bridge corridor, which extends approximately 3.2 miles from the VRE Crystal City Station in Arlington, VA to Control Point Virginia located near 3rd Street SW in Washington, DC. Please see the attachment to review the historic properties that have been identified to date.

Next Steps

FRA and DDOT invite you to attend the first Section 106 consulting parties meeting for the Long Bridge Project scheduled for **Tuesday, April 25, 2017 at the DDOT Office, 55 M Street, SE, Washington, DC or via teleconference from 1:00 – 3:00 PM EST** (conference line information will be provided in a separate communication). We would appreciate your participation in this meeting to provide feedback that will help guide the identification of historic properties.

If you wish to participate as a consulting party, please complete the attached form and return it to FRA by April 28, 2017. If you do not respond to this invitation, you may request consulting party status in the future; however, the Project will advance and you may not have an opportunity to comment on previous steps. If you are not the appropriate point of contact for your organization, please feel free to forward this communication.

FRA and DDOT appreciate your interest in the Long Bridge Project. If you have any questions about the Project or the Section 106 process, please contact Amanda Murphy, FRA Environmental Protection Specialist, at (202) 493-0624 or amanda.murphy2@dot.gov.

Sincerely,

Laura Shick
Federal Preservation Officer
Environmental & Corridor Planning Division
Office of Railroad Policy and Development

Attachments:
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Cultural Resources Preliminary Data Collection

cc: Amanda Murphy, FRA
Anna Chamberlain, DDOT
David Maloney, DC SHPO
Andrew Lewis, DC SHPO
Julie Langan, VDHR
Ethel Eaton, VDHR

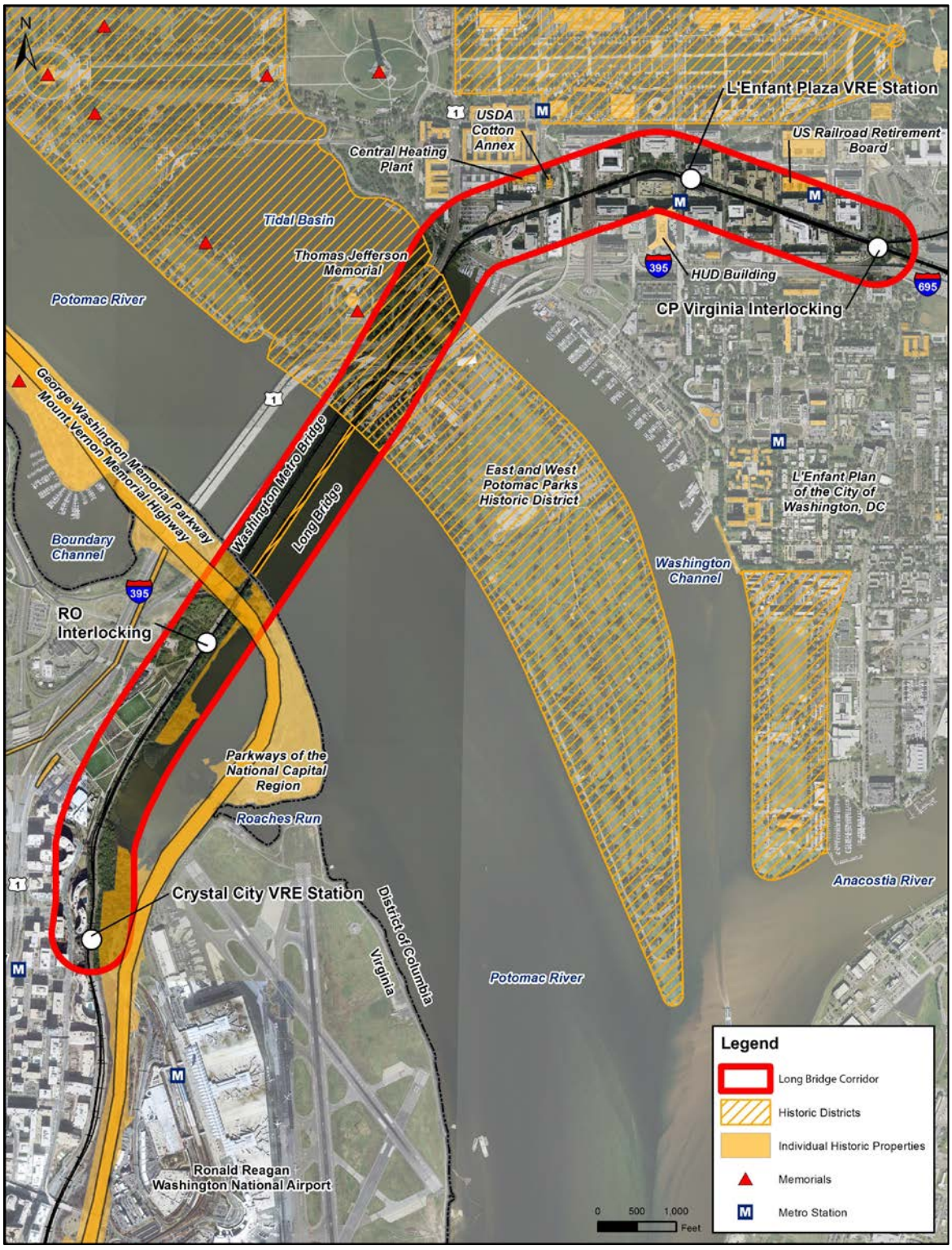
I would like to participate as a Section 106 consulting party for the Long Bridge Project:

Contact Name (Print)	Organization/Agency
Address	State Zip Code
Phone Number	Email Address
Signature	Date

Please return a response by **April 28, 2017** to:

Email: amanda.murphy2@dot.gov

| Preliminary Identification - Historic properties within and near the Long Bridge Corridor



LONG BRIDGE PROJECT
Connecting North and South Through our Nation's Capital

Preliminary Identification - Historic properties within and near the Long Bridge Corridor

Name	Owner	Location	Historic Significance	NRHP ID	State ID
Parkways of the National Capital Region	NPS	Washington Region Multi-Property Submission	Multi-property submission for scenic parkways of the Washington, DC region including George Washington Memorial Parkway and Mount Vernon Memorial Highway.	NRHP# 64500086	DHR# 029-5524
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Thomas Jefferson Memorial	NPS-NAMA	East Basin Drive SW, Washington, DC	National Memorial dedicated to Thomas Jefferson.	NRHP# 66000029	ID#L_0296
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George Washington Memorial Parkway	NPS-GWMP[1]	Arlington County (extends beyond Study Area to City of Alexandria and Fairfax County)	38.3-mile scenic parkway commemorating the birth of George Washington.	NRHP# 95000605	DHR# 029-0218; 029-5524; DHR# 029-0228
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U.S. Department
of Transportation

**Federal Railroad
Administration**

1200 New Jersey Avenue, SE
Washington, DC 20590

March 31, 2017

Mr. Jason Ross
Section 106 Manager
Delaware Nation
P.O. Box 825
Anadarko, OH 73005

**Re: National Historic Preservation Act Section 106 Consulting Party Invitation
Long Bridge Project – Washington, DC and Arlington County, Virginia**

Dear Mr. Ross:

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FRA and DDOT appreciate your interest in the Long Bridge Project. If you have any questions about the Project or the Section 106 process, please contact Amanda Murphy, FRA Environmental Protection Specialist, at (202) 493-0624 or amanda.murphy2@dot.gov.

Sincerely,

Laura Shick
Federal Preservation Officer
Environmental & Corridor Planning Division
Office of Railroad Policy and Development

Attachments:
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Cultural Resources Preliminary Data Collection

cc: Amanda Murphy, FRA
Anna Chamberlain, DDOT
David Maloney, DC SHPO
Andrew Lewis, DC SHPO
Julie Langan, VDHR
Ethel Eaton, VDHR

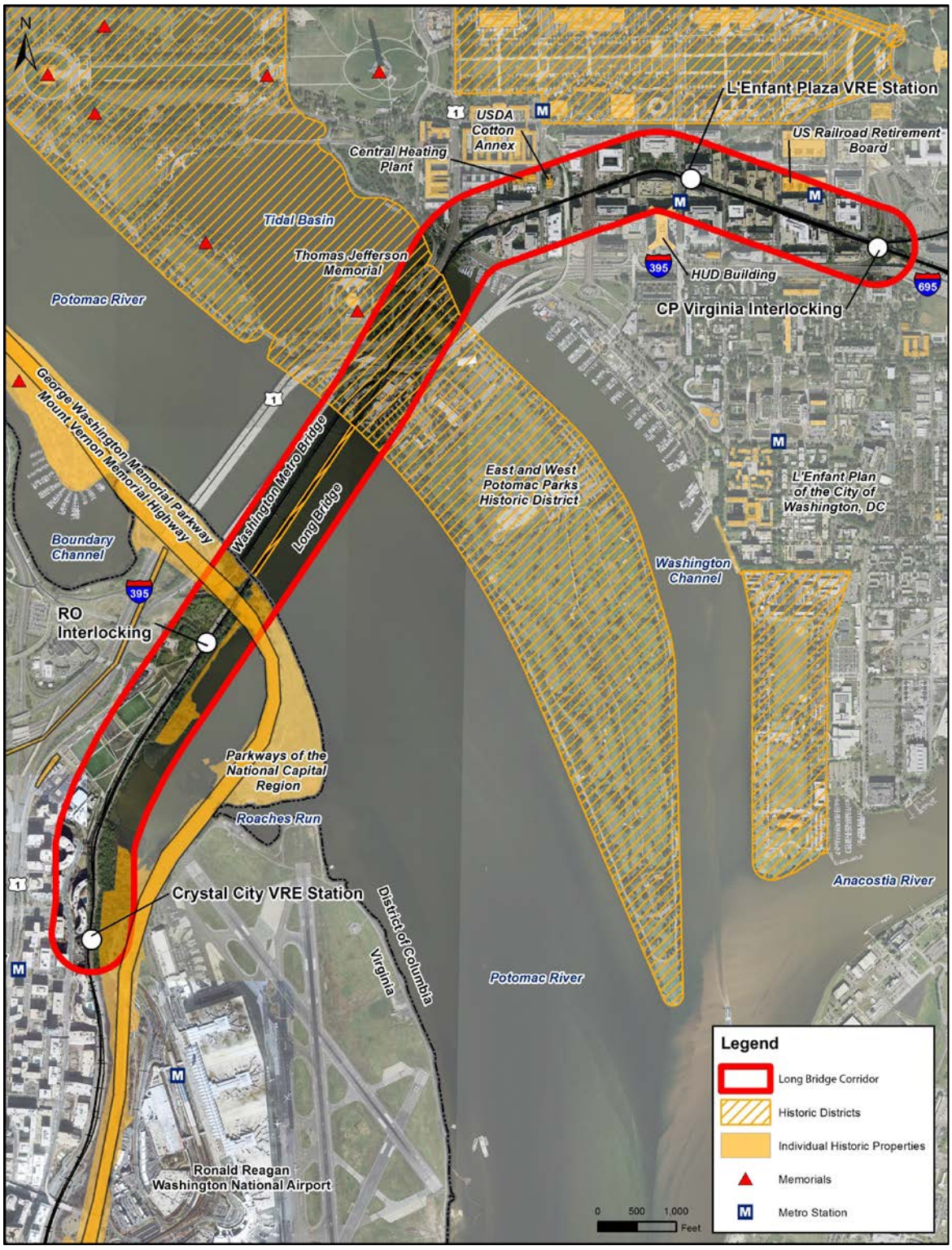
I would like to participate as a Section 106 consulting party for the Long Bridge Project:

Contact Name (Print)	Organization/Agency
Address	State Zip Code
Phone Number	Email Address
Signature	Date

Please return a response by **April 28, 2017** to:

Email: amanda.murphy2@dot.gov

| Preliminary Identification - Historic properties within and near the Long Bridge Corridor



LONG BRIDGE PROJECT
Connecting North and South Through our Nation's Capital

Preliminary Identification - Historic properties within and near the Long Bridge Corridor

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HUD Building (Robert C. Weaver Federal Building)	HUD	451 7th Street, SW, Washington, DC	Completed in 1968 by the architect Marcel Breuer. The modernist design and execution of the HUD building exemplifies the primary tenets of the "Guiding Principles for Federal Architecture" as set forth by President John F. Kennedy's administration in 1962.	NRHP# 08000824	ID#L_0703
US Railroad Retirement Board (Mary Switzer Building)	GSA	330 C Street SW, Washington, DC	Built during the Federal office construction program of the 1920s and 1930s for the Railroad Retirement Board (established 1934), and associated with the establishment of a nationwide pension program; illustrates sustained implementation of the McMillan Plan.	NRHP# 07000638	ID#L_0706
George Washington Memorial Parkway	NPS-GWMP[1]	Arlington County (extends beyond Study Area to City of Alexandria and Fairfax County)	38.3-mile scenic parkway commemorating the birth of George Washington.	NRHP# 95000605	DHR# 029-0218; 029-5524; DHR# 029-0228
Mount Vernon Memorial Highway	NPS-GWMP	Arlington County (extends beyond Study Area to City of Alexandria and Fairfax County)	Original 15.2-mile segment of the scenic parkway commemorating the birth of George Washington.	NRHP# 81000079	DHR# 029-0218; 029-5524

APPENDIX H: SUMMARIES OF CONSULTING PARTY MEETINGS

SECTION 106 CONSULTING PARTY MEETING #1

Date: Tuesday, April 25, 2017
Time: 1:00 PM to 3:00 PM
Place: DDOT HQ - 55 M St SE, Washington, DC and via teleconference

FINAL 5/15/2017

Attendance:

NAME	ORGANIZATION	PHONE	EMAIL
Anna Chamberlin	DDOT	202.671.2218	anna.chamberlin@dc.gov
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- Anna Chamberlain (DDOT) opened meeting and invited attendees, including those calling in remotely, to introduce themselves.
- DDOT reviewed the meeting agenda; provided an overview of the Long Bridge existing conditions and capacity; the Long Bridge Project scope; the phased approach to alternatives development and environmental documentation; the extent of the Long Bridge Corridor; the Purpose and Need Statement; and Preliminary Concepts.
    - Various attendees asked for additional information/clarification regarding the number of bridges and other contributing structures along the Long Bridge corridors (in addition to the Long Bridge itself), and if any had been determined as historic.
        - RESPONSE: In addition to the Long Bridge itself, there are 6 component bridges (including the Long Bridge) within the Long Bridge Corridor. The Long Bridge is a contributing resource to the East and West Potomac Parks Historic District. Otherwise, none of the component bridges are listed in the NRHP.
    - DCSHPO asked if these would include the bridges and overpasses that follow the Virginia Avenue corridor.
        - RESPONSE: As a component of this phase of the project, infrastructure will be studied in greater detail.
    - Amtrak noted that it would be helpful to illustrate other ongoing studies in the vicinity of the corridor, such as the Crystal City VRE station and L'Enfant Plaza.
        - RESPONSE: An illustration of these studies will be provided to Consulting Parties.
    - DC SHPO asked if the Amtrak bridge over South Capitol Street would be affected.
        - RESPONSE: It is unlikely that the bridge over South Capitol Street would be affected.
    - FTA asked for additional information regarding the development of the Study Area.
        - RESPONSE: DDOT confirmed that the study area has not changed since NEPA was initiated. In Phase I, the study area reached Alexandria, but was adjusted to avoid overlapping with DC2RVA Project.
- DDOT presented the Preliminary Concepts. They noted that they were not associated with infrastructure at this point. Concepts 9 and 10—which consider a new corridor location—were added in response to fall 2016 scoping comments.
    - DCSHPO asked if a geographic area was defined for a potential new corridor.
        - RESPONSE: It has not.
- Amanda Murphy (FRA) presented an overview of the Section 106 consultation process, including the preliminary identification of historic properties, historic photographs of the Long Bridge, an outline of future efforts to continue the identification of historic properties, the roles of the consulting parties; and coordination of Section 106 and NEPA efforts; information on upcoming NEPA Interagency and public meetings on May 16, 2017.
    - Some attendees noted that not all historic properties had been identified
        - RESPONSE: The identification of historic properties would continue throughout the Section 106 process, and FRA welcomes additional comments. Please provide any information you have regarding additional designated or potential historic properties.

- FRA provided information for the upcoming Interagency and Section 106/NEPA Public Meetings.
  - FRA provided information for consulting parties to submit comments, requested by May 9, 2017.
  - FRA noted that the address listed could be used for formal correspondence, but preferred letters be sent by email.
- DCSHPO noted that, per the Section 106 implementing regulations, the Area of Potential Effects (APE) should be delineated before historic properties are identified.
- DCSHPO also stated that as the Long Bridge is highly visible, FRA should draft the APE to be as large as possible to consider views.
- DCSHPO asked if FRA has specific guidelines for the identification of historic properties in the APE.
  - RESPONSE: There is no FRA guidance; however, they intend to create both a direct and indirect APE.
  - DCSHPO stated that, although no engineering was associated with the alternatives at this point, APE development should assume a worst-case scenario (i.e., a taller replacement bridge structure)
  - Attendees encouraged FRA to develop one APE that addresses all alternatives, to expedite the review process
- CFA encouraged FRA to add the FAA, MWAA, and Pentagon (DOD) to the consulting parties list.
  - RESPONSE: FAA and MWAA are participating agencies for the EIS. FRA will invite DOD to be a participating agency. FRA has determined that these agencies' potential concerns/issues are more suited to be addressed during the NEPA process, rather than as a consulting party under Section 106.
- NPS NAMA asked which Tribal Historic Preservation Offices were consulted thus far.
  - RESPONSE: The Pamunkey Tribe declined to participate in consultation unless an inadvertent archaeological discovery was made. FRA added that other Tribes, identified by VDHR, were invited to participate as consulting parties.
- The Crystal City Civic Association queried if FRA and DDOT consulted with the State of Maryland to consider the ongoing project to replace the US-301 bridge and how that project may offer an alternative corridor.
  - RESPONSE: We have not.
  - CFA added that it might be a desirable to avoid hazardous materials entering the District.
- FTA questioned the project's potential to create an adverse effect.
  - RESPONSE: One potential adverse effect could be due to the potential replacement of the Long Bridge itself, which is a contributing element to the East and West Potomac Parks Historic District.
- NPS NAMA encouraged the consideration of potential indirect adverse effects to the National Mall and Plan of the City of Washington historic districts.
  - RESPONSE: Comment noted; this will be considered.

CONSULTING PARTIES MEETING #2
MEETING NOTES

Date: Wednesday, November 15, 2017
Time: 12:30 PM to 2:00 PM
Place: Phone call and in-person (DCOP Office)

FINAL 01/08/2018

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A. Purpose and Need

- Anna Chamberlin (DDOT) reviewed the Purpose and Need for the project, which is to provide additional capacity, network connectivity, and resiliency and redundancy within the Long Bridge Corridor.

B. Project Overview and Schedule

- DDOT provided an overview of the Long Bridge. The bridge is a two-track steel truss railroad bridge constructed in 1904. It is a contributing element to the East and West Potomac Parks Historic District. It is currently owned by CSXT and on average services 76 freight, intercity passenger, and commuter rail trains per day.
- DDOT described the updated Project Area Limits to the Consulting Parties.

- Concept refinement to date has established that any physical changes to existing infrastructure would not extend beyond the RO and LE interlockings.
- The official northern terminus of the DC to Richmond Southeast High-Speed Rail (DC2RVA) project as stated in the Tier II Draft EIS is Control Point Rosslyn (RO) at milepost CFP 110 in Arlington, Virginia. The RO Interlocking provides a transition point between these separate and independent projects and is therefore the appropriate place to set the limits of the Long Bridge Project.
- The planned Virginia Railway Express (VRE) L'Enfant Station and storage track project includes the eventual conversion of the existing storage tracks into a full fourth track between LE and Virginia Interlockings. The LE Interlocking provides a transition point between the separate and independent Long Bridge and VRE projects and is therefore the appropriate place to set the limits of the Long Bridge Project.
- All the projects discussed have independent utility.
- These other projects, DC2RVA and VRE projects, will be included in the Long Bridge EIS in the No Action and Cumulative Effects Chapters. All the projects will be subject to Section 106 and therefore the entire corridor will still be examined.
- DC SHPO asked whether all projects in the corridor have an FRA action. Amanda Murphy (FRA) responded that the VRE L'Enfant Station project would likely be led by FTA once it is federally assisted or funded. FRA is the lead on the DC2RVA project, and has been coordinating with VDHR. DC SHPO has not been involved with DC2RVA because the project is located entirely in Virginia.
- The Crystal City Civic Association later asked if those separate undertakings removed from the Long Bridge Project area would be addressed in a separate Section 106 consultation process. FRA confirmed that it would, but by different federal agencies in accordance with Section 106 regulations.

- DDOT reviewed the Section 106 and NEPA schedules
  - Methodology report has been sent out to the Cooperating and Participating Agencies; comments are due December 4, 2017.

C. Level 1 Concept Screening Results

- Amanda Murphy (FRA) reviewed the Level 1 Concept Screening process and results that were presented to the public and agencies in May 2017. The Level 1 Concepts were screened against the Purpose and Need.
  - DC SHPO asked why the new corridor concept was eliminated. FRA responded that the concept did not meet the project need for connectivity.
  - DC SHPO asked whether specific new corridors were considered as a part of the new corridor concept. FRA responded that while the project team is aware of the previous work related to alternate railroad corridors, the concepts reviewed as part of the Level 1 Screening did not include specific alignments.
- FRA informed participants that the Level 2 Screening process is currently underway. This process will identify alternatives to be considered in the DEIS. Once the screening is finalized, the alternatives will be presented at the next public meeting planned for December or January.
- Additional clarification was requested regarding the bike and pedestrian bridge alternatives. FRA clarified that this structure could be implemented independently of the rail bridge.

D. Draft Area of Potential Effect (APE)

- FRA described the Draft APE and the process used to develop the boundary of the APE.
  - APE boundary (delineated as a red dotted line on the map) is generous and takes into consideration seasonal tree coverage and long-distance views from high points.
  - APE considers both direct and indirect impacts.
  - Visibility of the Long Bridge determined the formation of the outer boundary of the APE.
- The APE was developed based on the concepts retained after the Level 1 Concept Screening. The Limits of Disturbance (shaded gray on the map) encompass the largest predicted limit of disturbance based on a 5-track bridge including a pedestrian and bike bridge (including the associated approach ramps) and track work that would occur in the corridor.
- Bill Marzella (Traceries) presented the field survey photographs and findings for sample areas throughout the APE. Traceries noted the following:
  - The presentation is not inclusive of all survey work completed.
  - Field survey was conducted from publicly accessible areas.
  - Viewsheds were based on the assumption that a new bridge would be equally or less visible than current Long Bridge structure.
- Traceries noted that there are several overlapping Historic Districts within the APE. This includes: portions of the National Mall, Washington Monument Grounds, and East and West Potomac Parks; and Arlington House and Arlington National Cemetery.

Questions and Discussion

- Participant asked if the APE boundaries were changed for the various concepts. FRA responded that the APE boundaries are broad in order to encompass all concepts, and the footprints of the various bridge concepts are not widely varied as they all must connect to the railroad tracks on either side of the Long Bridge.
- VDHR expressed concern that the draft APE does not include Arlington House, while the Long Bridge can be viewed from there. FRA responded that areas within the primary Draft APE (indicated with a red, dashed line) are the areas from which the Long Bridge Corridor is most visible; however, the APE is discontinuous to include several locations from which the project area is visible at a specific point but not from the surroundings.
  - DC SHPO noted that they agree with this approach.
  - **ACTION:** FRA to invite Arlington Cemetery to be a consulting party to the Project.
- DC SHPO stated the Parties will need general massing and dimensions of the design concepts to assess effects.
- One unidentified attendee asked whether effects will be assessed on several alternatives. FRA responded that yes, effects will be assessed on all alternatives. The assessment of effects will factor into the preferred alternative selection.
- VDHR asked whether the project team intends to assess archaeological sites and when that work will be conducted. FRA responded that yes, it will be conducted.
  - **ACTION:** FRA to follow up with the Parties on schedule and approach of archaeological assessment.
- DC SHPO asked what informed the canted shape of the Limits of Disturbance. Traceries replied that it reflected potential Long Bridge realignments in addition to a potential, separate bike and pedestrian bridge structure and approach ramps.
- DC SHPO asked about the scope of construction within the Long Bridge corridor aside from the Long Bridge. Would other bridges in the District be affected, including the pedestrian

bridge over Maine Avenue? DDOT responded that limits of disturbance will generally be within the existing right-of-way, noting that historically there was an additional track that has since been removed. There is the potential for impact to bridges within the corridor, including the pedestrian bridge over Maine Avenue. Because the project limits end at LE Interlocking, there would be no impacts to bridges past 10 Street SW.

- NPS will follow up with official correspondence, but mentioned additional areas to survey (see below). NPS asked if consultation with tribes is underway. FRA responded that VDHR provided a list of tribes to consult (Delaware Nation, Delaware Tribe of Indians, Catawba Indian Nation, and Pamunkey Tribe). The Delaware Nation agreed to participate as a consulting party and the Delaware Tribe of Indians declined to participate. The Catawba Indian Nation and the Pamunkey Tribe were invited to participate but did not respond.
- VDHR noted that Arlington House is located within Arlington National Cemetery, but that it is a separate property and is administered by the George Washington Memorial Parkway.
  - **ACTION:** On subsequent, revised APE maps, an asterisk will indicate the separate ownership of Arlington Cemetery and Arlington House.
- VDHR stated that Arlington National Cemetery should be invited to act as a consulting party.
- Additional suggested areas to survey include:
  - Air Force Memorial
  - East Plaza and high points at the Pentagon, including transit center
  - Inside the historic section of Ronald Reagan Washington National Airport
  - Old Post Office Tower
  - Arlington Ridge Park
  - Netherlands Carillon (NPS to coordinate access)

E. Identification of Historic Properties

1. Presentation

- Traceries described the historic properties identified within the draft APE including:
  - Properties and districts listed in the National Register of Historic Places;
  - Properties determined eligible;
  - National Historic Landmarks (NHL);
  - Properties in the DC Inventory of Historic Sites and the Virginia Landmarks Register;
  - Arlington County Local Historic Sites; and
  - Properties greater than 45 years of age that were not previously identified that may be eligible in the future.

2. Questions and Discussion

- VDHR stated Arlington House is a NHL
  - **ACTION:** Traceries to confirm NHL status of Arlington House with VDHR.
- It was asked whether the Pentagon is a Consulting Party. The Pentagon should be marked as a landmark if it is included in the APE. FRA responded that the Pentagon was invited to be a Consulting Party.
- DC SHPO requested that DDOT and FRA coordinate with DC SHPO on identification of buildings that are over 45 years old as DC SHPO is aware of buildings that fall into that category but have been deemed ineligible. DC SHPO noted that they did not consider the Roosevelt Bridge to be eligible.

- GSA stated that a determination of eligibility (DOE) on the Liberty Loan Federal Building is currently being finalized.
  - **ACTION:** GSA to provide additional information on Liberty Loan Federal Building DOE.
- Representatives from the Crystal City Civic Association asked about buildings 35 and 36 on the map, marked as structures over 45 years old. Traceries and FRA noted that these buildings have been extensively modified and are likely not eligible. General discussion followed regarding these buildings, noting that many of the buildings in this area do exceed fifty years of age, but have been retrofitted and no longer retain their original appearances.
- VDHR stated the Virginia properties over 45 years old but not previously identified should be surveyed and documented in the V-CRIS system to VDHR standards.
- DC SHPO asked if any properties within the Draft APE had been designated as NHLs. Traceries responded that only St. Elizabeths Hospital Historic District had been identified (in addition to possibly Arlington House, per discussion above). DC SHPO noted that FRA must meet the Section 106 regulations as they apply to NHLs.
- Bradley Krueger (NPS GWMP) provided several comments on the identification of historic properties, including: the Arlington Memorial Bridge and approaches have a separate historic designation from Arlington Cemetery; Mount Vernon Highway and Arlington Cemetery do not overlap; and several documented cultural landscapes in the APE, including Gravelly Point, Roaches Run, the Memorial Avenue Corridor, and Lady Bird Johnson Park.
  - Traceries responded that National Register, NPS, and V-CRIS often provide conflicting documentation on the designation and extent of historic properties. Traceries also noted that cultural landscape documentation would be critical in assessing effects.
  - FRA requested that NPS provide any documentation they may have on their historic properties, including GIS layers of boundaries, if available.
  - **ACTION:** NPS GWMP to provide documentation on historic properties and cultural landscapes in the APE.

F. **Next Steps**

- FRA and DDOT request comments on the Draft APE and identification of historic properties by December 6, 2017.
- FRA projected the following dates and topics for the next Consulting Parties meetings:
  - Spring 2018: Assess Adverse Effects
  - Summer 2018: Resolve Adverse Effects (if necessary)
- FRA/DDOT noted that the alternatives will likely be presented within a month or two, which will allow for the Assessment of Effects analysis to commence.

LONG BRIDGE PROJECT
Connecting North and South Through our Nation's Capital

CONSULTING PARTIES MEETING #3

Date: Wednesday, May 30, 2018
Time: 1:00 PM to 2:30 PM
Place: 55 M St SE (DDOT Conference Room 531)

FINAL 06/19/18

Attendance:

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A. Introduction and Overview

- Kate Youngbluth (DDOT) opened the meeting and performed introductions.

- Amanda Murphy (FRA) provided an overview of the project.
  - The Long Bridge is a two-track steel truss railroad bridge constructed in 1904. It is a contributing element to the East and West Potomac Parks Historic District. It is currently owned by CSXT. CSXT, VRE and Amtrak currently operate on the bridge. Norfolk Southern has trackage rights.
  - On average 76 freight, intercity passenger, and commuter rail trains use the bridge per day.
  - Amanda noted that the bridge is the only railroad connection between Virginia and the District, with the next closest crossing in Harpers Ferry, WV.
  - The purpose of the Project is to provide additional capacity, network connectivity, and resiliency and redundancy within the Long Bridge Corridor.

B. Section 106 Process

- Amanda provided an overview of the Section 106 process, how it relates to the National Environmental Policy Act (NEPA) process, and consultation to date.
  - This meeting is the third Section 106 Consulting Parties meeting. DDOT and FRA have also held three public meetings to date that have served as Section 106 meetings.
  - At the previous Section 106 Consulting Parties meeting in November 2017, DDOT and FRA presented the Level 1 Concept Screening results, the Draft Area of Potential Effect (APE), and preliminary identification of historic properties.
  - DC SHPO and VDHR provided concurrence on the APE in March 2018.
  - Based on VDHR's suggestion at the last meeting, FRA reached out to Arlington National Cemetery and invited them to be a Consulting Party, but they declined.

- Bill Marzella (Traceries) described the APE and identification of historic properties.
  - Bill noted that comments received from the Consulting Parties at the last meeting informed the final APE and list of historic properties.
  - DDOT and FRA conducted additional field survey in response to comments.
  - The field survey did not result in revisions to the APE, but DDOT and FRA did add several properties (viewsheds) outside the contiguous border:
    - Netherlands Carillon
    - Old Post Office Tower
    - Pentagon
  - Bill noted the limits of disturbance (LOD) within the APE and explained that this is there area within which DDOT and FRA would expect most of the direct effects to occur.
  - Lee Webb (NCPC) asked if there were any additional viewsheds had been added since the November meeting.

- Bill responded that DDOT and FRA surveyed five properties based on comments received from the Consulting Parties, but only the three mentioned above were added (Air Force Memorial and Ronald Reagan Washington National Airport were not added due to field survey results.)

- Phase 1A Archaeological Assessment
  - Bill noted that DDOT and FRA have initiated the Phase 1A Archaeological Assessment (Phase 1A) as suggested in November.
    - DDOT and FRA will present the initial findings to the Consulting Parties in Fall 2018 and will integrate the results into the Assessment of Effects Report and the cultural resources analysis in the Draft Environmental Impact Statement (DEIS).
    - Bill explained that the Phase 1A is a four-step process including:
      1. Archeological and historical background research
      2. Analysis of elevation change over time
      3. A site visit to field-verify the desktop assessment
      4. Preparation of the Phase 1A documentation, including a Management Summary and technical report.
    - Bill noted that DC SHPO and VDHR provided concurrence on the Phase 1A Work Plan in May 2018.
  - Elevation Change Analysis
    - Bill provided an overview of the elevation change (cut and fill) analysis, that tracks historic elevations against current topography. The analysis also includes bathymetric (underwater) elevations.
    - Bill showed an example heat map documenting areas of fill (red) vs. cuts (green).
    - Bill noted that this is a desktop assessment that will need to be followed up with fieldwork as the project advances.
    - Ruth Trocolli (DC SHPO) asked what year the map was prepared in. Bill responded that he believed it was from the 1880s but will clarify. Ruth noted the need to factor in some amount of variation due to the use of historic maps which were not as accurate as current maps. *(Note: Bill later clarified that the historic map used in the District to prepare the elevation change analysis is the 1880 Green Map, which Ruth Trocolli indicated was acceptable for analysis)*
      - Oscar Gonzalez (VRE) noted that the use of red and green can be challenging for color-blind individuals. Bill responded that this map is a standard map from ESRI GIS, but it can be modified or another color scheme can be picked. Ruth confirmed that there is no standard for this analysis and other colors can be used. Boll noted that the color spectrum is supplemented with counter lines at 5' intervals, allowing the map to be read independently of colors.

C. Action Alternatives

- Screening Process:
  - Kate provided an overview of the two-step concept screening process for the Project.

  - The Level 1 screening occurred from Fall 2016 to Spring 2017. This screening narrowed 18 initial concepts (plus the No Action) down to the No Action and three concepts (three, four, and five or more tracks).
  - The Level 2 screening started in Summer 2017 and resulted in two Action Alternatives, both with four tracks, and the No Action Alternative.

- Action Alternatives for the DEIS:
  - Kate presented the two Action Alternatives that will be analyzed in the DEIS and Section 106 process.
  - Alternative A would construct a new two-track bridge upstream of the existing bridge and retain the existing bridge, resulting in four tracks through the project limits.
  - Alternative B would construct a new two-track bridge upstream of the existing bridge and then replace the existing bridge with a new two-track bridge, resulting in four tracks through the project limits.

- Potential Bike-Pedestrian Crossing Opportunities
  - Kate noted that, as presented previously, the DDOT and FRA are continuing to explore the feasibility of bike-pedestrian crossing opportunities.
  - DDOT and FRA are looking at best practices related to railroad safety and operations.
  - Laurel Hammig (NPS-NCR) asked whether both attached and detached options were still being considered. Kate responded that both options are still being evaluated.

D. Methodology for Assessing Effects

- Bill presented the methodology for the assessment of effects.
  - Per the implementing regulations for Section 106 (36 CFR 800.5), an adverse effect is found when an undertaking may directly or indirectly alter any of the characteristics of a historic property that qualify it for inclusion in the National Register in a manner that would diminish the property's integrity of:
    - Location
    - Design
    - Setting
    - Materials
    - Workmanship
    - Feeling
    - Association
  - Examples of adverse effects include:
    - Physical destruction of or damage to the property
    - Alterations to a property (including restoration, rehabilitation, repair, maintenance, stabilization, etc.) that are not consistent with the *Secretary's Standards for the Treatment of Historic Properties*
    - Removal of a property from its historic location
    - Change to a property's significant use or setting

        - Introduction of visual, atmospheric or audible elements that diminish integrity
        - Neglect of a property (except in certain religious and cultural cases)
        - Transfer, lease, or sale of property out of Federal ownership or control without adequate preservation protections
    - Bill explained that the analysis will evaluate:
        - Direct physical effects
        - Indirect visual effects
        - Direct or indirect effects resulting from vibration
        - Indirect effects from noise

- Bill described the methodology for assessing direct physical effects:
    - Based on conceptual engineering information (including alignments, construction staging, and limits of disturbance), the analysis will describe and evaluate the potential for the alternatives to have direct physical effects on historic properties.
    - For each historic property, the analysis will assess the physical effect against all seven aspects of historic integrity.
    - A finding of adverse effect will be made if physical effects will diminish any aspects of a property's historic integrity.
    - Bill explained that historic properties within the LOD have the greatest potential to incur direct physical effects resulting in adverse effects. These include:
        - East and West Potomac Parks Historic District (including Long Bridge as a contributing element)
        - George Washington Memorial Parkway
        - Mount Vernon Memorial Highway
        - Any potential archaeological resources

- Bill described the methodology for assessing indirect visual effects:
    - The analysis will identify significant views or viewsheds for each property.
        - Bill noted that most properties already have this documentation
    - For the significant views, a limited number of massing diagrams will be created to superimpose the proposed alignments over existing conditions photographs.
    - For each historic property, the analysis will assess the visual effect against all seven aspects of historic integrity.
        - Bill noted that VDHR provides extensive guidance on assessing visual effects to determine whether they are adverse.
    - A finding of adverse effect will be made if visual effects would diminish any aspects of a property's historic integrity.
    - Bill noted that indirect visual effects will most likely result in adverse effects when an alternative:
        - Permanently removes or impedes views that contribute to the historic significance of a property; or
        - Diminishes a property's historic integrity. Visual effects will most likely affect a property's integrity of setting, feeling, and association.

- Bill described the methodology for assessing noise and vibration effects:
  - The analysis will overlay the noise and vibration study area with the APE to identify historic properties that may be affected.
  - The noise and vibration assessment will be conducted in accordance with Federal Transit Administration (FTA) guidelines.
  - Based on the noise and vibration assessment, the analysis will identify historic properties that may experience noise and vibration levels above FTA thresholds.
  - A finding of adverse effect will be made if noise and vibration levels above FTA thresholds would diminish any aspects of integrity that contribute to a property's historic significance.
  - Effects from noise and vibration may be permanent operational impacts or temporary impacts resulting from construction and staging.
  - Vibration and noise have the potential to effect historic properties indirectly. Indirect effects resulting from noise or vibration will likely affect historic properties' integrity of setting, feeling, and association.
  - Additionally, vibration has the potential to affect historic properties directly. Direct, physical effects resulting from excessive vibration has the potential to affect integrity of design, materials, and workmanship.
  - Lee Webb asked whether the analysis would distinguish between temporary and long-term impacts.
    - Bill responded that yes, construction & staging (temporary impacts) will be distinguished from the long-term operational impacts.
  - Laurel Hammig asked whether a benchmark year is being used.
    - Amanda responded that 2040 has been used throughout the project as the planning year.
  - Chuck Gullakson (CSXT) asked for clarification on the width of the noise and vibration study area on either side of the railroad corridor.
    - Bill responded that he believed the distance is 1,000 feet.
    - Following the meeting, DDOT and FRA confirmed that the study area for noise is 750 feet from the track alignment without intervening buildings and 375 feet with intervening buildings. The vibration screening distance depends on the type of sensitive land use and the type of railroad project. For commuter railroad operations, the vibration screening distance is 200 feet for residential uses, 120 feet for institutional uses, and up to 600 feet for particularly sensitive receptors such as research facilities with vibration-sensitive equipment, theaters, and recording studios.

E. Next Steps

- Amanda stated that the project team is accepting comments on this meeting through June 13th. The preferred method for submitting comments is through the website or via email to info@longbridgeproject.com.

- DDOT and FRA will provide the draft Assessment of Effects Report for review in late summer. At the next Consulting Parties meeting in the Fall, DDOT and FRA will solicit input on avoidance, minimization, and mitigation strategies.
  - Amanda asked that participants review the report in advance of the meeting and come prepared to discuss specific issues. Given the large number of properties in the APE, this will enable a more focused meeting.
  - Amanda noted that the next meeting will focus on major properties with anticipated effects.

- Bill noted that the project team may be reaching out to owners of historic properties for additional detail to help with assessing effects.

F. Questions and Comments

- Lee Webb asked how many listed historic properties are in the APE.
  - Amanda responded that the number is around 30.
    - Following the meeting, FRA and DDOT confirmed that the number of designated historic properties within the APE is 29, including the viewshed sites. This includes both individual properties and historic districts designated at the state and federal levels. Additionally, 9 properties in the APE have been determined eligible for NRHP listing. Four additional properties within the APE have been identified as potentially eligible for NRHP listing.

- Randy Selleck (DRPT) asked whether DDOT and FRA are asking for comments on the report as well as the slides presented at this meeting.
  - Amanda clarified that DDOT and FRA are not soliciting comments on the report as it won't be prepared until this summer, just the methodology as presented at this meeting.

- Carol Fuller (Crystal City Civic Association) asked about the timeline for a decision about including a bike-pedestrian connection.
  - Anna Chamberlin (DDOT) responded that the bike-pedestrian analysis is happening concurrently with the assessment of effects. DDOT and FRA will present options for a bike-pedestrian connection with the selection of the Preferred Alternative in the Fall.
  - Carol stressed that she didn't feel the bike-pedestrian bridge would ever get built if it becomes separated from the Long Bridge Project. She noted that she strongly encourages selecting a bike-pedestrian crossing option that crosses the GWMP and connects to the trail in Long Bridge Park.
    - Carol noted that various entities with which she is involved (Crystal City Civic Association, Friends of Long Bridge Park, the Crystal City BID) want to make sure they have the opportunity to be further engaged with this decision. Anna noted that the team is currently evaluating various connectivity options and DDOT and FRA are considering the impacts of the bike/ped connections on historic properties.

CONSULTING PARTIES MEETING #4

Date: Wednesday, October 24, 2018
Time: 10:30 AM to 12:00 PM
Place: 55 M St SE (DDOT Conference Room 639)

FINAL 11/30/18

Attendance:

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A. Introduction and Overview

- Amanda Murphy (FRA) opened the meeting and completed introductions.
- Amanda provided an overview of the meeting purpose and agenda:
    - The primary purpose of this meeting is to present a high-level overview of the Long Bridge Project Section 106 Assessment of Effects Report.
    - The Meeting also includes a Section 106 process update, Action Alternatives for DEIS, conceptual engineering, potential mitigation for a bike-pedestrian crossing, assessment of effects, and resolution of effects before discussing next steps.

B. Section 106 Process and NEPA Coordination Update

- Amanda provided an overview of the Section 106 Process and consultation to date and briefly addressed what was covered at the previous three meetings.
    - This meeting is the fourth of the Section 106 Consulting Party meetings for the Long Bridge Project. At the previous meeting, FRA and DDOT presented a methodology for assessing effects on historic properties.
    - Public and interagency meetings would be held on November 29, 2018.
    - FRA provided an overview of the Area of Potential Effect (APE). Since the last meeting, the Limits of Disturbance (LOD) have been updated to remove the downstream bike-pedestrian crossing that was dismissed from consideration.

C. Action Alternatives

- Kate Youngbluth, DDOT, presented an update on the Action Alternatives to be evaluated in the DEIS.
    - Action Alternative A involves a new two-track bridge upstream of the existing bridge. This option preserves the historic Long Bridge and component railroad bridge over the George Washington Memorial Parkway (GWMP).
    - Action Alternative B involves a new two-track bridge upstream of the existing bridge and the replacement of the existing bridge.
    - Two types of common railroad bridges are being considered for the new two-track bridge: a steel deck girder bridge and a steel through girder bridge. Depth of the structure is the primary difference between the two structure types. They are representative of common railroad bridge types throughout the U.S. The existing Long Bridge is primarily a through girder bridge with a central through trestle span. The new bridge would be formally and aesthetically compatible with the existing.
    - Amanda stated that a signature bridge was considered early on, but that is no longer being considered as an option based on comments that have been received thus far.
    - Andrew Lewis (DC SHPO) asked if a decision has been made about which bridge option would be used. Amanda responded that no decision has been made yet. Both are currently being considered and a selection would be made during the final design phase.
- Kate presented the proposed treatments of the new GWMP railroad bridge:

- Action Alternative A would preserve the existing bridge and construct a new bridge upstream while Action Alternative B would replace the existing bridge and construct a new bridge upstream. For both options, the aesthetic of the new bridge would be compatible with the existing bridge and with the GWMP.

- Kate presented the proposed alignments for the bike-pedestrian crossing option:
  - The bike-pedestrian crossing is being considered as potential mitigation for Section 4(f) impacts. Four potential options were originally being considered, but that has been narrowed down to two options under consideration:
    - Option 1 would be attached to the new upstream railroad bridge. This option would share the same substructure as the railroad bridge but a separate superstructure. This option would require substantial security measures in addition to extending the large railroad bridge piers further upstream to support the superstructure.
    - Option 2 would be separate from the new railroad bridge. This bridge would utilize single column piers and have a much smaller substructure footprint than Option 1. Option 2 would also be less difficult to inspect and maintain and would cost approximately 20 percent less than Option 1.
  - Amrita Hill (Amtrak) noted that Amtrak prefers Option 2. Amanda stated that VRE, Amtrak, and CSXT have all expressed a preference for Option 2 as well, and that only one of the options would be carried forward in the DEIS. Additional comments from the Consulting Parties are welcome.
  - Andrew Lewis noted that visual impacts could be minimized by choosing Option 2 since the bridges would have smaller footprints, and that this option makes sense from a historic preservation standpoint.

D. Identification of Historic Properties

- Bill Marzella (EHT Traceries) presented the APE and noted that the assessment of effects included all those historic properties located within the APE boundaries, in addition to the viewshed properties outside of the contiguous APE boundaries.
  - Catherine Dewey (NPS-NAMA) pointed out that the U.S. Engineers' Storehouse is missing from the APE map, and that NPS is very concerned about effects to that property. Bill responded that this property has been identified that as a contributing resource to East and West Potomac Parks Historic District.
  - Bill stated that a large number of historic properties are located within the APE, but only those for which there are adverse effects would be addressed in the presentation.
- Phase IA Archaeological Assessment
  - Paul Kreisa (Stantec) discussed the Phase IA process which was coordinated with DC SHPO and VDHR. The Phase IA assessed the potential for archaeological resources within the LOD and archaeological projects completed within or near the LOD.
  - Paul gave an overview of the process:
    - A desktop analysis was conducted; historic maps were assessed to identify historic resources that are no longer extant.

        - A 150-meter corridor with high potential for Native American archaeological resources was identified in the process.
        - Bathymetric (underwater) analysis along the Potomac River to identify change in the depth of the river, particularly due to dredging.
        - A site visit was conducted to determine if desktop analysis missed anything and to look at things like utilities and any type of infrastructure that couldn't be identified at the desktop level.
    - Paul then presented the results of the analysis. Areas were divided into levels of no/low, moderate, and high potential for existence of archaeological resources.
        - Area a: This area extends into an existing staging area and has no/low potential.
        - Area 1: Historically located along the shore of the Potomac River, Area 1 has a high potential for Native American archaeological resources.
        - Area 2: Former location of Jackson City. Archaeological investigations have located structural remains, so this area has potential for future discovery.
        - Area b: Historically located in the Potomac River, so there is no archaeological potential.
        - Area II: Within the Potomac River – west side. This area has no/low potential due to extensive dredging.
        - Area I: Within the Potomac River – east side. This area has moderate potential due to a lower impact from dredging. DC SHPO indicated that someone found a Paleoindian point in the area. However, geoarchaeology for the Potomac River Tunnel indicated that the historic shoreline has eroded away, so there is diminished potential.
        - East Potomac Park: As made land, this area has very limited potential for archaeological resources.
        - East of Maine Avenue: The historic shoreline of the Potomac ran through the area so there is potential for Native American sites.
        - At the northeast corner of the LOD excavation and tunneling for laying the railroad in the nineteenth century corresponds to a very low potential for archaeological resources.
    - The Phase IA draft technical report has been submitted to DC SHPO and VDHR for review and comment. After the identification of the Preferred Alternative in the DEIS, Section 106 would continue, and recommended investigations would be conducted based on consultation with the appropriate SHPO.

E. Assessment of Effects

- Bill Marzella presented a brief update to the assessment of effects methodology:
    - Visual Effects: FRA and DDOT developed photo simulations for selected properties within the APE to support the evaluation of visual effects. The views were identified based on properties that had documented significant views and where adverse effects were most likely. Analysis was also used to support the analysis of visual resources in the DEIS.

    - Noise and Vibration Effects: Bill discussed the assessment for the Noise and Vibration Study Area. All historic properties located within the study area were evaluated. It was determined that, for all historic properties located outside this area, there would be no effects.
- Bill presented a table summary for a determination of effects for Action Alternatives A and B, including temporary and cumulative effects associated with the bike-pedestrian crossing options. Bill noted that Action Alternatives A and B would have different lengths of construction, 60 months (A) and 99-100 months (B).
    - Andrew Lewis asked if the proposed project would increase the number of trains moving through the corridor. Amanda responded that the Project would enable planned increases in train volumes by the railroad operators, although the Project itself would not run additional trains. The increase in train volumes was factored into the noise and vibration analysis.
- Bill presented effects determinations for the following properties:
    - National Mall Historic District
        - Temporary construction staging and access would create an indirect adverse effect on the National Mall. The staging areas would be located on existing parking lots within the National Mall and East Potomac Park and a staging area off Ohio Drive SW on the Washington Channel side. Andrew Lewis noted that DC SHPO wants to ensure any potential effects to the Jefferson Memorial have been taken into account.
        - No direct adverse effects were identified for either Action Alternative or bike-pedestrian crossing option.
    - GWMP Historic District:
        - Under both Action Alternatives, removal of contributing vegetation would be a direct adverse effect. The original 1930s planting near the bridge was intended to screen the railroad bridge from viewers using the GWMP.
        - Under Action Alternative B, removal of the existing railroad bridge over the GWMP and Long Bridge would create direct and indirect adverse effects.
        - Cumulative effects from bike-pedestrian crossing options would be similarly direct and adverse due to the removal of contributing vegetation.
        - Temporary effects would be adverse in both Action Alternatives due to necessary construction staging, access, and trail relocation.
        - The GWMP has a sequence of several bridges near the Long Bridge Corridor, most of which do not contribute to the historic district. Due to the diminished integrity of the GWMP in this location, it was determined that the addition of one or more new bridge(s) would have no potential to diminish the integrity of the district and there would be no adverse effect.
        - For Action Alternative B, there would be an indirect adverse effect due to the removal of Long Bridge and the loss of the central trestle, which forms a visual landmark for users of the Mount Vernon Trail.
        - Simone Monteleone (NPS-GWMP) stated that GWMP doesn't necessarily agree with no adverse visual effect from Action Alternative A. She also

asked why the noise thresholds for GWMP are higher compared to the National Mall. In response, Bill stated that, per the noise and vibration analysis prepared for the DEIS, the GWMP is classified as an active recreation area, and therefore has a higher perceived noise (dBA) threshold than areas of passive recreation. He also noted that there is a high degree of ambient noise caused by plane and car traffic in this area.

- Mount Vernon Memorial Highway (MVMH) Historic District:
  - Effects on the MVMH would be similar and additive to those described above for the GWMP.
- Viewshed Analysis for GWMP and MVMH:
  - Bill presented the sequence of existing conditions photographs and photo simulations for Action Alternatives A and B along the GWMP.
  - Simone Monteleone commented that canopy trees between the Metrorail bridge and the existing railroad bridge would likely not have room in the future to mature with the addition of a new secondary railroad bridge. She requested that the photo simulations be updated to reflect that with the Action Alternatives.
- East and West Potomac Parks Historic District:
  - Both Action Alternatives would necessitate the removal of contributing vegetation, namely Japanese cherry trees along the perimeter of Hains Point, constituting a direct adverse effect. The removal of the contributing Long Bridge in Action Alternative B would represent the total loss of a contributing feature, intensifying the direct adverse effect.
  - Under Action Alternative B, the removal of the existing bridge and trestle was not determined to be an indirect adverse effect.
  - Under both Action Alternatives, construction noise has the potential to temporarily diminish the integrity of the contributing U.S. Engineers' Storehouse (located adjacent to the Washington Channel).
  - Andrew Lewis asked if the removal of the truss is an effect. Bill responded by stating that it was determined to be a direct physical effect but not an indirect visual effect. Andrew stated that he would argue that removal of the truss, since it is a direct adverse effect from the Virginia side, it should also be a direct adverse effect from the District (Potomac Park) side.
- Viewshed Analysis for East and West Potomac Parks:
  - Bill presented the photo simulations prepared for East and West Potomac Parks.
  - Tammy Stidham (NPS-NCR), asked if the number of contributing Japanese cherry trees identified for removal had been quantified. Lee Farmer (VHB) responded that the number is approximately four in Action Alternative A and seven in Action Alternative B. Tammy also stated that, as part of DEIS, the number of trees to be removed would need to be quantified (not just cherry trees).

F. Additional Questions and Comments

- Andrew Lewis asked if photo simulations of the bike-pedestrian crossing options had been developed. Amanda stated that they had not been but may be once a preferred crossing option has been identified. Amanda also stated that there would be continued coordination during the design process.
- Adrienne Birge-Wilson (VDHR) asked if any renderings had been prepared to show the new railroad bridge options and how they would be affected by the proposed bike-pedestrian crossing options. Amanda responded that there were not, as no final design for them had been developed as of yet, only conceptual engineering to this point.
- Tammy Stidham asked for clarification of potential temporary effects on Hancock Park. Amanda responded that FRA and DDOT are still considering whether it would be necessary to use that reservation for construction staging and access and would notify NPS when the issue was resolved.

G. Resolution of Effects

- Amanda stated that FRA and DDOT welcome additional ideas on potential avoidance, minimization, and mitigation options from DC SHPO, VDHR, and the Consulting Parties. Amanda noted what measures had been identified and integrated into the Action Alternatives to date.
- Tammy Stidham noted that, in addition to the replacement of lost vegetation, NPS would be offering a number of comments for proposed mitigation.
    - Catherine Dewey added that this may include interpretation, possible rehabilitation of the U.S. Engineers' Storehouse, or rehabilitation of the seawalls in East Potomac Park.
    - NPS also requested additional information about the effects on the U.S. Engineers' Storehouse and the distance between that building and the new bridge that would be constructed above the Washington Channel.
- Andrew Lewis stated that the Secretary of the Interior's Standards require compatibility with the existing historic bridge and other historic properties, not necessarily the non-historic bridges, and for that reason DC SHPO prefers the through-girder structural option.
- Frederick Lindstrom (CFA) suggested that improving the visual appearance of other railroad bridges in the District (through painting, etc.) could be a potential mitigation option.
- Oscar Gonzalez (VRE) asked if it would be possible to transplant (rather than remove) historic vegetation. NPS responded that it would be difficult in a constrained space and would vary based on species. It is not likely something that NPS would require.

H. Continued Consultation

- FRA and DDOT request comments by November 9, 2018 on the Consulting Party meeting materials and assessment of effects report, including proposed resolution strategies. These comments would be incorporated into the report and utilized to select a Preferred Alternative.

- Once these comments had been incorporated, FRA and DDOT would prepare a final assessment of effects report for DC SHPO and VDHR. The Advisory Council on Historic Preservation would also be notified of the determination of effect.
- FRA and DDOT would conduct a fifth Consulting Parties meeting, to present resolution strategies, in late Winter or Early Spring 2019.
- Although a project proponent for construction has not yet been determined, an MOA or PA would be drafted at a minimum amongst FRA, DC SHPO, and VDHR and would include a stipulation for how it can be amended in future to identify a project proponent and any parties responsible for implementing the project, including proposed mitigation.
    - Amanda noted that FRA intends to execute an MOA or PA by Winter 2020 in advance of the completion of the EIS Record of Decision in Summer 2020.

LONG BRIDGE PROJECT
Connecting North and South Through our Nation's Capital

CONSULTING PARTIES MEETING #4

Date: Thursday, August 1, 2019
Time: 1:00 PM – 2:30 PM
Place: 55 M St SE (DDOT Conference Room 639)

FINAL 08/21/2019

Attendance:

NAME	PHONE	EMAIL	ATTENDANCE
DDOT	**55 M Street SE, Suite 500, Washington, DC 20003**		
Anna Chamberlin	202.671.2218	anna.chamberlin@dc.gov	
Kate Youngbluth	202.645.8625	katherine.youngbluth@dc.gov	**X**
FRA	**1200 New Jersey Ave SE, Washington, DC 20590**		
Katherine Zeringue	202.493.7007	Katherine.zeringue@dot.gov	**X**
David Valenstein	202.493.6368	David.valenstein@dot.gov	**X**
Shreyas Bhatnagar	202.439.0617	shreyas.bhatnagar@dot.gov	
Bradley Decker	202.346.9299	decker_bradley@bah.com	**X**
AOC	**441 D Street SW, H2-54, Washington, DC 20515**		
Mary Oehrlein	202.226.0800	moehrlein@aoc.gov	
Amtrak	**60 Massachusetts Ave NE, Washington, DC 20002**		
Amrita Hill	202.906.2481	hilla@amtrak.com	**via phone**
Johnette Davies	215.349.1354	johnette.davies@amtrak.com	**via phone**
Arlington County	**2100 Clarendon Blvd., Suite 900**		
David Patton	703.228.3633	dpatton@arlingtonva.us	
ACHPP	**2100 Clarendon Blvd., Suite 700**		
Rebeccah Ballo	703.228.3812	rballo@arlingtonva.us	
CFA	**401 F Street NW, Suite 312, Washington, DC 20001**		
Thomas Luebke	202.504.2200	tluebke@cfa.gov	
Frederick Lindstrom		flindstrom@cfa.gov	**via phone**
Daniel Fox		dfox@cfa.gov	**via phone**
Sarah Batcheler		sbatcheler@cfa.gov	
DC SHPO	**110 4th Street SW, Ste. 650 East, Washington, DC 20024**		
Andrew Lewis	202.442.8841	andrew.lewis@dc.gov	**X**
David Maloney	202.442.8800	david.maloney@dc.gov	
DC Preservation	**1221 Connecticut Ave. NW, Suite 5A, Washington, DC 20036**		
Rebecca Miller	202.783.5144	rebecca@dcpreservation.org	
Delaware Nation	**PO Box 825, Anadarko, OH 73005**		
Erin Thompson	405.247.2448	ethompson@@delawarenation-nsn.gov	
DOT	**1760 Market Street, Ste. 500, Philadelphia, PA 19103**		
Dan Koenig	202.366.8224	daniel.koenig@dot.gov	
GSA	**301 7th Street SW, Rm. 4004, Washington, DC 20407**		
Nancy Witherell	202.260.0663	nancy.witherell@gsa.gov	
VDHR	**2801 Kensington Ave., Richmond, VA 23221**		
Roger Kirchen		Roger.kirchen@dhr.virginia.gov	**via phone**

NAME	PHONE	EMAIL	ATTENDANCE
Adrienne Birge-Wilson		adrienne.birge-wilson@dhr.virginia.gov	**via phone**
VRE	**1500 King St, Suite 202 Alexandria, VA 22314**		
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Randy Marcus	804.916.1532	randy_marcus@csx.com	**X**
DRPT	**600 E. Main St #2102, Richmond, VA 23219**		
Randy Selleck	804.591.4442	randy.selleck@drpt.virginia.gov	**X**
NCPC	**401 9th Street NW, Suite 500, Washington, DC 20004**		
Lee Webb	202.482.7239	lee.webb@ncpc.gov	**X**
Michael Weil	202.482.7253	Michael.weil@ncpc.gov	
Department of Defense			
Cameron Delancey		cameron.d.delancey.civ@mail.mil	
Martin Mamawal		martin.c.mamawal.civ@mail.mil	
NPS	**1100 Ohio Dr SW, Washington, DC 20242 (NCR)**		
Laurel Hammig (NCR)		laurel_hammig@nps.gov	**via phone**
Tammy Stidham (NCR)	202.619.7474	tammy_stidham@nps.gov	**via phone**
Catherine Dewey (NAMA)	202.245.4711	catherine_dewey@nps.gov	
Joanne Westbrook		Joanne_westbrook@nps.gov	**X**
David Gadsby (GWMP)		David_gadsby@nps.gov	**via phone**
Eliza Voigt (NAMA)		eliza_voigt@nps.gov	
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Eric Cassel		ssiphoto@yahoo.com	
Carol Fuller		fullercarols@gmail.com	
Crystal City BID			
Jay Corbalis		jcorbalis@jbgsmith.com	
Southwest BID	**420 4th Street SW, Washington, DC 20024**		
Lexie Albe		lalbe@swbid.org	

A. Introductions

- Kate Youngbluth (DDOT) welcomed everyone and noted that this is the fifth Consulting Party (CP) meeting for the Long Bridge Project.
- She explained that the plan for the meeting is to walk through the presentation and discuss with the group. We will take comments for next thirty (30) days. Please feel free submit comments to the Project email address (info@longbridgeproject.com).
- The Programmatic Agreement (PA) will be available for Consulting Party and public review with the DEIS in September. There will be a forty-five (45) day comment period with a public hearing in October.

B. Section 106 Process Update

- Katherine Zeringue (FRA) provided an overview of coordination between the National Environmental Policy Act (NEPA) and National Historic Preservation Act (NHPA) Section 106 processes. She noted that the Project is getting close to its public review milestone for the draft Environmental Impact Statement (EIS) and the draft PA.
- She noted that the PA will be discussed at this meeting. The document will outline future steps in terms of Section 106 processes and obligations. The primary purpose of this meeting is to discuss proposed Section 106 mitigations with the consulting parties.

C. DEIS Update

- Katherine reviewed the selection of the Preferred Alternative. She noted that Action Alternative A (the Preferred Alternative) would avoid adversely affected more historic properties than Action Alternative B, and this consideration of avoidance to historic properties was part of the decision-making process. The Preferred Alternative has fewer impacts to historic resources, shorter construction time, and is less expensive to build.

D. Review of Area of Potential Effects (APE) and Historic Properties

- Katherine reviewed the identification of historic properties and Area of Potential Effects (APE).
- Phase 1A Archaeological Assessment
    - Katherine noted that the PA states identification of archaeological impacts will be done later in the design phase and commits the Project to future Identification and evaluation. This is one of the reasons the resolution document is a PA and not a Memorandum of Agreement.
    - The Phase IA determined areas of no, low, and high probability of resources and whether those resources might be prehistoric or historic. This will need to be ground-truthed later in the process. If adverse effects are identified, the project team will consult on resolution.

E. Review of Determination of Effects

- Katherine summarized the determination of effects. Action Alternative A (the Preferred Alternatives) would have:
  - Temporary indirect adverse effect to the National Mall Historic District
  - Permanent direct adverse effect, cumulative direct adverse effect, and temporary direct and indirect adverse effect to the George Washington Memorial Parkway (GWMP) and Mount Vernon Memorial Highway (MVMH) historic districts.
  - Permanent direct and indirect adverse effect, cumulative direct and indirect adverse effect, and temporary direct and indirect adverse effect to the East and West Potomac Parks Historic District.
- Katherine reviewed the avoidance measures for the project, which include:
  - Retaining Long Bridge and the railroad bridge over the GWMP in Action Alternative A.
  - Dismissing alternatives outside the Long Bridge Corridor because they did not meet Purpose and Need.

F. Potential Resolution of Adverse Effects

- Katherine noted that the regulations require considering avoidance measures first. Selection of Action Alternative A means the two historic bridges will remain in place. Placement of the new bridge between existing bridges also minimizes some adverse visual effects.
- Katherine explained that to date the project team has had extensive discussion with NPS regarding mitigation measures, as all affected resources are under their jurisdiction. The project team has also had some conversations with DC SHPO and VDHR. The purpose of this meeting is to also gather input from the Consulting Parties.
- She explained that NPS has agreed to take responsibility for implementation of many of the mitigation measures outlined in the draft PA. The Virginia Department of Rail and Public Transportation (DRPT) will be providing the funding, as they will be the Project Sponsor for final design and construction.
- Tammy Stidham (NPS) asked for clarification regarding adverse effects to the National Mall. Katherine replied that there would be temporary indirect adverse effects to the National Mall, as shown on Slide 7.
- Andrew Lewis (DC SHPO) asked if other federal agencies would be providing federal funding. He suggested that the PA should be revised to provide flexibility if another agency besides FRA provides funding.
  - Katherine will confirm that the PA contains an adoptability clause to address this concern.

- Design Review
  - Katherine noted that this pretty standard minimization and mitigation. As design advances, the SHPOs and NPS will have opportunity to review and provide input on designs and their concerns.
  - Frederick Lindstrom (CFA) noted that FRA has not included Commission of Fine Arts (CFA) or National Capital Planning Commission (NCPC) in this design review. They should be included in design review, since they have approvals. The Project Sponsor will have to present this project to both agencies, so better to engage them sooner rather than later.
  - David Valenstein (FRA) noted that the project team will follow up with CFA and NCPC on their processes to determine when the Project should be presented.

- Tree Protection Plan
  - Katherine explained that some vegetation will need to be removed for construction of the Project that is considered contributing to the historic properties.
  - A tree protection plan would try to minimize impacts to those contributing resources. The plan would be in place before construction begins.

- Tree Restoration Plan
  - Katherine explained that for vegetation that must be removed, DRPT will give NPS money to develop and implement a restoration plan. NPS will have the discretion to determine what is best in terms of replacement species and the locations.
  - David Gadsby (GWMP) noted that staff had question about the wording. It should be clear that NPS is responsible for carrying out work, not for paying for it.
    - Katherine responded that FRA will make sure the language is clear in the PA.

- Interpretation Plan
  - Katherine explained that DRPT would provide funding to NPS to prepare and implement the interpretation plan.
  - The interpretation will include a website as well as physical wayside signage. Both SHPOs have expressed that physical signage is important.
  - She noted that the PA currently has language about SHPOs and NPS being involved in the development of the interpretive materials. FRA is open to including others if they would like to be involved in this.

- Viewshed Protection Plan
  - Katherine noted that DRPT would provide funding to NPS to prepare an implement an MVMH *Viewshed Protection Plan and Inventory and Assessment* from Alexandria to Columbia Island. The plan would be developed prior to completion of the preliminary engineering phase.

- Cultural Landscape Inventories
  - Katherine noted that DRPT would provide funding to NPS to prepare and implement cultural landscape inventories for MVMH from Alexandria to Columbia Island and for East and West Potomac Parks from the golf course to the railroad corridor.

- Construction Management Plan
  - Katherine explained that DRPT would develop and implement a construction management plan that would include a noise and vibration control plan, construction management requirements, location of construction staging areas away from sensitive views and viewsheds, and sizing and screening to minimize the visual impact of staging areas.

- Archaeology
  - Katherine noted that FRA has not yet identified any adverse effects to archaeological resources. However, if adverse effects are determined through identification and evaluation, DRPT would develop mitigation in coordination with stakeholders and Consulting Parties.
  - David Gadsby asked about the archaeological overview and assessment the NPS has suggested as mitigation.
    - Katherine responded that the project team has been trying to gain clarity on whether that is a mitigation measure for an adverse effect to an archaeological resource or whether it would be part of the Section 106 identification and evaluation phase. She suggested continuing to work with NPS to come up with appropriate language and put it in the appropriate document.
    - David Gadsby responded this is a different process for NPS than identification and evaluation. It is a decision-making document that they use to inform interpretive measures, so it's not the same as identification.
    - Andrew asked what is the resource/effect being mitigated.
    - David Gadsby explained that the resource is the maritime cultural landscape for the Potomac River and its shoreline. The archaeological overview and assessment is a baseline document NPS uses to understand archaeological resources.
    - Andrew suggested reaching out to Dr. Ruth Trocolli, with DC SHPO, if she can be of assistance.
    - Tammy responded she would be curious to hear Ruth's thoughts on the matter.
    - Katherine responded FRA will continue to work through this issue with NPS and the DC SHPO.

- Bike-Pedestrian Crossing
  - Andrew asked whether there has been any word from Virginia on the bike-pedestrian connection.

- David Valenstein responded that FRA has identified the bike-pedestrian bridge as mitigation for impacts to Section 4(f) parkland.
- Katherine explained that it is a Section 4(f) mitigation measure with Section 106 implications, so FRA is recognizing it as part of the project and has accounted for its adverse effect in the PA.
- Andrew stated that DC SHPO supports the bike-pedestrian bridge even though it will have adverse cumulative effects.
- Katherine noted that it was considered under cumulative effects under Section 106
- Andrew stated that DC SHPO is comfortable with what is proposed in the PA and is not suggesting any additional mitigation for the bike-pedestrian bridge, but wanted to ensure language within the PA was clear on the relationship between this 4(f) measure and Section 106.
- Andrew asked whether there any other Section 4(f) mitigation measures that need to be addressed through Section 106 and the PA as well.

G. Resolution Document and Next Steps

- Katherine stated that the Draft PA review for consulting parties will be concurrent with the DEIS and the public review period. However, it will still be directly distributed to the Consulting Parties.
- Lee Webb (NCPC) noted that NCPC hasn't been included as a signatory. They are typically a signatory for anything they have approval for.
  - Andrew suggested double-checking correspondence from NCPC about their action (review vs approval).
  - Lee Webb will check if NCPC has approval. If they do, he will send the boilerplate Whereas clauses and language.
- Andrew asked whether USACE has weighed in.
  - Lee Farmer (VHB) responded that they designated FRA as the lead.
- Tammy noted that NPS has permits for the bed of the river, for some of the construction, a land exchange in Virginia and a land transfer in the District.
  - Andrew asked whether NPS is doing their Section 106 separately.
  - Tammy responded that if there is Section 106 consultation required in implementation of mitigation measures, NPS would do the consultation required. But for NPS actions, this Section 106 process should cover them.
  - Andrew suggested that NPS maybe be able to satisfy the Section 106 process in this PA for all of the mitigations through the design review process.
  - Katherine requested that the signatories provide specific language during their backcheck of the PA, if they have it to address these types of concerns and issues.

- Katherine noted that FRA will review and make sure federal actions required by USACE and USCG are accurately represented.

Appendix F – DRPT-NPS Mitigation Agreement

LONG BRIDGE PROJECT
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Appendix C:

DRPT-NPS Mitigation Agreement

MITIGATION AGREEMENT
REGARDING LONG BRIDGE RAILROAD BRIDGE
between the
NATIONAL PARK SERVICE
and
VIRGINA DEPARTMENT OF RAIL AND PUBLIC TRANSPORTATION

This Agreement by and between the NATIONAL PARK SERVICE (NPS), acting through the Director, Region 1 – National Capital Area, and the VIRGINA DEPARTMENT OF RAIL AND PUBLIC TRANSPORTATION (Project Sponsor), acting through its Director (individually NPS and Project Sponsor referred to as "Party", collectively as "the Parties") sets forth the terms by which Project Sponsor will mitigate impacts to and around NPS property from construction and implementation of the Long Bridge Railroad Bridge and ancillary facilities.

ARTICLE I – BACKGROUND AND OBJECTIVES

The Federal Railroad Administration (FRA) as the lead Federal agency and the District of Columbia Department of Transportation (DDOT) in cooperation with Project Sponsor, NPS, and CSX Transportation (CSXT), prepared a Final Environmental Impact Statement (FEIS) under the National Environmental Policy Act (NEPA), a Section 106 Programmatic Agreement ("PA") under the National Historic Preservation Act ("NHPA"), and Section 4(f) Evaluation ("4(f) Evaluation") for the proposed construction of the new Long Bridge railroad bridge and ancillary facilities (hereinafter referred to as "Project"). A map of the Project area depicting the location of the Long Bridge, Long Bridge Corridor and ancillary facilities is attached as Exhibit A.

The Project consists of improvements to the Long Bridge Corridor and related railroad infrastructure located between RO Interlocking in Arlington, Virginia, and L'Enfant Interlocking near 10th Street SW in the District of Columbia. The improvements include the construction of a new two-track bridge across the Potomac River upstream of the currently existing, more than 100-year-old, rail bridge and the construction of an elevated bicycle-pedestrian bridge to connect Arlington County government's Long Bridge Park and Long Bridge Aquatics and Fitness Center, the George Washington Memorial Parkway, East and West Potomac Parks, and the regional trail system. The existing rail bridge will be retained. The Project will impact the East and West Potomac Park ("EPP" and "WPP"), George Washington Memorial Parkway ("GWMP"), and Mount Vernon Memorial Highway ("MVMH") in the manner detailed in Exhibit B.

The NPS is charged with the responsibility for administering the national park system of the United States, which contains areas reflecting the nation's cultural and historical heritage. The NPS preserves and manages these areas for the benefit and inspiration of all the people of the United States. The National Mall and Memorial Parks (NAMA) and the GWMP are lands owned by the United States and administered by the NPS. The United States also owns the bed of the Potomac River, including the Washington Channel, and the NPS issues permits for activities affecting the proprietary interests of the United States pursuant to the 1976 Permit Notice, 41 Fed. Reg. 34801 (Aug. 17, 1976).

The East Potomac Park (EPP) is an approximately 328.99-acre park administered by NAMA. EPP contains Ohio Drive SW, and a number of NPS headquarter offices, landscaping, a tennis center, trails, recreation fields and facilities, an historic golf course, cherry trees, the Thomas Jefferson Memorial, and the edge of the Tidal Basin.

The GWMP comprises approximately 7,037.01 acres and extends 38.3 miles on both sides of the Potomac River in the District of Columbia, Virginia, and Maryland. The Mount Vernon Memorial

Highway (MVMH) is part of the GWMP and is nationally significant as the first parkway constructed and maintained by the U.S. government and as the first road with a commemorative function explicit in its name and alignment. The GWMP and the MVMH are listed in the National Register of Historic Places (NRHP) and home to over 100 species of threatened and endangered species.

The NPS Impact Fund Account was established by the July 10, 2015, Memorandum of Agreement between the NPS and The Conservation Fund for the purpose of funding and implementing mitigation projects to offset impacts to NPS parklands and resources.

Project Alternative A in the Final Environmental Impact Statement (FEIS) would require (i) the permanent use of up to 1.1 acres and the temporary use of up to 3.8 acres of GWMP and MVMH; (ii) the permanent use of up to 2.2 acres and the temporary use of up to 3.49 acres of EPP and WPP, with documented impacts to natural and cultural resources; and (iii) permanent use of up to 0.26 acres and the temporary use of up to .83 acres of land from the bed of the Potomac River and Washington Channel. The permanent and temporary use impact is depicted in Exhibit B.

The Parties have agreed to address the impacts of the Project on NPS lands through the implementation of a broad package of mitigation measures, identified during compliance with various federal, environmental, cultural, and natural resources review requirements, including NEPA, the Section 4(f) evaluation process, and the NHPA Section 106 consultation process. Those measures include the construction of the elevated bicycle-pedestrian bridge, Section 106 mitigation measures identified in the PA, and other measures. This Agreement covers only those mitigation measures that involve contributions of funds to the NPS Impact Fund Account.

The Project Sponsor obligation to fund the mitigation activities is contingent upon:

1. Execution of a Record of Decision ("ROD") by the FRA and NPS selecting Project Alternative A as outlined in the FEIS ("Alternative A" and attached hereto as Exhibit C) to proceed to construction and the completion of the National Environmental Policy Act, National Historic Preservation Act, and Section 4(f) processes.

2. Identification and completion of required realty transactions and/or land use authorizations consistent with applicable authorities allowing for the above-described use of NPS-administered land and execution of any agreement or agreements needed to implement such transactions and/or authorizations, including a permit for the use of land in the bed of the Potomac River and the Washington Channel.

ARTICLE II – AUTHORITY

A. For NPS:

54 U.S.C. 100101, et seq. – The NPS Organic Act directs the Secretary of Interior to promote and regulate National Park System lands by such means and measures as to conform to the fundamental purpose of such lands, namely conservation and the scenery and natural and historic objects and wildlife therein, and to provide for the enjoyment of these resources in a manner and by such means that will leave them unimpaired for the enjoyment of future generations.

B. For Project Sponsor:

By authority of the Commonwealth Transportation Board's (CTB) approval on June 19, 2019, of Project Sponsor's Six Year Improvement Plan authorizing the Project Sponsor's Director to enter agreements and expend funds in furtherance of the Project.

ARTICLE III – STATEMENT OF WORK

A. Compensatory Mitigation Items

The Project Sponsor shall provide a total of $1,075,000 for the NPS Impact Fund Account. The Project Sponsor shall convey the $1,075,000 to the NPS Impact Fund Account when the design contract for the Project is awarded unless otherwise noted below. The funds will be used to fund the compensatory mitigation projects specified herein in the amounts specified below to minimize or offset the unavoidable impacts of the Project on natural and cultural resources within the GWMP, WPP, and EPP. The funds will be paid into the NPS Impact Fund Account and will be administered pursuant to the terms of that Memorandum of Agreement; however, in no event shall the administration of such funds or performance of said mitigation projects result in any delay or material disturbance to Project Sponsor's design and construction activities. The funds shall be used and distributed as described below:

1. **$200,000 Cultural Landscape Inventory**: These funds shall be reserved for the preparation of Cultural Landscape Inventories (CLIs) by NPS for the following: (i) Lyndon Baines Johnson Memorial Grove on the Potomac, (ii) George Mason Memorial, and (iii) Lincoln Memorial Grounds. Upon execution of the ROD, the Project Sponsor shall deposit the required funds with The Conservation Fund to begin this project as the outcomes from the CLI should inform further design work. The NPS will produce a draft of the CLIs within eight (8) months of the receipt of funding from DRPT and will produce the final CLIs within one (1) year of the receipt of funding from DRPT and will coordinate the design implications of the CLIs with the Project's Preliminary Engineering design. In no event shall any delay in the preparation of the CLIs delay the design and/or construction of the Project and Mitigation Items. NPS will provide in-progress drafts to DRPT and a paper and electronic copy of the final CLIs to the Project Sponsor.

2. **$150,000 East Potomac Park Viewshed Protection Plan**: These funds shall be reserved for the preparation and implementation of the EPP Viewshed Protection Plan/Inventory and Assessment by the NPS (EPP Plan). The NPS will target obligating funds towards the EPP Plan within 12 months of receipt of funds by the Conservation Fund with completion of the EPP Plan within 24 months of the EPP Plan obligation. At completion of the EPP Plan development, NPS will provide a hard and electronic copy of the EPP Plan to the Project Sponsor.

3. **$150,000 Viewshed Protection Plan and Inventory/Assessment** for GWMP, as stipulated in Exhibit E of the Section 106 Programmatic Agreement (PA) Article.III.B.2.

4. **$175,000 Cultural Landscape Inventory** for MVMH – north of Alexandria and East and West Potomac Parks, as stipulated in the PA Article.III.B.3.

5. **$400,000 Vegetation Restoration Plan** as stipulated in the PA Article.III.B5.

ARTICLE IV – DISBURSEMENT OF FUNDS

The total amount of funds provided by the Project Sponsor for compensatory mitigation will not exceed the sum of $1,075,000 and shall be used solely for the projects set forth in this Agreement.

The NPS will work with The Conservation Fund to implement the stipulations of this Agreement. The Project Sponsor shall transmit funds via wire transfer to The Conservation Fund using the instructions provided by its Vice President for Finance.

For instructions to the wire account, please contact:

Ms. Monica Garrison
Vice President for Finance
The Conservation Fund
1655 N. Fort Myer Dr., Suite 1300
Arlington, VA 22209
Telephone: (703) 525-6300
Email: mgarrison@conservationfund.org

ARTICLE V – SCHEDULE FOR EXPENDITURE OF FUNDS

The NPS, working with The Conservation Fund, will use commercially reasonable best efforts to expend the funds in accordance with in this Agreement. Upon receipt of funds by The Conservation Fund, a schedule for expenditure of funds will be developed that will include targets for obligation, completion of planning and design, and implementation.

NPS shall submit a final schedule for all NPS-implemented projects referenced in this Agreement to Project Sponsor and ensure coordination of NPS deliverables with the Project's design and construction schedules. All documentation of completed projects will be submitted by NPS to the Project Sponsor in paper and electronic form.

ARTICLE VI – REPORTING

The NPS will prepare an annual financial review and narrative status report that will be submitted to the Project Sponsor by June 30 of the year following each calendar year, beginning the first-year end in which funds are deposited in the NPS Impact Fund Account.

ARTICLE VII – TERM OF AGREEMENT

This Agreement is effective as of the date of the last signature and will expire ten (10) years from that date unless the Parties agree, in writing, to an extension.

ARTICLE VIII – MODIFICATION AND TERMINATION

A. This Agreement may be modified only by a written instrument executed by the Parties.

B. Either Party may terminate this Agreement by providing the other Party with thirty (30) days advance written notice until the Parties begin taking the actions described in Article III herein,

after which neither may terminate the Agreement. In the event that one Party provides the other Party with notice of its intention to terminate, the Parties will meet promptly to discuss the logistics of such termination.

ARTICLE IX – KEY OFFICIALS

A. Key officials are essential to ensure maximum coordination and communications between the Parties and the work being performed. They are:

1. NPS:

Charles Cuvelier
Superintendent
George Washington Memorial Parkway
700 George Washington Memorial Parkway
McLean, Virginia 22101
Phone: (703) 289-2511
Email:charles_cuvelier@nps.gov

Jeffrey P. Reinbold
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Maureen Joseph
Chief of Resource Management
George Washington Memorial Parkway
700 George Washington Memorial Parkway
Turkey Run Park
McLean, VA 22101
Phone: (703)289-2512
maureen_joseph@nps.gov

2. Project Sponsor:

Jennifer Mitchell
Director
Virginia Department of Rail & Public Transportation
600 East Main Street, Suite 2102

Richmond, Virginia 23219-2416
Phone: (804) 786-4440
Email: j.mitchell@drpt.virginia.gov

B. **Communications** - The Project Sponsor will address any communication regarding this Agreement to the NPS key officials. The NPS will address any communication regarding this Agreement to the Project Sponsor key official.

C. **Changes in Key Officials** - Neither the NPS nor the Project Sponsor may make any permanent change in a key official without written notice to the other Party reasonably in advance of the proposed change. The notice will include a justification with sufficient detail to permit evaluation of the impact of such a change on the scope of work specified within this Agreement. Any permanent change in the office or title of the key officials will be made only by modification to this Agreement; however, the employee or officer holding the title may change from time to time upon written, advance notice.

ARTICLE X – GENERAL PROVISIONS

A. Non-Discrimination: All activities pursuant to or in association with this Agreement shall be conducted without discrimination on grounds of race, color, sexual orientation, national origin, disabilities, religion, age, or sex, as well as in compliance with the requirements of any applicable federal laws, regulations, or policies prohibiting such discrimination.

B. NPS Appropriations: Pursuant to 31 U.S.C. § 1341, nothing contained in this Agreement shall be construed to obligate NPS, Project Sponsor, or the United States of America to any current or future expenditure of funds in advance of the availability of appropriations from Congress or state legislature and their administrative allocation for the purposes of this Agreement.

C. Project Sponsor's obligation to expend, pay or reimburse any funds under this Agreement is subject to appropriation by the Virginia General Assembly and allocations by the Commonwealth Transportation Board. No funds have been appropriated for the Project to date.

D. Member of Congress: Pursuant to 41 U.S.C. § 22, no Member of Congress shall be admitted to any share or part of any contract or agreement made, entered into, or adopted by or on behalf of the United States, or to any benefit to arise thereupon.

E. Lobbying Prohibition: Pursuant to 18 U.S.C. §1913, no part of the money appropriated by any enactment of Congress shall, in the absence of express authorization by Congress, be used directly or indirectly to pay for any personal service, advertisement, telegram, telephone, letter, printed or written matter, or other device, intended or designed to influence in any manner a Member of Congress, a jurisdiction, or an official of any government, to favor, adopt, or oppose, by vote or otherwise, any legislation, law, ratification, policy, or appropriation, whether before or after the introduction of any bill, measure, or resolution proposing such legislation, law, ratification, policy, or appropriation; but this shall not prevent officers or employees of the United States or of its departments or agencies from communicating to any such Members or official, at his request, or to Congress or such official, through the proper official channels, requests for legislation, law, ratification, policy, or appropriations which they deem necessary for the efficient conduct of the public business, or from making any communication whose prohibition by this Article might, in the opinion of the Attorney General, violate the Constitution or interfere with the conduct of foreign policy, counterintelligence, intelligence, or national security activities. Violations of this Article shall constitute violations of section 1352(a) of title 31.

F. Third Parties Not to Benefit: This Agreement does not grant rights or benefits of any nature to any third party.

G. Assignment, Binding Effect: Neither Party may assign any of its rights or obligations under this Agreement without the prior written consent of the other Party. Consent will not be unreasonably withheld or delayed. Notwithstanding the above requirement, in the event the Virginia General Assembly creates a Virginia Rail Authority or other rail governing body, Project Sponsor may assign this Agreement to that governing body without the requirement of NPS consent. In addition, the Project Sponsor may assign the maintenance and operation of the Pedestrian-Bicycle Bridge described in Article III(a)(1) to another entity without the prior consent of NPS. This Agreement shall be binding upon and inure to the benefit of the Parties hereto and their respective successors and permitted assigns. The Parties waive the defense of lack of consideration.

H. Non-exclusive: This Agreement in no way restricts the Parties from entering into similar agreements, or participating in similar activities or arrangements, with other public or private agencies, organizations, or individuals.

I. Compliance with Applicable Laws: This Agreement and performance hereunder is subject to all applicable laws, regulations and government policies, whether now in force or hereafter enacted or promulgated. Nothing in this Agreement shall be construed as (i) in any way affecting the authority of the NPS to supervise, regulate, and administer its property under applicable laws, regulations, and management plans or policies as they may be modified from time-to-time or (ii) inconsistent with or contrary to the purpose or intent of any Act of Congress.

J. Disclaimers of Government Endorsement: The Project Sponsor will not publicize or circulate materials (such as advertisements, solicitations, brochures, press releases, speeches, pictures, movies, articles, manuscripts, or other publications), suggesting, expressly or implicitly, that the United States of America, the Department, NPS, or any government employee endorses any business, brands, goods or services.

K. Public Release of Information: The Project Sponsor must obtain prior written approval through the NPS Key Official (or his or her designate) for any public information releases (including advertisements, solicitations, brochures, and press releases) related to the Agreement that refer to the Department of the Interior, any bureau, park unit, or employee (by name or title), or to this Agreement. The specific text, layout, photographs, etc., of the proposed release must be submitted with the request for approval. The NPS will make a good-faith effort to expeditiously respond to such requests. The foregoing shall not apply to any non-substantive or incidental reference.

L. Merger: This Agreement, including any attachments hereto, and/or documents incorporated by reference herein, contains the sole and entire agreement of the Parties.

M. Waiver: Failure to enforce any provision of this Agreement by either Party shall not constitute waiver of that provision. Waivers must be express and evidenced in writing.

N. Counterparts: This Agreement may be executed in counterparts, each of which shall be deemed an original (including copies sent to a Party by facsimile transmission) as against the Party signing such counterpart, but which together shall constitute one and the same instrument.

O. Agency: The Project Sponsor is not an agent or representative of the United States, the Department of the Interior, or NPS, nor will the Project Sponsor represent itself as such to third parties.

P. Survival: Any and all provisions that, by themselves or their nature, are reasonably expected to be performed after the expiration or earlier termination of this Agreement shall survive and be enforceable after the expiration or earlier termination of this Agreement. Any and all liabilities, actual or contingent, that have arisen during the term of this Agreement and in connection with this Agreement shall survive expiration or termination of this Agreement.

Q. Partial Invalidity: If any provision of this Agreement or the application thereof to any Party or circumstance shall, to any extent, be held invalid or unenforceable, the remainder of this Agreement or the application of such provision to the Parties or circumstances other than those to which it is held invalid or unenforceable shall not be affected thereby, and each provision of this Agreement shall be valid and be enforced to the fullest extent permitted by law.

R. Captions and Headings: The captions, headings, article numbers, and paragraph numbers and letters appearing in this Agreement are inserted only as a matter of convenience and in no way shall be construed as defining or limiting the scope or intent of the provisions of this Agreement nor in any way affecting this Agreement.

[Remainder Intentionally Blank]

[Signatures on next page]

ARTICLE XI - SIGNATURES

IN WITNESS THEREOF, the Parties have caused this Agreement to be executed by their duly authorized representatives.

For the **VIRGINA DEPARTMENT OF RAIL AND PUBLIC TRANSPORTATION**:

Jennifer L. Mitchell _____ 7/17/2020

Jennifer L. Mitchell Date
Director

For the **NATIONAL PARK SERVICE**:

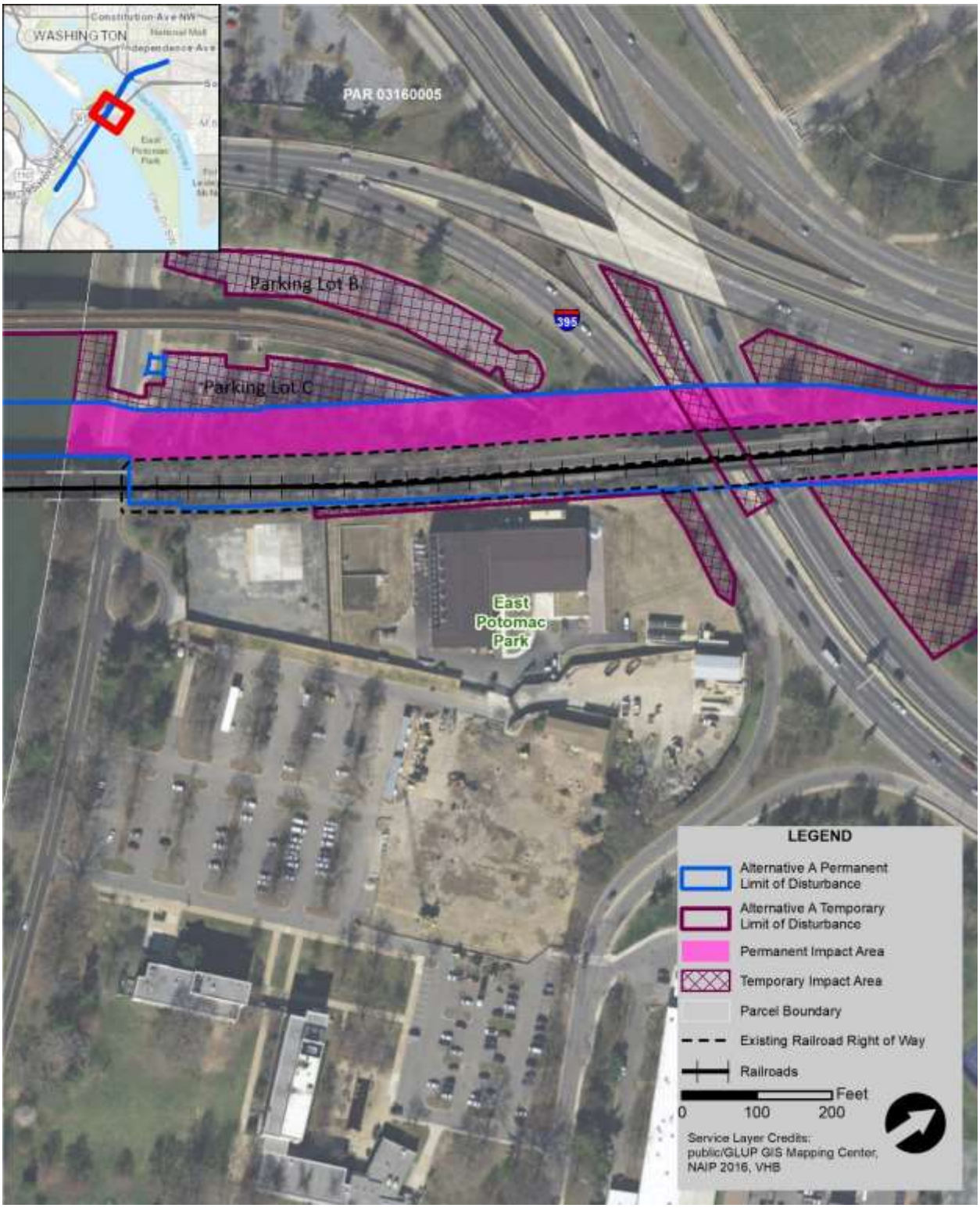
Peter May for Lisa Mendelson-Ielmini _____ 7/19/2020

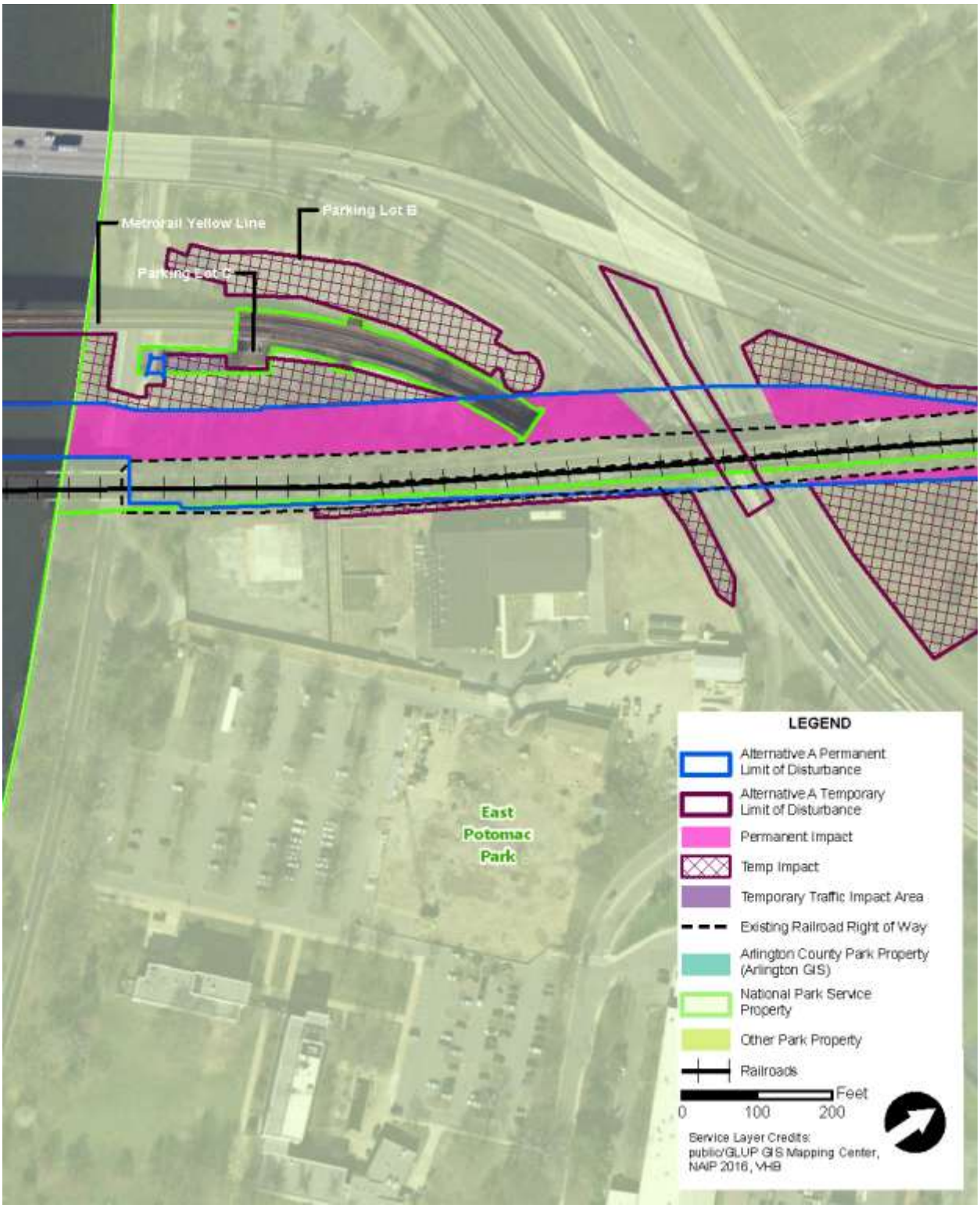
Lisa A. Mendeslson-Ielmini Date
Acting Director
Region 1 – National Capital Area

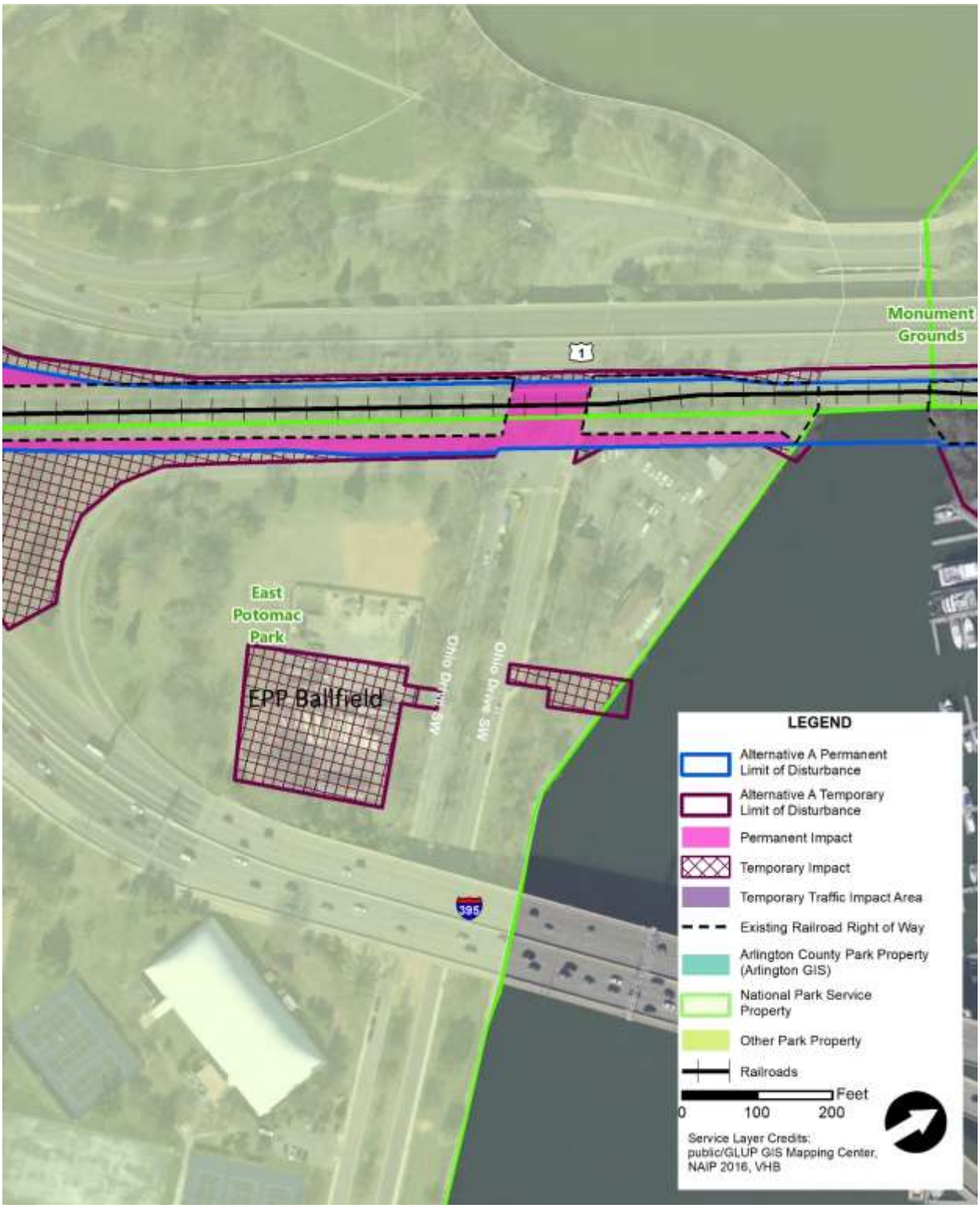
Exhibits:
Exhibit A - Map of Project Area with new Long Bridge and Ancillary facilities
Exhibit B – Impact Map – EPP, GWMP
Exhibit C – Alternative A
Exhibit D – Cultural Landscape Inventories Map
Exhibit E – Section 106 Programmatic Agreement

EXHIBIT A: Map of Project Area with new Long Bridge and Ancillary facilities

EXHIBIT B: Long Bridge Project Limits and Limits of Disturbance
Source: Long Bridge Draft Environmental Impact Statement


WASHINGTON
PAR 03160005
Parking Lot B
Parking Lot C
395
East Potomac Park
LEGEND
Alternative A Permanent Limit of Disturbance
Alternative A Temporary Limit of Disturbance
Permanent Impact Area
Temporary Impact Area
Parcel Boundary
Existing Railroad Right of Way
Railroads
Feet
0
100
200
Service Layer Credits: public/GLUP GIS Mapping Center, NAIP 2016, VHB


Metrorail Yellow Line
Parking Lot B
Parking Lot C
East
Potomac
Park
LEGEND
Alternative A Permanent Limit of Disturbance
Alternative A Temporary Limit of Disturbance
Permanent Impact
Temp Impact
Temporary Traffic Impact Area
Existing Railroad Right of Way
Arlington County Park Property (Arlington GIS)
National Park Service Property
Other Park Property
Railroads
Feet
0
100
200
Service Layer Credits: public/GLUP GIS Mapping Center, NAIP 2016, VHB


Monument Grounds
1
East Potomac Park
EPP Ballfield
Ohio Drive SW
Ohio Drive SW
395
LEGEND
Alternative A Permanent Limit of Disturbance
Alternative A Temporary Limit of Disturbance
Permanent Impact
Temporary Impact
Temporary Traffic Impact Area
Existing Railroad Right of Way
Arlington County Park Property (Arlington GIS)
National Park Service Property
Other Park Property
Railroads
Feet
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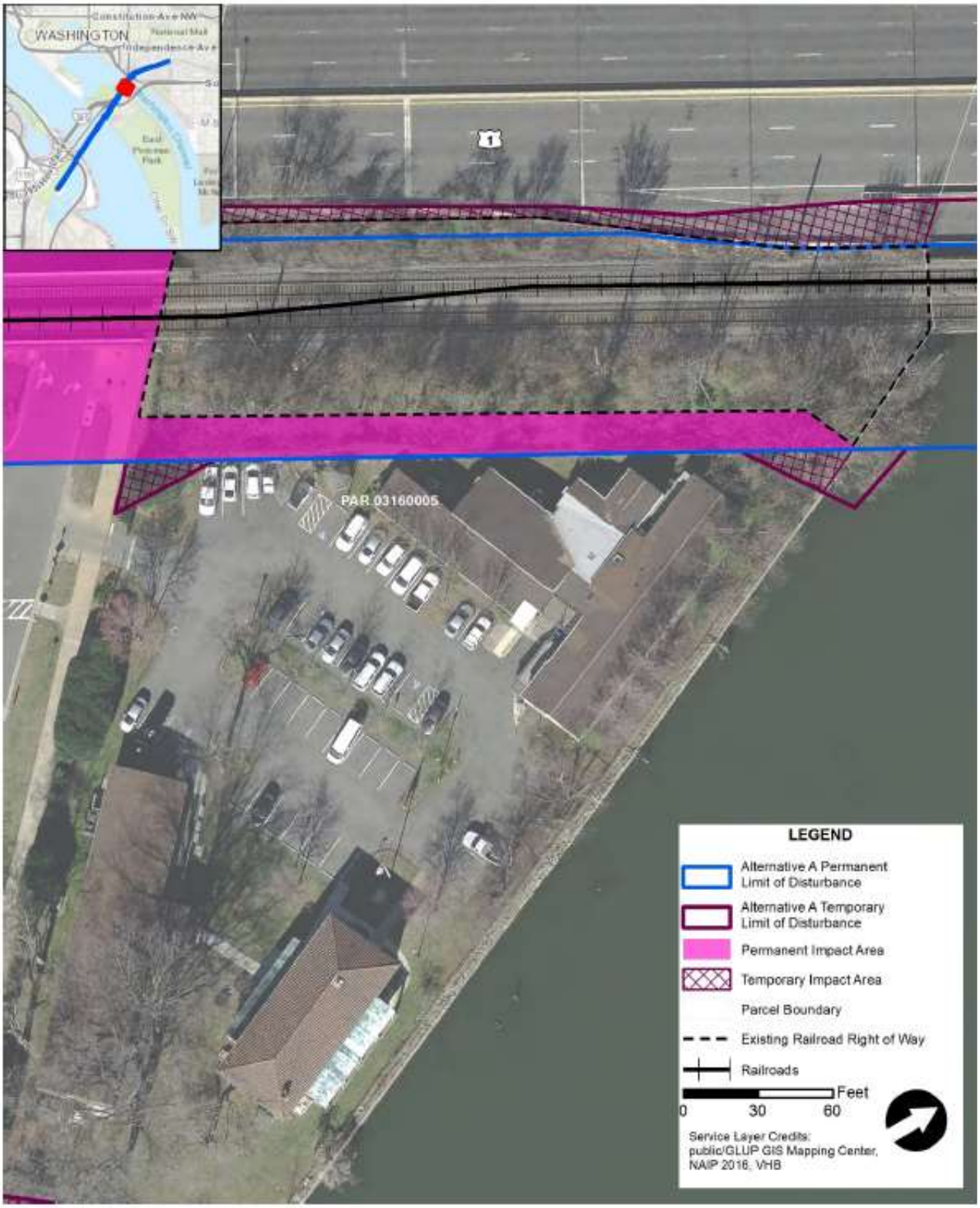
Service Layer Credits: public/GLUP GIS Mapping Center, NAIP 2016, VHB


WASHINGTON
PAR 03160005
LEGEND
Alternative A Permanent Limit of Disturbance
Alternative A Temporary Limit of Disturbance
Permanent Impact Area
Temporary Impact Area
Parcel Boundary
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Railroads
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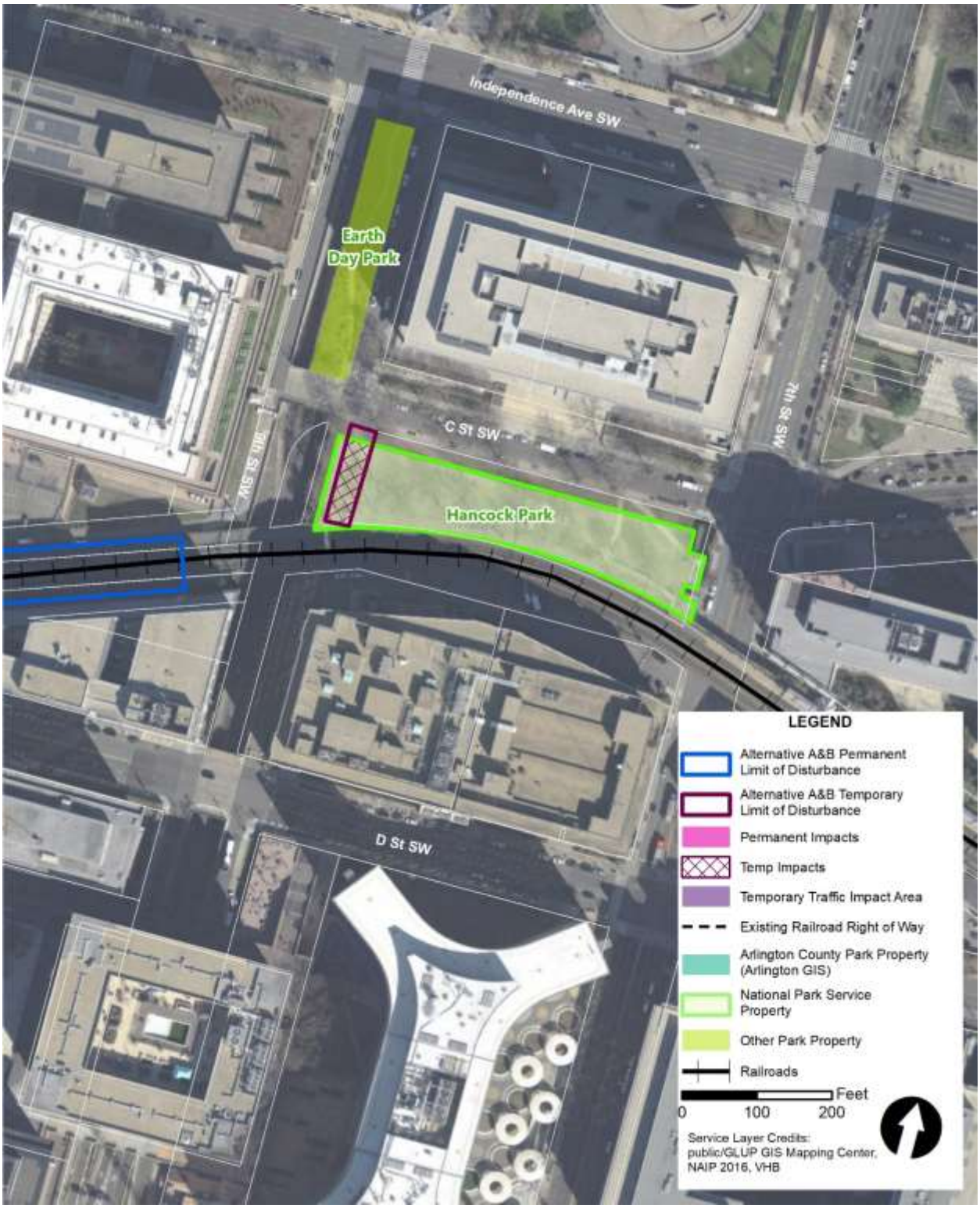
Independence Ave SW
Earth Day Park
C St SW
7th St SW
Hancock Park
D St SW
LEGEND
Alternative A&B Permanent Limit of Disturbance
Alternative A&B Temporary Limit of Disturbance
Permanent Impacts
Temp Impacts
Temporary Traffic Impact Area
Existing Railroad Right of Way
Arlington County Park Property (Arlington GIS)
National Park Service Property
Other Park Property
Railroads
Feet
0
100
200
Service Layer Credits: public/GLUP GIS Mapping Center, NAIP 2016, VHB

EXHIBIT C: Alternative A
Source: Long Bridge Draft Environmental Impact Statement

EXHIBIT D: Boundary Map of Cultural Landscape Inventories

EXHIBIT E: Section 106 Programmatic Agreement

PROGRAMMATIC AGREEMENT
AMONG
THE FEDERAL RAILROAD ADMINISTRATION,
THE DISTRICT OF COLUMBIA STATE HISTORIC PRESERVATION OFFICE,
THE VIRGINIA DEPARTMENT OF HISTORIC RESOURCES,
THE NATIONAL PARK SERVICE,
NATIONAL CAPITAL PLANNING COMMISSION,
AND
THE VIRGINIA DEPARTMENT OF RAIL AND PUBLIC TRANSPORTATION
REGARDING
THE LONG BRIDGE PROJECT
IN
WASHINGTON, D.C. AND ARLINGTON COUNTY, VIRGINIA

WHEREAS, the Federal Railroad Administration (FRA) and the District Department of Transportation (DDOT) are proposing potential improvements to railroad infrastructure located between the RO Interlocking near Long Bridge Park in Arlington, Virginia, and the L'Enfant (LE) Interlocking near 10th Street SW in the District of Columbia (Long Bridge Corridor)[1] to address insufficient capacity, resiliency, and redundancy to accommodate the projected demand in future rail services; and

WHEREAS, the Long Bridge Project (Project) consists of the construction of a new two-track bridge upstream of the existing two-track Long Bridge to create a four-track crossing over the Potomac River (Appendix A, Figure 1), and construction of a new two-track railroad bridge over the George Washington Memorial Parkway (GWMP), Mount Vernon Trail, and Ohio Drive SW. After crossing the Potomac River and Ohio Drive SW, the Long Bridge Corridor would continue through East and West Potomac Parks. The Project includes improvements to related railroad infrastructure but proposes no alterations to the existing Long Bridge, a two-track railroad bridge constructed in 1904, that is currently owned and operated by CSX Transportation (CSXT), a Class I freight railroad; and

WHEREAS, the Project includes all associated mitigations triggered by applicable laws, such as the National Historic Preservation Act (NHPA) as amended (54 U.S.C. § 306108); the National Environmental Policy Act (NEPA) (42 U.S.C. § 4231 et seq.); and Section 4(f) of the United States Department of Transportation Act of 1966, 49 U.S.C. § 303 (Section 4(f)); and

WHEREAS, the Project is needed to ensure the Long Bridge Corridor continues to serve as a critical link connecting the local, regional, and national railroad network; and

WHEREAS, FRA provided Fiscal Year 2014 grant funding (Grant # FR-TII-0036) to DDOT to conduct nondestructive project planning activities that have no potential to cause effects on historic properties, including engineering and environmental analysis of the Project; and

WHEREAS, if FRA provides funding for future construction of the Project, the FRA funding, along with Project implementation and related federal authorizations, which are the subject of this Programmatic Agreement (PA), will constitute an "Undertaking" subject to review under Section 106 of the NHPA (Section 106), and FRA will be the Federal agency responsible for compliance with Section 106; and

[1] An interlocking is a segment of railroad infrastructure comprised of track, turnouts, and signals linked (interlocked) in a way that allows trains to safely move from one track to another, or across tracks, preventing conflicting train movements. Note that the proper name of RO Interlocking is "RO." It is not an acronym.

WHEREAS, this PA was developed pursuant to Section 106 of the NHPA and its implementing regulations, 36 CFR Part 800; and

WHEREAS, the Virginia Department of Rail and Public Transportation (DRPT) is the final design and construction sponsor for the Project (Construction Project Sponsor) who will be responsible for implementing the Project through final design and construction, including compliance with identified mitigation measures; and

WHEREAS, in accordance with NEPA, FRA and DDOT prepared an Environmental Impact Statement (EIS) for the Project; and

WHEREAS, the Project will involve the use of lands managed by the National Park Service (NPS) within the GWMP and National Mall and Memorial Parks (NAMA); and

WHEREAS, the Project would impact NPS park properties protected under Section 4(f), and FRA and DDOT determined that impacts will be mitigated through construction of a bicycle-pedestrian crossing over the Potomac River on a structure located upstream of the new railroad bridge (Appendix A, Figure 2) and the effects of the bicycle-pedestrian crossing on historic properties have been considered under Section 106 as described below; and

WHEREAS, NPS is charged in its administration of the units of the National Park System to meet the directives of other laws, regulations, and policies including the NPS Organic Act as codified in Title 54 U.S.C. § 100101(a) to "conserve the scenery, natural and historic objects, and wild life in the System units and to provide for the enjoyment of the scenery, natural and historic objects, and wild life in such a manner and by such means as will leave them unimpaired for the enjoyment of future generations"; and

WHEREAS, the GWMP, a unit of the National Park System, with portions located in Fairfax and Arlington Counties and the City of Alexandria, Virginia, was established pursuant to what is known as the Capper-Cramton Act, Public Law 71-284, 46 Statute 482 (1930), for purposes "to include the shores of the Potomac and adjacent lands, from Mount Vernon to a point above the Great Falls on the Virginia side, including the protection and preservation of the natural scenery of the Gorge and Great Falls of the Potomac," and came to be administered by NPS pursuant to Executive Order 6166 of June 10, 1933; and

WHEREAS, NAMA, which administers more than 1,000 acres of park land within the District of Columbia, including fourteen units of the National Park System, as well as more than 150 reservations, circles, fountains, squares, triangles, and park spaces, also came to be administered by NPS under Executive Order 6166; and

WHEREAS, phased identification and evaluation will occur for archaeological resources consistent with the *Long Bridge Project Phase IA Archaeological Assessment Report* dated July 24, 2018, therefore FRA will comply with Section 106 through the execution and implementation of this PA pursuant to 36 CFR § 800.14(b); and

WHEREAS, in accordance with 36 CFR § 800.2(a)(4), FRA invited individuals and organizations with a demonstrated interest in the Project to participate as Consulting Parties in the Section 106 process. The full list of Consulting Parties is provided in Appendix B; and

WHEREAS, FRA in consultation with the DC State Historic Preservation Office (DC SHPO), the Virginia Department of Historic Resources (DHR) (which is the Virginia SHPO), and the Consulting Parties, established the Project's Area of Potential Effects (APE), as defined under 36 CFR §800.16(d)

and DC SHPO and DHR concurred with the APE on July 12, 2017. The APE is illustrated in Appendix C; and

WHEREAS, FRA identified forty-two (42) historic properties within the APE, including the East and West Potomac Parks Historic District (listed in the National Register of Historic Places (NRHP) on November 30, 1973 (revised November 11, 2001)), the GWMP (listed in the NRHP on June 2, 1995), and the Mount Vernon Memorial Highway (MVMH) (listed in the NRHP on May 18, 1981). The Long Bridge is a contributing element to all three historic districts. DC SHPO and DHR concurred with the *Identification of Historic Properties Technical Report* on March 23, 2018; both letters and the full report can be found in Appendix C, along with a complete list of historic properties in the APE; and

WHEREAS, FRA determined the Project will have an adverse effect on the GWMP, MVMH, and East and West Potomac Parks Historic Districts due to the introduction of new structures that would have visual effects, direct effects resulting from the alteration of historic fabric within those districts, as well as temporary adverse effects due to construction-related activities on the above mentioned districts and the National Mall Historic District (listed in the NRHP on October 15, 1966 (revised December 8, 2016)); and

WHEREAS, DC SHPO concurred with FRA's *Assessment of Effects Report* and the subsequent *Determination of Effect* in a letter dated November 8, 2018, and DHR concurred with both in a letter dated November 9, 2018. Both letters can be found in Appendix D; and

WHEREAS, FRA considered avoidance measures during concept screening, and dismissed any alternatives that considered the construction of a new railroad bridge and associated railroad infrastructure outside of the existing Long Bridge Corridor, thus avoiding potential effects on historic properties generated by expanding the Project Area. Additionally, the new railroad bridge will be designed with a vertical clearance, visual appearance of the structural system, and alignment that closely references that of the existing Long Bridge, thus avoiding potential adverse visual effects caused by a less compatible type of new bridge structure; and

WHEREAS, in accordance with 36 CFR § 800.6(a)(1), FRA notified the Advisory Council on Historic Preservation (ACHP) of the adverse effects determination and provided the documentation specified in 36 CFR § 800.11(e). ACHP declined to participate in consultation pursuant to 36 CFR § 800.6(a)(1)(iv) in a letter dated December 21, 2018, which can be found in Appendix E; and

WHEREAS, NPS is a Consulting Party in the Section 106 process pursuant to 36 CFR § 800.3(f)(1), manages the Federal park property on either side of the Potomac River within the Project's APE (see Appendix C), and has permitting authority over the Potomac River bottom which includes the Washington Channel (41 Fed. Reg, 34,801). As part of the Project, when an appropriate legal mechanism is identified for permanent use of the affected Federal park property for the Project, NPS would issue a permit for temporary use of land under its administration for construction-related activities. NPS also will issue a permit for permanent use of river bottom land. These permits constitute an Undertaking as defined at 36 CFR § 800.16(y). Therefore, NPS has elected to fulfill its Section 106 responsibilities by participating in this consultation, and is an Invited Signatory to this PA pursuant to 36 CFR § 800.6(c)(2); and

WHEREAS, National Capital Planning Commission (NCPC) is a Consulting Party in the Section 106 process pursuant to 36 CFR § 800.3(f)(1), has approval authority over Federal projects located within the District of Columbia and has approval authority over all land transfers and physical alterations to Federal property pursuant to the National Capital Planning Act (40 U.S.C. § 8722(b)(1) and (d)), and this

approval would constitute an Undertaking as defined at 36 CFR § 800.16(y). NCPC has elected to fulfill its Section 106 responsibilities by participating in this consultation and is an Invited Signatory to this PA pursuant to 36 CFR § 800.6(c)(2); and

WHEREAS, DRPT is a Consulting Party in the Section 106 process pursuant to 36 CFR § 800.3(f)(1), is the Construction Project Sponsor, and will have roles and responsibilities in the implementation of this PA and is an Invited Signatory to this PA pursuant to 36 CFR § 800.6(c)(2); and

WHEREAS, the U.S. Commission of Fine Arts (CFA) has a statutory obligation under the Shipstead-Luce Act of 1930 (Public Law 71-231) to regulate height, exterior design, and construction of private and semiprivate buildings in certain areas of the National Capitol within which the Project falls. CFA has design review authority over new structures erected in the District under the direction of the Federal government (Executive Order 1862) and plans for parks which "in any essential way affect the appearance of the City of Washington, or the District of Columbia" (Executive Order 3524). CFA is a Consulting Party in the Section 106 process pursuant to 36 CFR § 800.3(f)(1) and is invited to concur with this PA pursuant to 36 CFR § 800.6(c)(3); and

WHEREAS, U.S. Army Corps of Engineers (USACE), acting through its Norfolk and Baltimore Districts, is the Federal agency responsible for permitting under Section 10 of the Rivers and Harbors Act of 1899 and Sections 401 and 404 of the Clean Water Act of 1972 which would constitute an Undertaking as defined at 36 CFR § 800.16(y). USACE designated FRA to act as the lead Federal agency to fulfill their collective Section 106 responsibilities pursuant to 36 CFR § 800.2(a)(2) via letters on October 14, 2016 (Norfolk District) and November 15, 2018 (Baltimore District), and is invited to concur with this PA pursuant to 36 CFR § 800.6(c)(3); and

WHEREAS, U.S. Coast Guard (USCG), acting through its Fifth Coast Guard District, is the Federal agency responsible for bridge permitting over a navigable waterway under Section 9 of the Rivers and Harbors Act of 1899 and the General Bridge Act of 1946 which would constitute an Undertaking as defined at 36 CFR §800.16(y). USCG designated FRA to act as the lead Federal agency to fulfill its Section 106 responsibilities pursuant to 36 CFR § 800.2(a)(2) via a letter dated November 18, 2019, and is invited to concur with the PA pursuant to 36 CFR § 800.6(c)(3); and

WHEREAS, DDOT, as the Planning Project Sponsor, is a Consulting Party in the Section 106 process pursuant to 36 CFR § 800.2(c)(4). However, DDOT will not have a role or responsibility in implementing the terms of the PA and is invited to concur with this PA pursuant to 36 CFR § 800.6(c)(3); and

WHEREAS, in letters dated March 31, 2017 (Appendix F), FRA contacted the Catawba Indian Nation, the Delaware Nation, and the Delaware Tribe of Indians (collectively referred to as "Native American tribes" in this PA), Federally recognized sovereign Indian Nations that have a government-to-government relationship with the United States and an interest in the area affected by the Project pursuant to 36 CFR § 800.2(c)(2). FRA invited each of these Native American tribes to be a Consulting Party and they are invited to concur with this PA pursuant to 36 CFR § 800.6(c)(3); and

WHEREAS, the Delaware Nation accepted FRA's invitation to consult in the Section 106 process by electronic mail on May 11, 2017; the Delaware Tribe of Indians declined to participate on June 15, 2017; and the Catawba Indian Nation declined to participate on July 29, 2019; and

WHEREAS, FRA will notify the Native American tribes in the event that pre-historic resources are discovered through the phased identification and evaluation of archaeological resources or in a Post Review Discovery; and

WHEREAS, FRA conducted five Section 106 Consulting Party meetings to provide opportunities for the Consulting Parties to comment on the development of the Action Alternatives, delineation of the APE, identification of historic properties, methodology for assessing effects on historic properties, assessment of effects on historic properties, and potential resolution strategies. Summaries of each Consulting Party meeting can be found in Appendix G; and

WHEREAS, FRA made the draft PA available to the public for review and comment by appending it to the Draft EIS, and FRA considered comments received when finalizing this PA; and

NOW, THEREFORE, FRA, DC SHPO, DHR, NPS, NCPC, and DRPT (collectively referred to as the Signatories) agree that if the Project moves forward, it will be implemented in accordance with the following stipulations in order to take into account the effects of the Project on historic properties and that these stipulations will govern compliance with Section 106 of the NHPA.

STIPULATIONS

FRA will ensure that the following measures are carried out:

I. GENERAL

A. APPLICABILITY

1. FRA, NPS, NCPC, USCG, and USACE will use the terms and conditions of this PA to fulfill their Section 106 responsibilities, as well as any other Federal agencies that designate FRA as the lead Federal agency, pursuant to 36 CFR § 800.2(a)(2). Federal agencies that do not designate FRA as the lead Federal agency remain individually responsible for their compliance with Section 106.

2. In the event that a Federal agency or other agency issues Federal funding, permits, licenses, or approvals for the Undertakings associated with the Project and the Project remains unchanged, such Federal agency may become a Signatory to this PA as a means of satisfying its Section 106 compliance responsibilities, as outlined in Stipulation XI. Any necessary amendments will be considered in accordance with Stipulation XII of this PA.

3. This PA only binds FRA if it provides financial assistance, permits, licenses, or approvals for construction of the Project and, therefore, meets the definition of Undertaking found at 36 CFR § 800.16(y).

4. In the event that the Project does not become an FRA Undertaking and FRA withdraws its participation in the PA under Stipulation XIII.B, and another Federal agency or other agency continues to have an Undertaking and desires to continue to use this PA to satisfy its responsibilities under Section 106, this PA will be amended in accordance with the terms of Stipulation XII.B and that Federal agency or other agency acting as a Federal agency will assume lead agency responsibilities for Section 106.

B. TIMEFRAMES AND NOTIFICATIONS

1. All time designations are in calendar days unless otherwise stipulated. If a review period ends on a Saturday, Sunday, or Federal holiday, the review period will be extended until the next business day.

2. All communication and notifications required by this PA will be sent by email or other electronic means.

C. ROLES AND RESPONSIBLITIES

1. FRA

   a. Pursuant to 36 CFR §800.2(a)(2), FRA has the primary responsibility to ensure the provisions of this PA are carried out.

   b. FRA is responsible for all government-to-government consultation with federally-recognized Native American tribes.

2. DDOT

   a. Pursuant to 36 CFR §800.2(c)(4), FRA authorized DDOT to initiate consultation and prepare any necessary analyses, documentation, and recommendations on its behalf, but FRA remains responsible for all findings and determinations, including determinations of eligibility, findings of effect as well as resolution to objections or dispute resolution.

3. NPS

   a. Although the legal mechanism for NPS's actions has not yet been determined, NPS currently expects that no further NPS Undertakings separate from those outlined in this PA would occur, therefore no additional Section 106 review by NPS is anticipated to be necessary. If any unexpected NPS Undertakings are required, NPS may suggest amending this PA in accordance with Stipulation XII to address the additional Section 106 reviews.

   b. NPS is responsible for implementing certain specified mitigation measures identified in Stipulation III and for any resulting curation of records and other cultural materials pursuant to 36 CFR §79.

   c. NPS will provide Signatories with annual updates on the completion of the specific mitigation measures that NPS has agreed to complete in Stipulation III pursuant to Stipulation IX.

   d. NPS is responsible for coordinating Federal Agencies' compliance with the Native American Graves Protection and Repatriation Act (NAGPRA) on National Park System lands.

   e. NPS is responsible for enforcing the applicable provisions of the Archaeological Resources Protection Act (ARPA 16 U.S.C. 470aa et seq.), including but not limited to the issuance of permits, and investigation of any damages resulting from prohibited activities on National Park System lands.

4. DRPT

   a. Pursuant to 36 CFR §800.2(c)(4), FRA authorizes DRPT to initiate consultation and prepare any necessary analyses, documentation, and recommendations on its behalf, but FRA remains legally responsible for all findings and determinations, including

determinations of eligibility, findings of effect as well as resolution to objections or dispute resolution.

b. DRPT will conduct investigations and produce analyses, documentation and recommendations in a timely manner to address archaeological resources within the APE not recorded in the field prior to the Record of Decision.

c. DRPT will successfully complete any mitigation measures to minimize and resolve adverse effects on historic properties except for those for which NPS is responsible pursuant to Stipulation III.B.

d. DRPT is responsible for funding the completion of all investigations and associated documentation, curation, and other mitigation necessitated as a result of adverse effects on historic properties in accordance with the terms prescribed in this PA. This includes those mitigation measures specified in Stipulation III.B which will be implemented by NPS.

e. DRPT is responsible for costs incurred during any work stoppages in the event of a Post-Review Discovery.

f. In the event the Virginia General Assembly creates a Virginia Rail Authority or other rail governing body, DRPT may assign this Agreement to that governing body without obtaining consent of the Signatories. This Agreement shall be binding upon and inure to the benefit of the Signatories hereto and their respective successors and permitted assigns. DRPT will notify FRA of the assignment when the agreement to assign is fully executed.

5. DC SHPO and DHR

a. DC SHPO and DHR will review Project submittals according to the timeframes defined within this PA, and participate in consultation, as requested by FRA.

6. NCPC and CFA

a. NCPC and CFA will review Project submittals according to the timeframes defined within this PA, and participate in consultation, as requested by FRA.

b. These reviews do not supersede the statutory or regulatory obligations these bodies have, and their Commissions or Boards will review and approve the project components as required.

II. PERSONNEL QUALIFICATIONS STANDARDS

FRA, NPS, and DRPT will ensure that all historic preservation work performed by the relevant agency pursuant to Stipulations III and IV will be accomplished by or under the direct supervision of a person or persons who meet(s) or exceed(s) the pertinent qualifications in the *Secretary of the Interior's Professional Standards* (48 Federal Register [F.R.] 44716).

III. RESOLUTION OF ADVERSE EFFECTS

A. DOCUMENT REVIEW FOR MINIMIZATION AND MITIGATION MEASURES

The Signatories will follow these Document Review procedures, when specified, in Stipulation III.B for Minimization and Mitigation Measures during the Project's Preliminary Engineering Phase as stipulated below. The Signatories will also follow these procedures for Stipulation IV.C, Archaeology.

1. DRPT will provide draft documentation regarding preliminary engineering and design elements of the Project and any Minimization and Mitigation Measures it is responsible for performing to FRA for review and approval. FRA will review the draft documentation within thirty (30) calendar days. Following receipt of FRA approval, DRPT will submit the documentation to the Signatories.

2. The Signatories will review the documentation and provide written comments to FRA and DRPT within thirty (30) calendar days. Any Signatory may request a meeting within that review period.

3. DRPT, in consultation with FRA, will ensure that written comments received are considered and incorporated, as appropriate, to the fullest reasonable extent into the documentation and that the Signatories are notified of the manner in which the comments have been incorporated.

4. If no Signatory provides written comments within the specified timeframe, DRPT may proceed with the portion of the Project subject to the documentation without taking additional steps to seek comment from the Signatories.

5. If FRA or DRPT receives an objection or extensive revision recommendations to the document, FRA and DRPT will work expeditiously with the Signatories to respond to the objection and/or resolve the dispute. If no agreement is reached within thirty (30) calendar days, FRA may request the ACHP review the dispute in accordance with Stipulation X. FRA will notify the Signatories of FRA's decision.

6. Should any substantive changes be made to the engineering and design elements of the Project after the Signatories' review, DRPT, in consultation with FRA, will submit changes to the Signatories and review shall follow the same timeline and process as outlined above.

B. MINIMIZATION AND MITIGATION MEASURES

FRA and DRPT will ensure the following measures to minimize and/or mitigate adverse effects on historic properties are carried out. DRPT may independently proceed with the Project while NPS completes assigned mitigation measures.

1. *Design Review:* DRPT will design and aesthetically treat any elements of the Project, as illustrated in Appendix A, introduced into NPS-administered properties to be compatible with the character of existing resources and appropriate for the context of Washington DC's Monumental Core.

a. *Minimization:* Design Review will minimize potential adverse effects of introducing new features into the historic districts.

b. DRPT, in consultation with FRA, will consult with DC SHPO, DHR, NPS, NCPC and CFA pursuant to Stipulation III.A as the Preliminary Engineering Phase is progressed within the historic districts. Design Review will address the following design elements: a) structure type and visual appearance of the new railroad bridge and bike-pedestrian crossing; b) aesthetic treatment of new bridges or other structures; c) landscape design; and d) any additional signage or lighting necessitated by the Project, except for the Interpretative Signage Mitigation in Stipulation III.B.7 below.

c. The Signatories agree that steel "through plate girders" should be used to construct the new bridge over the Potomac River because the "through plate girders" are similar to the Long Bridge's girders and will avoid and minimize adverse effects by establishing a common structural vocabulary and a better visual connection between the historic and new bridges than the steel "deck plate girders" which are similar to the adjacent Metro Bridge. If, through engineering and design development, DRPT determines that it is impracticable to construct the new bridge with "through plate girders," DRPT will forward the information that forms the basis of its decision to the other Signatories and consult in accordance with Stipulation V. Any unresolved dispute relating to the type of girders that will be used to construct the new bridge will be addressed pursuant to Stipulation X. If "deck plate girders" are ultimately used to construct the new bridge, the Signatories shall consult further pursuant to Stipulation V to identify additional measures that will be used to mitigate the adverse effects that "deck plate girders" will cause and this PA will be amended pursuant to Stipulation XII.

2. *Viewshed Protection Plan and Inventory/Assessment*. DRPT will contribute a monetary value, agreed upon with NPS, for NPS to use to prepare and implement a GWMP Viewshed Protection Plan and Inventory/Assessment.

   a. DRPT and NPS agree that the contribution will be a value equal to the cost of preparing and implementing the GWMP Viewshed Protection Plan Inventory/Assessment for the portion of the GWMP from Alexandria to Columbia Island.

   b. NPS will produce the GWMP Viewshed Protection Plan and Inventory/Assessment within two years of the receipt of funding.

3. *Cultural Landscape Inventory*. DRPT will contribute a monetary value, agreed upon with NPS, for NPS to use to prepare Cultural Landscape Inventories (CLIs).

   a. Funding will be provided for NPS to complete CLIs for the MVMH (north of Alexandria to Columbia Island), and the East and West Potomac Parks Historic District (from the Golf Course to the railroad corridor and including the NPS National Capital Region Headquarters Campus). NPS will oversee the development and execution of the CLIs.

   b. NPS will produce a draft of the CLIs within eight (8) months of the receipt of funding from DRPT and will produce the final CLIs within one (1) year of the receipt of funding from DRPT.

4. Vegetation Protection Plan: A vegetation protection plan will be developed and implemented by DRPT, in coordination with NPS, within the areas defined as the limits of disturbance (LOD) in engineering plans to determine which vegetation is anticipated to be removed, impacted, or protected by the Project.

a. *Minimization:* Where feasible and appropriate, extant vegetation will be preserved *in situ* and protected during construction.

b. The *Vegetation Protection Plan* will include, at a minimum: documentation of the site's existing conditions; quantification and illustrations of vegetation that will be affected by the Project; and specifications for the protection of vegetation where necessary. This plan shall focus to protect mature and contributing trees within the GWMP, MVMH, and East and West Potomac Parks Historic Districts.

c. DRPT will complete the draft *Vegetation Protection Plan* during the Preliminary Engineering Phase of the Project. The plan will be reviewed pursuant to Stipulation III.A. FRA will ensure that DRPT will produce a final *Vegetation Protection Plan* and distribute the plan electronically to the Signatories for documentation purposes.

d. DPRT will implement the final *Vegetation Protection Plan* through the completion of the construction of the Project.

5. *Vegetation Restoration Plan:* DRPT will contribute a monetary value, agreed upon with NPS, for NPS' implementation of its portion of the *Vegetation Restoration Plan*, as described below in paragraph (a). The *Vegetation Restoration Plan* will utilize the draft and final CLIs, in the manner described in this Agreement, with the purpose of reestablishing the historic planting plans, with a focus from Columbia Island to Gravelly Point vicinity within GWMP and East and West Potomac Parks Historic Districts within NAMA.

a. Development & Implementation Responsibilities

i. DRPT shall develop a Vegetation Restoration Plan in collaboration with NPS, to the extent feasible under DRPT's Project schedule.

ii. NPS shall collaborate with DRPT to provide agency expert knowledge and any other available, relevant information for the development of the Vegetation Restoration Plan, including baseline documentation and other material to assist in the development of the restoration plan.

iii. DRPT shall implement the portion of the Vegetation Restoration Plan pertaining to the area within the LOD.

iv. NPS shall implement the Vegetation Restoration Plan for the non-LOD area.

v. DRPT will be responsible for vegetation monitoring and invasive plant removal within the LOD for five (5)-years after the date of construction completion, to ensure and support vegetation restoration within the LOD.

vi. Upon finalization, DRPT shall distribute the final Vegetation Restoration Plan to the Signatories. The plan will be reviewed pursuant to Stipulation III.A.

b. NPS would be responsible for any requirements associated with additional archaeology not subject to Stipulation IV for implementation of the plan outside the LOD. The Plan will include:

i. Specifications for the replacement of vegetation, and their caliper, where necessary. Restoration of vegetation at the same number and caliper inches of vegetation to be removed, unless the Project Sponsor and NPS agree to a lesser caliper and/or to a different tree type. NPS will be responsible for identification of appropriate replacement species alternatives, where in-kind replacement is not feasible, and the location of vegetation.

ii. A planting plan consisting of native trees and vegetation to screen new bridge structures and to minimize the visual effect of those structures to the extent feasible and appropriate.

6. *Construction Management Control Plan:*

a. *Minimization:* DRPT will minimize temporary construction effects to historic properties from noise and vibration and visual effects using a variety of construction management techniques. Visual effects will be minimized to the extent practicable by providing appropriate screening between construction staging areas and cultural resources, limiting the size of construction staging areas, and/or locating them away from sensitive views and viewsheds.

b. DRPT will develop and implement a construction noise and vibration control plan to ensure that both noise and vibrations are controlled throughout the estimated five (5)-year construction of the Project. The plan will be reviewed pursuant to Stipulation III.A.

c. DRPT will develop and implement a plan for visual screening of construction areas throughout the estimated five (5)-year construction of the Project. The plan will be reviewed pursuant to Stipulation III.A.

7. *Interpretation Plan:* DRPT will prepare and implement the interpretation plan regarding the history and significance of the Long Bridge and related topics. In addition to the interpretation plan, DRPT will design, fabricate, and install physical wayside signs, and develop a website. DRPT will ensure that no less than four (4) physical wayside signs are installed along the bike-pedestrian crossing. DRPT will submit the *Interpretation Plan* and wayside drawings to the Signatories for their review, comment and approval prior to its completion. The plan will be reviewed pursuant to Stipulation III.A.

IV. ARCHAEOLOGY

For archaeological studies undertaken by DRPT, DRPT will continue identification and evaluation of archaeological historic properties in accordance with 36 CFR § 800.4 and 800.5 and following the findings and recommendations of the *Long Bridge Project Phase IA Archaeological Assessment Report*. DRPT, in consultation with FRA, will notify and consult, as appropriate, with Native American tribes in the event that pre-historic resources are identified.

A. DRPT will ensure additional identification and evaluation of archaeological resources is accomplished in accordance with the relevant performance and reporting standards in Stipulation

II, including the DC SHPO *Guidelines for Archaeological Investigations in the District of Columbia*, the DHR *Guidelines for Conducting Historic Resources Survey in Virginia*, applicable Secretary of the Interior's Standards, and appropriate ACHP guidance.

B. For archaeological studies undertaken by DRPT, DRPT will ensure payment for the permanent curation or arrange for long-term management and preservation of the archaeological collections, field records, images, digital data, maps, and associated records in accordance with 36 CFR § 79, *Curation of Federally-Owned and Administered Archaeological Collections,* and the relevant DC SHPO and DHR Guidelines. A digital copy of all field records, reports, and collections data will be supplied to DC SHPO, DHR, and NPS. All work will conform with *Director's Order #28A: Archaeology*, NPS's management policies, and the resource's archaeology program practices.

C. If adverse effects to archaeological historic properties are identified, DRPT, in consultation with FRA, will do one of the following:

1. Propose a minimization and data recovery plan; or

2. Depending upon the significance of the resource(s) identified, propose a resource-specific Memorandum of Agreement (MOA) to resolve adverse effects. The MOA may address multiple historic properties.

D. Document Review Procedures will be conducted pursuant to Stipulation III.A

V. POST-REVIEW CHANGES

If DRPT proposes changes to the Project that may result in additional or new effects on historic properties, DRPT will notify the Signatories of such changes. Before DRPT takes any action that may result in additional or new effects on historic properties, the Signatories, and other consulting parties, as appropriate, must consult to determine the appropriate course of action. This may include revision to the APE, identification and evaluation of historic properties, assessment of effects on historic properties, development and evaluation of alternatives or modifications to the Project that could avoid or minimize any adverse effects, or development of additional measures to mitigate any adverse effects. If required, the PA will be amended, as necessary, pursuant to Stipulation XII.

VI. POST-REVIEW DISCOVERIES

A. If newly identified historic properties are discovered during Project construction or unanticipated effects on known historic properties are identified, FRA and DRPT will comply with 36 CFR § 800.13 by consulting with NPS, DC SHPO and/or DHR and, if applicable, Native American tribes that may attach religious and/or cultural significance to the affected property; and by developing and implementing avoidance, minimization, or mitigation measures with the concurrence of NPS, DC SHPO and/or DHR and, if applicable, Native American tribes.

1. DRPT will immediately cease all ground disturbing and/or construction activities within a 50-foot radius of the discovery. DRPT will not resume ground disturbing and/or construction activities until the specified Section 106 process required by 36 CFR § 800.13 and this PA is complete.

2. DRPT will notify FRA, NPS, DC SHPO, and DHR of any discovery within forty-eight (48) hours.

3. DRPT, in consultation with FRA, will notify the Signatories and Native American tribes, as appropriate, of the discovery by providing documentation related to the eligibility of the discovery or assumed eligibility, and if applicable, a proposal to resolve adverse effects, within fourteen (14) calendar days.

4. The Signatories will review the documents and provide written comments to FRA and DRPT within seven (7) calendar days or another agreed upon timeframe.

5. DRPT, in consultation with FRA, will consider the written comments to the fullest reasonable extent.

6. If DRPT receives an objection from a Signatory or Native American tribe, DRPT will notify FRA and then work in consultation with FRA to take the appropriate action and notify Signatories of FRA's decision. Should FRA, in consultation with DRPT, object to any of the comments received, FRA will provide a written explanation of its objection and will consult with the Signatories to resolve the objection. If no agreement is reached within thirty (30) calendar days following receipt of a written explanation, FRA will request the ACHP to review the dispute in accordance with Stipulation X.

7. If no Signatory provides written comments on the notification specified in Stipulation VI.A.3 within the agreed upon timeframe noted above, DRPT may proceed with the submitted plan.

B. *Treatment of Human Remains*. In the event that human remains, burials, or funerary objects are discovered during construction of the Project or any action taken pursuant to this PA within the District of Columbia, DRPT will immediately halt subsurface construction disturbance in the area of the discovery and in the surrounding area where additional remains can reasonably be expected to occur and will immediately notify FRA, DC SHPO, NPS, and the District Chief Medical Examiner ("CME") of the discovery under DC Code Section 5-1406 and other applicable laws and regulations. Should the discovery occur in Virginia, the Virginia Antiquities Act, Section 10.0-2305 of the *Code of Virginia* and its implementing regulations, 17 VACS-20, adopted by the Virginia Board of Historic Resources and published in the Virginia Register on July 15, 1991, and the Native American Graves Protection and Repatriation Act (25 U.S.C. 3001 et seq) and its implementing regulations, 36 CFR §10, should be followed.

1. If the CME determines that the human remains are not subject to a criminal investigation by Federal or local authorities, FRA will ensure DRPT complies with the applicable Federal or local laws and regulations governing the discovery and disposition of human remains and consider the ACHP's Policy Statement Regarding Treatment of Burial Sites, Human Remains, and Funerary Objects (2007).

2. In accordance with the Virginia laws stated above, the local jurisdiction within which the remains are found can obtain a permit from DHR for the archaeological removal of human remains should removal be necessary.

3. For actions involving Native American human remains or burials, FRA will consult the appropriate Native American tribes and DC SHPO and/or DHR to determine a treatment plan for the avoidance, recovery and/or reburial of the remains. If the human remains or burials occur on NPS lands, NPS will ensure compliance with applicable laws in accordance with provisions of the Native American Graves Protection and Repatriation Act, as amended

(Public Law 101-601, 25 U.S.C. 3001 et seq) and regulations of the Secretary of the Interior at 43 CFR § 10.

VII. CONFIDENTIALITY

A. If disclosure of location information could result in the disturbance of a cultural resource, all Signatories to this PA will ensure shared data, including data concerning the precise location and nature of historic properties, archeological sites, and properties of religious and cultural significance to Native American tribes, are protected from public disclosure to the greatest extent permitted by law, in accordance with 36 CFR § 800.11(c), Section 304 of the NHPA, Section 9 of the Archeological Resource Protection Act of 1979, and Executive Order 13007 Indian Sacred Sites (61 F.R. 26771-26772) dated May 24, 1996.

B. For work executed on NPS land, NPS standard policies, Director's Orders #28 and 28A, along with NPS management policies will be followed. Per ARPA, the Superintendent of each park is the arbiter for what information can and cannot be released publicly.

C. Consulting Parties and members of the public are not entitled to receive information protected from public disclosure.

VIII. DURATION

A. This PA will expire if its terms are not carried out within ten (10) years from the date of its execution.

B. Six (6) months prior to expiration, FRA, or DRPT with FRA's approval, may consult with the Signatories to re-evaluate this PA and amend it in accordance with Stipulation XII below.

C. If FRA does not amend this PA prior to its expiration, FRA shall either (a) execute a new PA pursuant to 36 CFR § 800.14(b) or (b) comply with 36 CFR Part 800 for all remaining aspects of the Project as applicable.

D. If FRA, in consultation with the Signatories, determines that the terms of this PA have been satisfactorily fulfilled prior to the expiration date, the PA shall terminate, and FRA shall provide all Consulting Parties with written notice of the termination.

IX. MONITORING AND REPORTING

A. DRPT will provide the Signatories with a summary report detailing work undertaken pursuant to the PA's terms each year until the PA expires or is terminated. This report will include any scheduling changes proposed, any problems encountered, and any disputes or objections received in DRPT's efforts to carry out the terms of this PA.

B. For mitigation measures for which NPS is the responsible party for implementation, NPS will notify and provide Signatories with a progress report on implementation of those measures at least annually via NPS' PEPC website (https://parkplanning.nps.gov/).

X. DISPUTE RESOLUTION

A. Should any Signatory to this PA object at any time to any actions proposed or the manner in which the terms of the PA are implemented, FRA will consult with such Signatory to resolve the

objection. If FRA determines that such objection cannot be resolved within thirty (30) calendar days, FRA will:

1. Forward all documentation relevant to the dispute, including FRA's proposed resolution, to the ACHP with a copy to the other Signatories to this PA and request that ACHP provide FRA with its comments on the resolution of the objection within thirty (30) calendar days of receiving the documentation.

2. If the ACHP does not provide comment regarding the dispute within the thirty (30) calendar-day time period, FRA will make a final decision on the dispute and proceed accordingly.

3. FRA will document this decision in a written response to the objection that takes into account any timely comments regarding the dispute from the Signatories and provide the ACHP and Signatories with a copy of such written response.

4. FRA may then proceed according to its decision.

5. The Signatories remain responsible for carrying out all other actions subject to the terms of the PA that are not the subject of the dispute.

B. Should a Consulting Party or member of the public object to any proposed action(s) or the manner in which the terms of the PA are implemented by submitting its objection to DRPT and/or FRA in writing, DRPT or FRA will notify the other Signatories and FRA will take the objection into consideration. FRA will notify the other Signatories of the objection, consult with the objecting party, and if FRA determines it appropriate, also consult with the other Signatories for not more than thirty (30) calendar days. Within fourteen (14) calendar days after closure of the consultation period, FRA will provide the objecting party and the Signatories with its final decision in writing.

XI. ADOPTABILITY

In the event that a Federal agency other than FRA is considering providing financial assistance, permits, licenses, or approvals for the Project, such Federal agency may become a Signatory to this PA as a means of satisfying its Section 106 compliance responsibilities. To become a Signatory to this PA, the agency official must provide written notice to the Signatories that the agency agrees to the terms of the PA, specifying the extent of the agency's intent to participate in the PA, and identifying the lead Federal agency for the Undertaking. The participation of the agency is subject to approval by the Signatories, who must respond to the written notice within thirty (30) calendar days or the approval will be considered implicit. Any other modifications to the PA will be considered in accordance with Stipulation XII.

XII. AMENDMENTS

A. In the event that the Construction Project Sponsor changes, and FRA is providing financial assistance for construction of the Project, FRA will inform all Signatories in writing of the change. If the terms of the PA remain unchanged as a result of a new Construction Project Sponsor, the written notification will serve as the amendment, and will not necessitate action pursuant to Stipulation XII.B. The amendment will be effective on the date of notification. FRA will file the amendment with the ACHP. If changes to the terms of the PA are necessitated as a result, then the PA will be amended in accordance with Stipulation XII.B.

B. Any Signatory to this PA may request that it be amended. The Signatories will consult for a minimum of thirty (30) calendar days, or another time period agreed upon by all Signatories, to consider such amendment. The amendment will be effective on the date it is signed by all of the Signatories. FRA will file the executed amendment with the ACHP.

XIII. TERMINATION AND WITHDRAWAL

A. If any Signatory to this PA determines that the terms of the PA will not or cannot be carried out, that Signatory will immediately notify the other Signatories in writing and consult with them to seek resolution or amendment pursuant to Stipulation XII of the PA. If within sixty (60) days a resolution or amendment cannot be reached, any Signatory may terminate the PA upon written notification to the other Signatories. Once the PA is terminated, and prior to work continuing on the Undertaking, the lead Federal agency must either (a) execute a new PA pursuant to 36 CFR § 800.14(b); (b) comply with 36 CFR Part 800 for all remaining aspects of the Project; or (c) request, take into account, and respond to the comments of the ACHP under 36 CFR§ 800.7. FRA will notify the Signatories as to the course of action it will pursue.

B. If FRA determines it does not have an Undertaking relating to this Project, FRA may withdraw from participation in this PA entirely upon 90-days written notification to all Signatories. If another Federal agency or other agency acting as a Federal agency does not elect to continue utilizing the PA per Stipulations I.A.4 then the PA is terminated.

XIV. AVAILABILITY OF FUNDS

A. The obligations of Federal agencies under this PA are pursuant to the Anti-Deficiency Act, 31 U.S.C. § 1341(a)(1), therefore nothing in this PA will be construed as binding the United States to expend in any one fiscal year any sum in excess of appropriations made by Congress for this purpose, or to involve the United States in any contract or obligation for the further expenditure of money in excess of such appropriations.

B. DRPT's obligation to expend, pay or reimburse any funds under this PA is subject to the availability of appropriations by the Virginia General Assembly and allocations by the Commonwealth Transportation Board. No funds had been appropriated for the Project at the time of the effective date of this PA.

XV. SIGNATURES AND EFFECTIVE DATE

A. *Effective Date.* This PA will become effective immediately upon execution by all Signatories.

B. *Counterparts.* This PA may be executed in counterparts, each of which constitutes an original and all of which constitute one and the same Agreement.

C. *Electronic Copies.* Within one (1) week of the last signature on this PA, FRA shall provide each Signatory with one high quality, legible, full color, electronic copy of the fully-executed PA and all of its attachments fully integrated into one, single document. If the electronic copy is too large to send by e-mail, FRA shall provide each Signatory with an electronic copy of the fully executed PA as described above, on a compact disc or other suitable, electronic means.

Execution and implementation of this PA evidences that FRA has considered the effects of this Undertaking on historic properties, afforded the ACHP a reasonable opportunity to comment, and satisfied its responsibilities under Section 106 of the NHPA and its implementing regulations.

[*Signature Pages Follow*]

PROGRAMMATIC AGREEMENT
AMONG
THE FEDERAL RAILROAD ADMINISTRATION,
THE DISTRICT OF COLUMBIA STATE HISTORIC PRESERVATION OFFICE,
THE VIRGINIA DEPARTMENT OF HISTORIC RESOURCES,
THE NATIONAL PARK SERVICE,
NATIONAL CAPITAL PLANNING COMMISSION,
AND
THE VIRGINIA DEPARTMENT OF RAIL AND PUBLIC TRANSPORTATION
REGARDING
THE LONG BRIDGE PROJECT
IN
WASHINGTON, D.C. AND ARLINGTON COUNTY, VIRGINIA

FEDERAL RAILROAD ADMINISTRATION

Marlys A Osterhues 7/20/2020

BY: Marlys Osterhues Date

Chief, Environment and Project Engineering Division
Office of Railroad Policy and Development

PROGRAMMATIC AGREEMENT
AMONG
THE FEDERAL RAILROAD ADMINISTRATION,
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THE VIRGINIA DEPARTMENT OF HISTORIC RESOURCES,
THE NATIONAL PARK SERVICE,
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REGARDING
THE LONG BRIDGE PROJECT
IN
WASHINGTON, D.C. AND ARLINGTON COUNTY, VIRGINIA

DISTRICT OF COLUMBIA STATE HISTORIC PRESERVATION OFFICER

7/10/2020

BY: David Maloney, State Historic Preservation Officer Date

PROGRAMMATIC AGREEMENT
AMONG
THE FEDERAL RAILROAD ADMINISTRATION,
THE DISTRICT OF COLUMBIA STATE HISTORIC PRESERVATION OFFICE,
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REGARDING
THE LONG BRIDGE PROJECT
IN
WASHINGTON, D.C. AND ARLINGTON COUNTY, VIRGINIA

VIRGINIA DEPARTMENT OF HISTORIC RESOURCES

Stephanie B. Williams for JVL — 7.30.2020

BY: Julie Langan, State Historic Preservation Officer — Date

Deputy Director

PROGRAMMATIC AGREEMENT
AMONG
THE FEDERAL RAILROAD ADMINISTRATION,
THE DISTRICT OF COLUMBIA STATE HISTORIC PRESERVATION OFFICE,
THE VIRGINIA DEPARTMENT OF HISTORIC RESOURCES,
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REGARDING
THE LONG BRIDGE PROJECT
IN
WASHINGTON, D.C. AND ARLINGTON COUNTY, VIRGINIA

NATIONAL PARK SERVICE

Charles Cuvelier Date: 2020.07.09 20:23:40 -04'00'

BY: Charles Cuvelier
Superintendent
George Washington Memorial Parkway
Region 1 - National Capital Area

JEFFREY REINBOLD Digitally signed by JEFFREY REINBOLD Date: 2020.07.20 10:42:26 -04'00'

BY: Jeff Reinbold
Superintendent
National Mall and Memorial Parks
Region 1 - National Capital Area

PROGRAMMATIC AGREEMENT
AMONG
THE FEDERAL RAILROAD ADMINISTRATION,
THE DISTRICT OF COLUMBIA STATE HISTORIC PRESERVATION OFFICE,
THE VIRGINIA DEPARTMENT OF HISTORIC RESOURCES,
THE NATIONAL PARK SERVICE,
NATIONAL CAPITAL PLANNING COMMISSION,
AND
THE VIRGINIA DEPARTMENT OF RAIL AND PUBLIC TRANSPORTATION
REGARDING
THE LONG BRIDGE PROJECT
IN
WASHINGTON, D.C. AND ARLINGTON COUNTY, VIRGINIA

NATIONAL CAPITAL PLANNING COMMISSION

7/27/20

BY: Marcel Acosta, Executive Director Date

PROGRAMMATIC AGREEMENT
AMONG
THE FEDERAL RAILROAD ADMINISTRATION,
THE DISTRICT OF COLUMBIA STATE HISTORIC PRESERVATION OFFICE,
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REGARDING
THE LONG BRIDGE PROJECT
IN
WASHINGTON, D.C. AND ARLINGTON COUNTY, VIRGINIA

VIRGINIA DEPARTMENT OF RAIL AND PUBLIC TRANSPORTATION

Jennifer L. Mitchell 7/17/2020

BY: Jennifer Mitchell, Director

PROGRAMMATIC AGREEMENT
AMONG
THE FEDERAL RAILROAD ADMINISTRATION,
THE DISTRICT OF COLUMBIA STATE HISTORIC PRESERVATION OFFICE,
THE VIRGINIA DEPARTMENT OF HISTORIC RESOURCES,
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AND
THE VIRGINIA DEPARTMENT OF RAIL AND PUBLIC TRANSPORTATION
REGARDING
THE LONG BRIDGE PROJECT
IN
WASHINGTON, D.C. AND ARLINGTON COUNTY, VIRGINIA

CONCURRING PARTIES:

DELAWARE NATION

SIGNATURE: _____ Date _____

PRINT NAME: _____

VIRGINIA RAILWAY EXPRESS

SIGNATURE: _____ Date _____

PRINT NAME: _____

FEDERAL TRANSIT ADMINISTRATION

SIGNATURE: _____ Date _____

PRINT NAME: _____

ANC 6D

SIGNATURE: _____ Date _____

PRINT NAME: _____

AMTRAK

SIGNATURE: _____ Date _____

PRINT NAME: _____

ARCHITECT OF THE CAPITOL

SIGNATURE: _____ Date _____

PRINT NAME: _____

ARLINGTON COUNTY HISTORIC PRESERVATION PROGRAM

SIGNATURE: _____ Date _____

PRINT NAME: _____

CRYSTAL CITY CIVIC ASSOCIATION

SIGNATURE: _____ Date _____

PRINT NAME: _____

CSX TRANSPORTATION

SIGNATURE: _____ Date _____

PRINT NAME: _____

DC PRESERVATION LEAGUE

SIGNATURE: _____ Date _____

PRINT NAME: _____

PENTAGON RESERVATION

SIGNATURE: _____ Date _____

PRINT NAME: _____

SOUTHWEST BID

SIGNATURE: _____ Date _____

PRINT NAME: _____

U.S. COMMISSION OF FINE ARTS

SIGNATURE: _____ Date _____

PRINT NAME: _____

U.S. GENERAL SERVICES ADMINISTRATION

SIGNATURE: _____ Date _____

PRINT NAME: _____

APPENDIX A: LONG BRIDGE PROJECT PREFERRED ALTERNATIVE AND BIKE-PEDESTRIAN CROSSING OPTION

Figure 1: Preferred Alternative

Figure 2: Bike-Pedestrian Crossing Option

APPENDIX B: LIST OF CONSULTING PARTIES

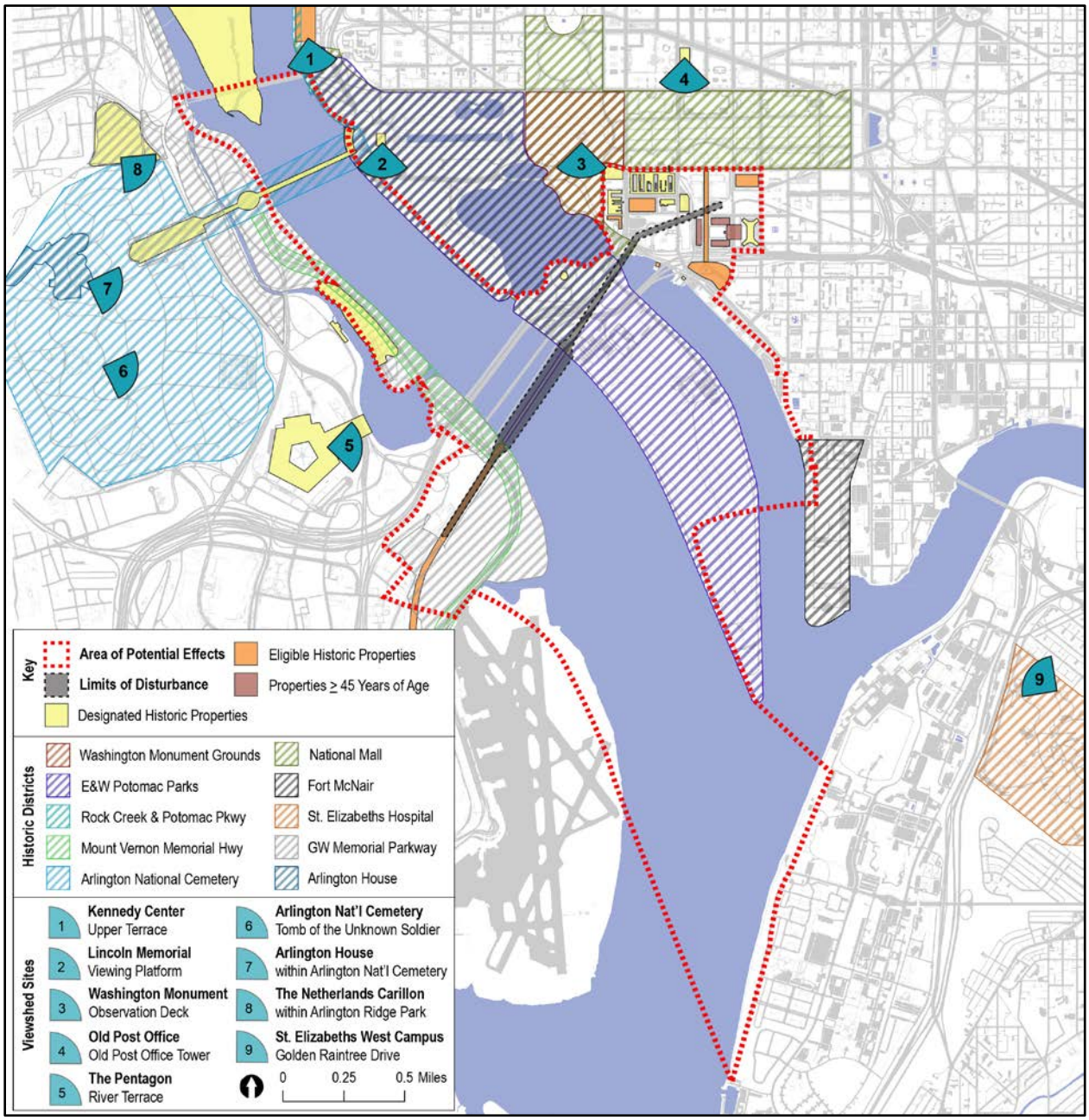
FRA initiated Section 106 consultation with DC SHPO and DHR on September 22, 2016. FRA and DDOT worked with DHR and DC SHPO to identify Consulting Parties, who were formally invited to participate in the Section 106 consultation process in March 2017. A list of those parties FRA invited to participate in the consultation process is shown in **Table 1** below.

Table 1: Agencies and Organizations Invited to Participate as Consulting Parties for the Long Bridge Project

Amtrak	National Mall Coalition[1]
Architect of the Capitol	NPS, Captain John Smith Trail[1]
Arlington County Historic Preservation Program	NPS, GWMP
Arlington County Manager[1]	NPS, National Capital Region
Arlington Historical Society[1]	NPS, National Mall & Memorial Parks
Arlington National Cemetery[1]	National Trust for Historic Preservation[1]
Catawba Indian Nation[1]	Pentagon Reservation (Department of Defense)
Committee of 100 on the Federal City[1]	Southwest BID
Crystal City Civic Association	Trust for the National Mall[1]
CSXT	U.S. Army Corps of Engineers, Baltimore District
DC Preservation League	U.S. Army Corps of Engineers, Norfolk District
Delaware Nation	U.S. Commission of Fine Arts
Delaware Tribe of Indians[1]	U.S. General Services Administration, National Capital Region
Federal Transit Administration	Virginia Department of Rail and Public Transportation
Mayor of the District of Columbia[1]	Virginia Railway Express
National Capital Planning Commission	Washington DC Chapter National Railway Historical Society[1]

[1] *These organizations did not respond to the Consulting Party invitation or declined to participate as Consulting Parties.*

APPENDIX C: AREA OF POTENTIAL EFFECTS AND LIST OF HISTORIC PROPERTIES



The following properties are listed in **Table 2.**

Table 2: List of Historic Properties

#	**Name**	**Location**	**Designation**
1.	National Mall Historic District	Washington, DC	DC Inventory of Historic Sites (DC), National Register of Historic Places (NRHP)
2.	Parkways of the National Capital Region	Washington, DC	Virginia Landmarks Register (VLR), Multiple Property Document (MPD) [2]
3.	Rock Creek and Potomac Parkway Historic District	Along the Potomac River and Rock Creek from the Lincoln Memorial to the National Zoo, Washington, DC	DC, NRHP
4.	GWMP[3]	Arlington, VA; Washington, DC	VLR, NRHP
5.	Mount Vernon Memorial Highway (MVMH)[4]	Arlington, VA; Washington, DC	VLR, NRHP
6.	Plan of the City of Washington	Washington, DC	DC, NRHP
7.	East and West Potomac Parks Historic District	Washington, DC	DC, NRHP
8.	Thomas Jefferson Memorial	East Basin Drive SW, Washington, DC	DC, NRHP
9.	Central Heating Plant	325 13th Street SW, Washington, DC	DC, NRHP
10.	United States Department of Agriculture (USDA) Cotton Annex	300 12th Street SW, Washington, DC	DC, NRHP

[2] *A Multiple Property Documentation Form is a cover document and not a nomination in its own right but serves as a basis for evaluating the National Register eligibility of related properties. In this instance, the resources within the MPD, GWMP and MVMH, are analyzed within the EIS as individually listed resources.*

[3] *Within the Long Bridge Project Area, the GWMP is primarily located in Virginia. Segments of the GWMP, such as where it extends along Lady Bird Johnson Park, are located within the District. Outside of the Project area, the GWMP also extends into Maryland.*

[4] *The same geographic considerations as described above for the GWMP also apply to the MVMH.*

#	**Name**	**Location**	**Designation**
11.	HUD Building (Robert C. Weaver Federal Building)	451 7th Street, SW, Washington, DC	DC, NRHP
12.	USDA South Building	1352 C Street SW, Washington, DC	DC, NRHP
13.	Bureau of Engraving and Printing	301 14th Street SW, Washington, DC	DC
14.	Auditor's Building Complex	14th Street and Independence Avenue SW, Washington, DC	DC, NRHP
15.	Arlington Memorial Bridge (and related features)	Memorial Avenue, Arlington, VA, and Washington, DC	DC, NRHP
16.	Fort Leslie J. McNair Historic District (The Old Arsenal)	4th and P Streets SW, Washington, DC	DC, Determination of Eligibility (DOE)[5]
17.	Titanic Memorial	Water and P Streets SW, Washington, DC	DC, NRHP
18.	Lunch Room Building and Oyster Shucking Shed	1100 Maine Avenue SW, Washington, DC	DC, DOE
19.	Cuban Friendship Urn	Reservation 332, Ohio Drive at 14th Street Bridge SW, Washington, DC	DC, NRHP
20.	Theodore Roosevelt Island National Memorial (Analostan Island)	Potomac River west of Georgetown Channel	DC, NRHP
21.	Lyndon B. Johnson Memorial Grove	Columbia Island in Lady Bird Johnson Park	DC, NRHP
22.	Lincoln Memorial (Statue of Lincoln)[6]	West Potomac Park, Washington, DC	DC, NRHP
23.	Washington Monument and Grounds Historic District[6]	14th Street, between Constitution and	DC, NRHP

[5] *A Determination of Eligibility Form is documentation outlining a resource's significance and applies the National Register Criteria for Evaluation to determine if the resource can be listed in the NRHP.*
[6] *These properties are designated as viewshed locations outside of the APE boundaries.*

#	**Name**	**Location**	**Designation**
		Independence Avenues, Washington, DC	
24.	Arlington House Historic District[6]	Roughly bound by Sheridan Drive, Ord and Weitzel Drive, Humphrey's Drive and Lee Avenue in Arlington National Cemetery	VLR, NRHP
25.	Arlington National Cemetery Historic District[6]	One Memorial Avenue, Arlington, VA	NRHP
26.	St. Elizabeths Hospital Historic District[6]	2700 Martin Luther King Jr. Avenue SE, Washington, DC	DC, NRHP, National Historic Landmark (NHL)
27.	Netherlands Carillon (within Arlington Ridge Park) [6]	Northwest corner of N Meade Street and Marwill Drive, Arlington, VA	VLR, NRHP,
28.	Old Post Office[6]	1100 Pennsylvania Avenue NW, Washington, DC	DC, NRHP
29.	The Pentagon[6]	US 1, Virginia Route 110, and I-395, Arlington, VA	VLR, NRHP, NHL
30.	Bureau of Engraving and Printing Annex	300 14th Street SW, Washington, DC	DOE
31.	Federal Office Building 10A (Orville Wright Building)	800 Independence Ave SW, Washington, DC	DOE
32.	Benjamin Banneker Park/Overlook; Tenth Street Overlook	Terminus of 10th Street SW, Washington, DC	DOE
33.	Richmond, Fredericksburg and Potomac Railroad Historic District	Along CSXT right-of-way in VA from Arlington County to the City of Richmond, VA	DOE
34.	Washington Marina Building	1300 Maine Avenue SW, Washington, DC	DOE

#	**Name**	**Location**	**Designation**
35.	L'Enfant Promenade	Section of 10th Street SW between Independence Avenue and Banneker Park, Washington, DC	DOE
36.	Lady Bird Johnson Park	GWMP, Washington, DC	DOE
37.	John F. Kennedy Center for the Performing Arts[6]	2700 F Street NW, Washington, DC	DOE
38.	Liberty Loan Federal Building	401 14th Street SW, Washington, DC	DOE
39.	Astral Building (North Building, L'Enfant Plaza), 1968	955 L'Enfant Plaza SW, Washington, DC	Potentially eligible[7]
40.	Comsat Building (South Building, L'Enfant Plaza), 1965	950 L'Enfant Plaza SW, Washington, DC	Potentially eligible
41.	Loew's L'Enfant Plaza Hotel (East Building, L'Enfant Plaza), 1971 to 1973	470-490 L'Enfant Plaza SW, Washington, DC	Potentially eligible
42.	USPS Building (West Building, L'Enfant Plaza), 1969 to 1971	475 L'Enfant Plaza SW, Washington, DC	Potentially eligible

[7] *Potentially eligible resources are those that have the possibility to be listed in the NRHP but a formal DOE has yet to be conducted.*

APPENDIX D: ASSESSMENT OF EFFECTS REPORT CONCURRANCE LETTERS

GOVERNMENT OF THE DISTRICT OF COLUMBIA
STATE HISTORIC PRESERVATION OFFICER

November 8, 2018

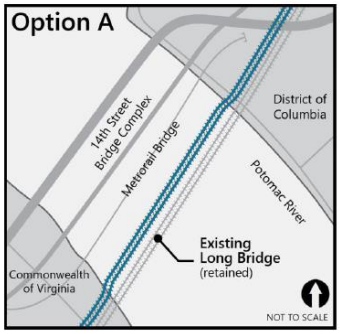
Ms. Amanda Murphy
Environmental Protection Specialist
Office of Railroad Policy and Development
U.S. Department of Transportation
Federal Railroad Administration
1200 New Jersey Avenue, SE
Washington, DC 20590

RE: Assessment of Effects Report for the Long Bridge Project

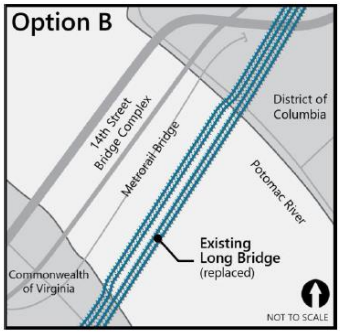
Dear Ms. Murphy:

Thank you for providing the District of Columbia State Historic Preservation Officer (DC SHPO) with a copy of the *Assessment of Effects Report* for review and comment. We have reviewed the document and are writing to provide additional comments regarding effects on historic properties in accordance with Section 106 of the National Historic Preservation Act.

We understand that two action alternatives have been retained for further consideration. Alternative A proposes to retain and restore the historic bridge, and to construct a second bridge upstream from the existing structure. Alternative B proposes to replace the historic bridge with two newly constructed bridges in the same general alignment. Both alternatives also include the possibility of constructing a new bike-pedestrian bridge upstream from the new bridge(s) that will either be attached to (Option 1), or independent from the new railroad bridge (Option 2), but a decision regarding whether the bike-pedestrian bridge will be constructed as part of the project has not yet been made.



- New 2-track bridge upstream of existing bridge
- Retain existing bridge



- New 2-track bridge upstream of existing bridge
- Replace existing bridge

Based upon our review of the report and the discussions held during the October 24, 2018 consulting parties' meeting, we concur that implementation of either action alternative will result in adverse effects on historic properties as outlined in the attached table. We also believe that Alternative A will have an indirect visual adverse effect on the East & West Potomac Park Historic District because it will block views to the historic bridge. However, the adverse effects associated with Alternative B will be far greater than those which will occur as a result of Alternative A because the former will completely destroy the historic bridge. For this reason, we recommend that Alternative A be selected as the Preferred Alternative.

Of the two options for the new bike-pedestrian bridge, an independent structure (Option 2) appears to result in fewer adverse effects because it will avoid the need to construct wider piers to accommodate both the new bike-pedestrian bridge and the new railroad bridge. This will allow the new railroad bridge piers to be much more similar in size and design to the historic piers and, therefore, more compatible with the historic context.

On a related note, we recommend that the new railroad bridge be constructed using "Through Plate Girders" (below, left) that match the historic girders rather than "Deck Plate Girders" (below right) that were used to construct the Metro bridge further upstream. Using "Through Plate Girders" will establish a consistent, compatible "vocabulary" for the railroad bridges and differentiate them from the Metro structure. Differences in age and subtle details should eliminate any confusion that the two railroad bridges were constructed simultaneously.

In addition to the minimization measures described above, we recommend that mitigation measures such as interpretive displays that address the existing historic bridge and the extended history of bridges along this alignment be developed and installed within the project area. Supplemental mitigation measures may also be required as we learn more about the proposed project.

If you should have any questions or comments regarding this matter, please contact me at andrew.lewis@dc.gov or 202-442-8841. Otherwise, we look forward to consulting further to develop an appropriate Section 106 agreement document.

Sincerely,

C. Andrew Lewis
Senior Historic Preservation Officer
DC State Historic Preservation Office

17-0051

Assessment of Effects

Summary of Adverse Effects Determination

LONG BRIDGE PROJECT
Connecting North and South Through our Nation's Capital

Historic Property	No Action Alternative	Action Alternative A	Action Alternative B	Cumulative Effects	Temporary Effects
National Mall *DC*	No Adverse Effect	No Adverse Effect	No Adverse Effect	No Adverse Effect	Indirect Adverse Effect
George Washington Memorial Parkway (GWMP) *VA/DC*	No Adverse Effect	Direct Adverse Effect	Direct and Indirect Adverse Effect	Direct Adverse Effect	Direct and Indirect Adverse Effect
Mount Vernon Memorial Highway (MVMH) *VA/DC*	No Adverse Effect	Direct Adverse Effect	Direct and Indirect Adverse Effect	Direct Adverse Effect	Direct and Indirect Adverse Effect
East and West Potomac Parks *DC*	No Adverse Effect	Direct Adverse Effect	Direct Adverse Effect	Direct Adverse Effect	Direct and Indirect Adverse Effect

COMMONWEALTH of VIRGINIA

Department of Historic Resources

Matt Strickler
Secretary of Natural Resources

2801 Kensington Avenue, Richmond, Virginia 23221

Julie V. Langan
Director

Tel: (804) 367-2323
Fax: (804) 367-2391
www.dhr.virginia.gov

November 9, 2018

Ms. Amanda Murphy, Environmental Protection Specialist
Federal Railroad Administration
1200 New Jersey Avenue SE, Mail Stop-20
Washington, DC 20590

Re: Long Bridge Project
Arlington County, Virginia
DHR Project No. 2016-0932

Dear Ms. Murphy:

Thank you for requesting comments from the Virginia Department of Historic Resources (DHR) on the materials presented at the Fourth Consulting Parties Meeting held on October 30, 2018.

Action Alternatives. DHR recommends the selection of Option 2 for the bike-pedestrian crossing, as the footprint would be smaller than Option 1; it would not as directly impact the historic bridge and would be more easily reversible. We recommend that it be placed upstream. Because Long Bridge is contributing to the East-West Potomac Park, it should be retained and a new two-track bridge should be constructed. Action alternatives may include ground disturbances for piers and/or landings in Virginia and in the District of Columbia. Any necessary further survey should be completed prior to the selection of the preferred alternative.

Summary for Assessment of Effects. Regarding summary assessment for Virginia properties, DHR concurs with the following determinations:

Property	No Action Alternative	Action Alternative A	Action Alternative B	Cumulative Effects	Temporary Effects
George Washington Memorial Parkway	No Adverse Effect	Direct Adverse Effect	Direct and Indirect Adverse Effect	Direct Adverse Effect	Direct and Indirect Adverse Effect
Mount Vernon Memorial Highway	No Adverse Effect	Direct Adverse Effect	Direct and Indirect Adverse Effect	Direct Adverse Effect	Direct and Indirect Adverse Effect

Western Region Office
962 Kime Lane
Salem, VA 24153
Tel: (540) 387-5443
Fax: (540) 387-5446

Northern Region Office
5357 Main Street
PO Box 519
Stephens City, VA 22655
Tel: (540) 868-7029
Fax: (540) 868-7033

Eastern Region Office
2801 Kensington Avenue
Richmond, VA 23221
Tel: (804) 367-2323
Fax: (804) 367-2391

Long Bridge Project: Phase IA Archaeological Assessment Draft Technical Report. We have reviewed the document entitled Long *Bridge Project: Phase IA Archaeological Assessment Draft Technical Report* and find that its recommendations are sound. We support the proposed classification of areas with high, moderate, and no archaeological potential and the Recommended Actions presented in Section 11.5.

This letter provides our concurrence with the FRA's determination of Adverse Effect for all action alternatives as submitted. We look forward to continued consultation with the FRA and the other consulting parties as the project progresses. For any additional questions, please contact the reviewer assigned to this project, Adrienne Birge-Wilson at (804) 482-6092, or via email at adrienne.birge-wilson@dhr.virginia.gov.

Sincerely,

Roger W. Kirchen
Director, Review and Compliance Division

Western Region Office
962 Kime Lane
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APPENDIX E: ASSESSMENT OF EFFECTS REPORT

LONG BRIDGE PROJECT

Connecting North and South Through our Nation's Capital

Long Bridge Project

Section 106 Assessment of Effects Report

December 7, 2018

District Department of Transportation

U.S. Department of Transportation
Federal Railroad Administration

Long Bridge Project

Section 106 Assessment of Effects Report

Table of Contents

Appendices

Appendix A: Historic Properties Technical Report

List of Tables

List of Figures

1.0 Introduction

The Federal Railroad Administration (FRA) in coordination with the District Department of Transportation (DDOT) assessed effects of the Long Bridge Project (the Project) on historic properties per Section 106 of the National Historic Preservation Act of 1966[1] and its implementing regulation.[2] FRA and DDOT are coordinating the Section 106 process with the preparation of an Environmental Impact Statement (EIS) in accordance with the National Environmental Policy Act of 1969 (NEPA).

The Project consists of potential improvements to the Long Bridge and related railroad infrastructure located between the RO Interlocking near Long Bridge Park in Arlington, Virginia, and the L'Enfant (LE) Interlocking near 10th Street SW in the District of Columbia (the Long Bridge Corridor). The 1.8-mile Long Bridge Corridor is shown in **Figure 1-1**.

The purpose of the Project is to provide additional long-term railroad capacity and to improve the reliability of railroad service through the Long Bridge Corridor. Currently, there is insufficient capacity, resiliency, and redundancy to accommodate the projected demand in future railroad services. The Proposed Action is needed to address these issues and to ensure the Long Bridge Corridor continues to serve as a critical link connecting the local, regional, and national transportation network.

This report documents the assessment of effects to historic properties that could result from the Project. This report includes the following:

1. Description of the project alternatives considered and a description of the bike-pedestrian crossing mitigation option;
2. Summary of Section 106 consultation efforts completed to date;
3. Description of the Area of Potential Effects (APE);
4. Listing identified historic properties and properties at or greater than 45 years of age within the APE;
5. Description of the methodology used for assessing effects on historic properties; and
6. Assessment of effects on historic properties.

FRA and DDOT considered comments from the District of Columbia State Historic Preservation Officer (DC SHPO), Virginia Department of Historic Resources (VDHR), and other Consulting Parties to the Section 106 process in preparing this final report.[3]

[1] 54 USC 300101.
[2] 36 CFR Part 800. Protection of Historic Properties.
[3] FRA and DDOT provided a draft Assessment of Effects report to SHPOs and Consulting Parties for 30-day review (Oct 10, 2018 – November 9, 2018), and held a Consulting Parties Meeting on October 24, 2018.

Figure 1-1 | Long Bridge Corridor

2.0 Description of the Undertaking

2.1. Project Background

The existing Long Bridge is a two-track railroad bridge, constructed in 1904, that is currently owned and operated by CSX Transportation (CSXT), a Class I freight railroad. The Long Bridge is a contributing structure to the East and West Potomac Parks Historic District. The Long Bridge Corridor serves freight (CSXT), National Railroad Passenger Corporation (Amtrak) intercity passenger rail, and Virginia Railway Express (VRE) commuter rail. Maryland Area Regional Commuter (MARC) service, which currently terminates at Washington Union Station in the District, plans to expand service across Long Bridge between the District and Northern Virginia. Norfolk Southern, also a Class I freight railroad, has trackage rights on Long Bridge but does not currently exercise those rights.

Long Bridge is a key element of the regional commuter railroad network and national railroad system for intra- and intercity passenger rail service, as well as freight railroad service along the Eastern Seaboard of the United States, linking the Northeast Corridor and Southeast High-Speed Rail Corridor. Projections indicate that freight and passenger growth will exceed the capacity of the existing two-track bridge across the Potomac River. Future demand will require new options and expanded infrastructure to avoid interrupting the movement of passengers and goods across the Potomac River and to provide service to economic centers north and south of Long Bridge.

2.2. Alternatives to Be Evaluated in the EIS

2.2.1. Action Alternatives

Based on the results of concept screening completed by FRA and DDOT, in addition to comments from agencies, the public, and Consulting Parties, FRA and DDOT selected two Action Alternatives to for evaluation in the EIS. **Figure 2-1** shows Action Alternative A and Action Alternative B.

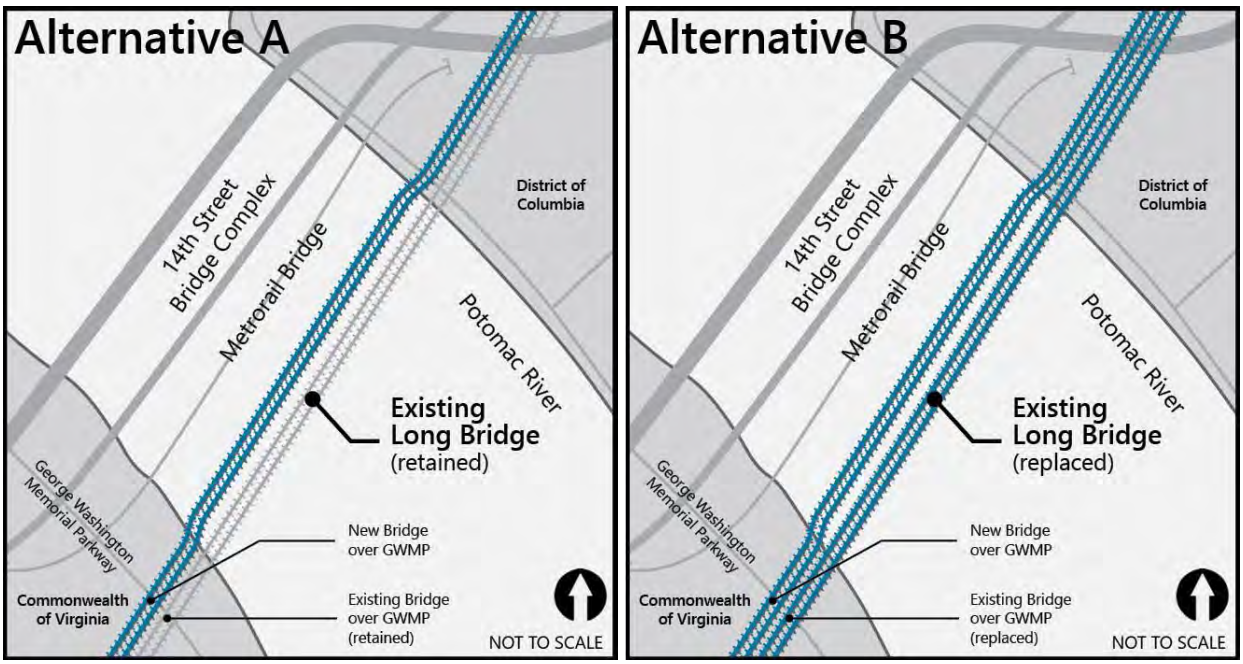
- **Action Alternative A (Preferred Alternative):**[4] This alternative would retain the existing two-track Long Bridge and construct a new two-track bridge upstream of the existing Long Bridge to create a four-track crossing over the Potomac River. Action Alternative A proposes no repairs or modifications to the existing Long Bridge under this Project, and the central through-truss span would be retained. A new component railway bridge would also be constructed to span above the George Washington Memorial Parkway (GWMP). The existing two-track railroad bridge above the GWMP would remain.

- **Action Alternative B:** This alternative would replace Long Bridge with a new two-track bridge and construct another new two-track bridge upstream of the existing bridge to create a four-track crossing. This alternative would also construct two new component railway bridges spanning above the GWMP, necessitating the removal of the existing bridge.

[4] FRA and DDOT have identified Action Alternative A as the Preferred Alternative in the EIS. They informed agencies and the public of this decision on November 29, 2018.

North of the Potomac River crossing, the Action Alternatives follow substantially the same course. The following section describes elements common to both Action Alternatives.

Figure 2-1 | Action Alternatives to Be Evaluated in the EIS



2.2.2. Elements Common to Both Action Alternatives

The southern Project limit is the RO Interlocking, a series of signals and track crossovers allowing trains to switch between tracks. As part of the District to Richmond segment of the Southeast High-Speed Rail Corridor, the Virginia Department of Rail and Public Transportation (DRPT) is proposing a four-track crossover alignment at this location.[5] Both Action Alternatives tie into the planned interlocking and add two new tracks in addition to the two existing tracks. The new and existing tracks would meet the switching and crossover length requirements necessary at an interlocking for interoperability.

Moving north from the RO Interlocking, the four-track alignment proposed for the Project would continue adjacent to Long Bridge Park and would then cross over the GWMP. In both Action Alternatives, a new bridge would be constructed over the Mount Vernon Trail (MVT) and continue across the Potomac River upstream of the existing bridge. Additional information on the proposed bridge design and engineering is described in **Section 2.2.4, Conceptual Engineering Studies**.

After crossing the Potomac River, the new Long Bridge structures in both Action Alternatives would extend over Ohio Drive SW in the District and end at an abutment north of the street. The new upstream bridge would extend into National Park Service (NPS) Parking Lot C. The two new western track alignments would continue north from NPS Parking Lot C with a new single-span bridge spanning

[5] DRPT. *DC2RVA Tier II DEIS*, Appendix A – Alternatives Technical Report. Accessed from http://dc2rvarail.com/files/9615/0413/6228/Appendix_A-Attachment_A_Corridor_Segments.pdf. Accessed July 18, 2018.

the Washington Metropolitan Area Transit Authority (WMATA) Metrorail Yellow Line portal. Retaining walls would be required along the eastern and western sides of the four-track corridor to retain embankment fills.

The four new tracks would continue across I-395 on two separate two-track bridges. After bridging I-395, the four tracks would converge into parallel alignments and widen to the east of the existing track alignment, but would still be within the existing right-of-way. The four tracks would continue north along the corridor and cross over Ohio Drive SW for a second time on a single new four-track bridge. Retaining walls would again be required on either side of the corridor to retain embankment fill slopes.

The corridor would cross the Washington Channel at the mouth of the Tidal Basin on a single new four-track bridge that would replace the existing bridge. The channel is not navigable underneath the existing bridges. Just north of the Washington Channel crossing, the tracks would cross Maine Avenue SW and Maiden Lane on a new four-track bridge. The existing retaining wall along the west side of the tracks along the I-395 off-ramp would be maintained, and a new retaining wall would be required along the east side of the railroad corridor between the tracks and the Washington Marina parking lot. The alignment of the two new tracks would require that the pedestrian bridge over Maine Avenue SW be replaced on a new alignment.

The four-track alignment would proceed along the corridor between the Mandarin Oriental Hotel and the Portals V development and would continue underneath the Maryland Avenue SW overbuild. The tracks would share multiple bays between existing bridge piers, with some bridge modifications required.

From Maryland Avenue SW, the tracks would travel along the corridor underneath 12th Street SW, the 12th Street Expressway, and L'Enfant Plaza SW. Just north of L'Enfant Plaza SW, the four tracks would tie into the four tracks at LE Interlocking proposed by VRE, again meeting the switching and crossover length requirements necessary at an interlocking for interoperability.

2.2.3. No Action Alternative

The EIS will also evaluate the No Action Alternative, pursuant to NEPA implementing regulations. In the No Action Alternative, the Project would not be implemented. While the No Action Alternative is not consistent with the Project's Purpose and Need, it will serve as a baseline against which the potential effects of the Action Alternatives can be compared.

2.2.4. Conceptual Engineering Studies

FRA and DDOT are currently studying options to consider the feasibility and constructability of various bridge structure types under both Action Alternatives. In each alternative, the new bridges would be essentially identical in type and size. Over the navigation channels, a fixed span is proposed for the new bridge, with no ability to move or open for marine traffic. The vertical clearances beneath the bridge are restricted at the navigation channel, Ohio Drive SW, the Rock Creek Park Trail, and the MVT. Therefore, the bottom of the beams on the new bridge would be at the same elevation as that of the existing bridge. However, to meet new CSXT design criteria and maintain similar span lengths, the top of rail of the new bridge would be approximately 3 to 5 feet higher than the top of rail of the existing bridge.

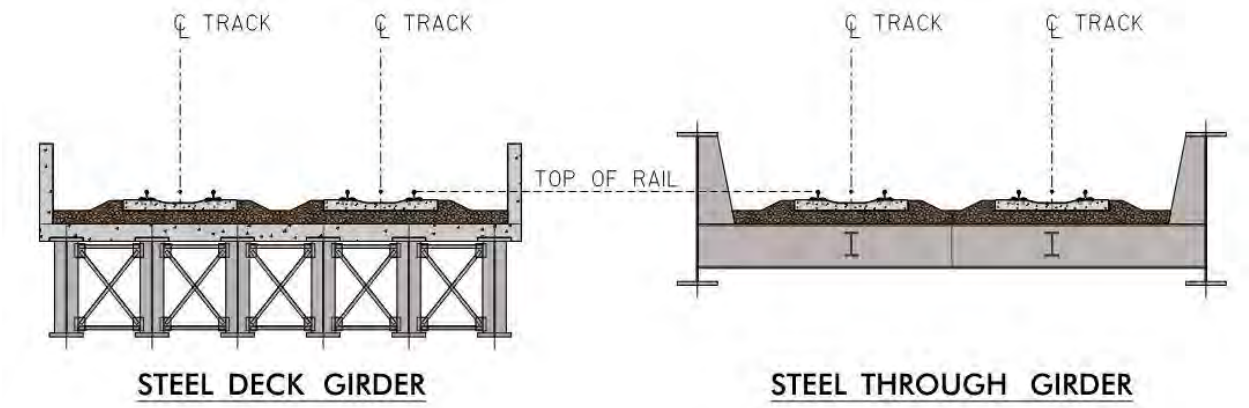
The overall depth of the approach bridge superstructure would be similar to, or slightly deeper than, the existing bridge depth. This element would be further refined during final design. The main channel span

over the navigational channel would have a deeper superstructure depth than the approach bridges due to the longer span, with an overall depth approximately 50 percent greater than the existing through girders.

For Action Alternative A, the locations of the new piers in the Potomac River are proposed to remain in the same configuration as the existing Long Bridge and in line with existing piers. If Action Alternative B is selected, and the existing bridge is replaced with a new bridge, the span lengths for both new bridges would remain similar as the superstructure lengths are already at the maximum limits for the required design loading, bridge geometry, and vertical clearances.

Two structure types for the proposed bridge across the Potomac River are being considered, as shown in **Figure 2-2**: a steel through girder bridge and a steel deck girder bridge. These are common structure types for railroad bridges in the United States. In addition, these structure types are considerably more cost effective than other structure types. The shallow depth of the structure required over the navigation channel precludes the use of concrete girders at this location. For uniformity, only steel girders are proposed for the new bridges over the river.

Figure 2-2 | Structure Types Under Consideration



Given the location of the bridge and its proximity to major landmarks and trails, the aesthetics of the proposed bridge would be considered in final design. The main difference between the two structure types in terms of aesthetics is the visible structure depth. For the deck girder design, roughly half the depth is the steel girder and the other half is the concrete deck and parapet wall. For the through girder bridge, the entire visible depth is steel. The concrete deck and parapet of the deck girder option may be cast with a decorative form liner to economically give an aesthetic finish to the parapet. The through girders can be painted to enhance the bridge appearance.

Both evaluated structure types would be viewed as traditional railroad bridges in appearance, to provide visual consistency with the existing Long Bridge structure. These would not have any signature spans that would greatly stand out among the surrounding bridges. Additionally, none of the new bridges proposed in either Action Alternative would recreate the central through truss span on the existing Long Bridge. Feedback received from the public, agencies, and Consulting Parties indicated a preference for a new span or spans that preserves the uniformity of the existing Long Bridge-Metrorail-14th Street bridge

complex and avoids potential adverse visual effects resulting from a signature span. The new bridges would be a deck plate girder or through plate girder bridge type for all spans, as shown in **Figure 2-2**.

2.2.5. Bike-Pedestrian Crossing Options

Although not part of the Project's Purpose and Need, some agencies and members of the public have expressed strong support for a bike-pedestrian crossing. The Project has continued to explore the potential opportunity to accommodate connections that follow the trajectory of the Long Bridge Corridor to the pedestrian and bicycle network. A potential bike-pedestrian crossing could be implemented under either Action Alternative being evaluated in the EIS. While not part of the Project, FRA, DDOT, and NPS are continuing to consider a bike-pedestrian crossing option as potential mitigation for impacts to properties protected under Section 4(f) of the United States Department of Transportation Act of 1966.[6]

The Project evaluated the feasibility of four bike-pedestrian crossing options and considered if a crossing could be designed to be consistent with railroad operator plans and pursuant to railroad safety practices. The four options extend from the Long Bridge Park side of the GWMP to the north side of Ohio Drive SW at NPS Parking Lot C, with connections to the MVT and Ohio Drive SW. These options are summarized below:

- **Option 1A** would provide a crossing attached to the upstream side of the new upstream railroad bridge using a shared superstructure and substructure with the railroad bridge. This option would provide a direct connection to Long Bridge Park.
- **Option 1B** would provide a crossing attached to the upstream side of the new upstream railroad bridge using a shared substructure and separate superstructures. This option would provide a direct connection to Long Bridge Park.
- **Option 2** would provide a crossing on an independent bridge on the upstream side of the new upstream railroad bridge. This option would provide a direct connection to Long Bridge Park.
- **Option 3** would provide a crossing on an independent bridge downstream of the existing railroad bridge. To optimize connections to bicycle and pedestrian facilities, the crossing would connect in the District to Ohio Drive SW near the NPS National Capital Region (NCR) Headquarters, rather than landing next to Long Bridge. A direct connection to Long Bridge Park would not be feasible with this option.

Options shown at the public and agency meetings in December 2017 did not show the crossing connecting across the GWMP to Long Bridge Park. However, following feedback received from the public and agencies (U.S. Commission of Fine Arts [CFA], National Capital Planning Commission [NCPC], and Arlington County) that emphasized the importance of a connection to Crystal City, the potential to cross the GWMP have been evaluated as part of all options.

The ramps connecting to the MVT in Virginia and to Ohio Drive SW in the District would begin sloping down to existing ground once the crossing reaches land on either side of the river or may begin sloping down while still over the river, which would minimize the length of ramp switchbacks. The determination of whether the bridge can begin sloping downward while still over the river channel

[6] 49 USC 303

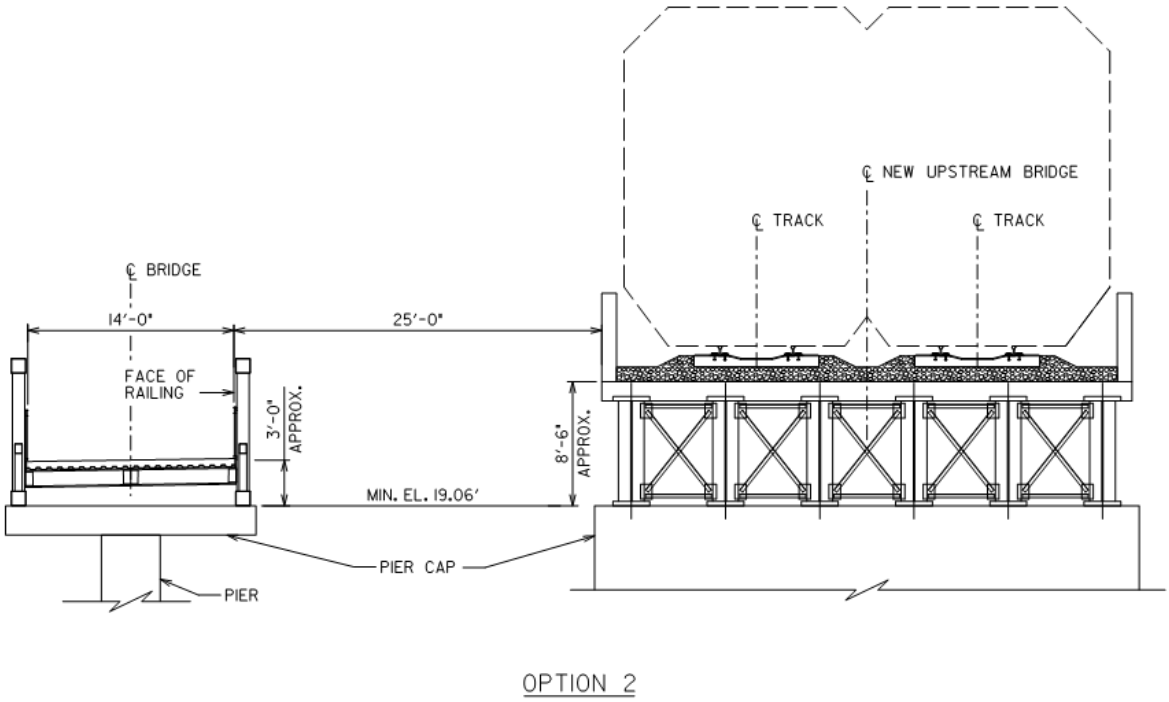
would be made in consultation with the United States Coast Guard regarding the minimum allowable vertical clearance over the channel.

FRA and DDOT will continue to consider Option 2 as potential mitigation for the Project. As shown in **Figure 2-3** and **Figure 2-4**, Option 2 provides the bike-pedestrian crossing on a completely separate structure approximately 25 feet upstream of the new upstream railroad bridge.

Option 2 is preferred by the railroad operators and NPS (land owner on either side of the bridge and the river bottom). This structure would be supported by single-column piers approximately 6 feet in diameter. The Option 2 piers would be significantly smaller than the piers in Option 1B as the size would be based on bike-pedestrian loading rather than railroad loading. The results of a Threat, Vulnerability, & Risk Assessment (TVRA) showed that this option would have the lowest risk, because the completely separate structure and distance between bridges would prohibit pedestrians from accessing the railroad bridge. Therefore, fewer security measures would be required. The completely separate structure also simplifies inspection and maintenance. Lastly, the construction cost of Option 2 would also be approximately 20 percent less than Option 1B.

Figure 2-3 | Bike-Pedestrian Crossing Option 2

Figure 2-4 | Section Diagram of New Upstream Railroad Bridge and Bike-Pedestrian Crossing Option 2



Options 1A, 1B, and 3 were eliminated from further consideration for the following reasons:

- The deck of Option 1A, because it shares its superstructure as well as its substructure with the new upstream railroad bridge, would be at a much higher elevation across the river. This would require longer ramps than the other options, resulting in additional impacts to the GWMP, MVT, and NPS Parking Lot C. Compared to the other options, Option 1A would also offer less separation between the bike-pedestrian crossing and the railroad bridge. This proximity to the railroad bridge would result in a less desirable experience for bicyclists and pedestrians and would make maintenance and inspection more difficult.

- Option 1B shares its substructure with the new upstream railroad bridge, but would have a separate superstructure, enabling additional separation distance from the active railroad. To support the bike-pedestrian crossing superstructure, the railroad bridge piers would be extended by approximately 22 feet farther upstream. The results of the TVRA showed that this option would have the second highest risk of the options available. Option 1B requires substantial security measures to make it more difficult for pedestrians to access the railroad bridge. The proximity to the railroad bridge would result in a less desirable experience for bicyclists and pedestrians and make maintenance and inspection more difficult. The extended railroad piers and security measures make Option 1B more expensive than Option 2.

- Option 3 would introduce a new visual element into the viewsheds from the GWMP, East Potomac Park, and Potomac River resulting in additional impacts. In addition, it could not provide a direct connection to Long Bridge Park.

2.3. Long Bridge Section 106 Consultation

FRA initiated Section 106 consultation with DC SHPO and VDHR on September 22, 2016. FRA and DDOT worked with VDHR and DC SHPO to identify Consulting Parties, who were formally invited to participate in the Section 106 consultation process in March 2017. A list of those parties FRA invited to participate in the consultation process is shown in **Table 2-1** below.

Table 2-1 | Agencies and Organizations Invited to Participate as Consulting Parties for the Long Bridge Project

Amtrak	National Mall Coalition[1]
Architect of the Capitol	NPS, Captain John Smith Trail[1]
Arlington County Historic Preservation Program	NPS, GWMP
Arlington County Manager[1]	NPS, National Capital Region
Arlington Historical Society[1]	NPS, National Mall & Memorial Parks
Arlington National Cemetery[1]	National Trust for Historic Preservation[1]
Catawba Indian Nation[1]	Pentagon Reservation (Department of Defense)
Committee of 100 on the Federal City[1]	Southwest BID
Crystal City Civic Association	Trust for the National Mall[1]
CSXT	U.S. Army Corps of Engineers, Baltimore District[2]
DC Preservation League	U.S. Army Corps of Engineers, Norfolk District[2]
Delaware Nation	CFA
Delaware Tribe of Indians[1]	U.S. General Services Administration, National Capital Region
Federal Transit Administration (FTA)	DRPT
Mayor of the District of Columbia[1]	VRE
NCPC	Washington DC Chapter National Railway Historical Society[1]

[1] These organizations did not respond to the Consulting Party invitation or declined to participate as Consulting Parties.

[2] During scoping, the Norfolk District designated FRA as the lead Federal agency for fulfilling its compliance obligations under Section 106. In November 2018, the Baltimore District designated FRA as the lead Federal agency for Section 106 compliance.

FRA and DDOT jointly conducted four Section 106 Consulting Party meetings between April 2017 and October 2018. The specific content of those meetings is explained in **Table 2-2**. The feedback received during these meetings and in the subsequent comment periods informed the development of the APE, the identification of historic properties, the methodology for assessing effects, the assessment of effects on historic properties, and appropriate resolution strategies. In addition to meeting with Consulting Parties, FRA and DDOT held several public meetings throughout the NEPA process to provide information and solicit comments and questions from the public. These meetings also served as public meetings for the purposes of Section 106 consultation.

Table 2-2 | Consulting Party Meetings for the Long Bridge Project

Date	Content
Meeting #1 April 25, 2017	Project overview; purpose and need; preliminary concepts and screening; Section 106 process; preliminary identification of historic properties; and role of the consulting party.
Meeting #2 November 15, 2017	Concept screening results; draft APE and field survey methodology; and identification of historic properties.
Meeting #3 May 30, 2018	Phase 1A archaeological assessment overview; methodology for assessing effects to historic properties.
Meeting #4 October 24, 2018	Phase IA archaeological assessment findings; findings of draft assessment of effects report; and avoidance, minimization, and mitigation strategies.

3.0 Identification of Historic Properties

This section provides a summary of the methodology utilized by FRA and DDOT to develop the project APE and identify historic properties, as well as the findings of those efforts. A detailed description of these methodologies and findings are described in the *Area of Potential Effects and Historic Properties Technical Report* (February 2018), which was provided to DC SHPO, VDHR, and the Consulting Parties (see **Appendix A**).

3.1. APE Development

Section 106 regulations define the APE as the geographic boundary within which an undertaking has the potential to directly or indirectly effect historic properties. The APE boundary reflects the scale and nature of an undertaking and may be different for different types of effects caused by an undertaking. For Section 106 consultation, the APE is defined to facilitate the identification of historic properties and to allow for the evaluation of potential effects to historic properties resulting from an undertaking.[7]

For the Project, FRA identified an APE and Limits of Disturbance (LOD) for the alternatives under consideration. The LOD boundary represents the area within which the Project has the potential to directly alter an existing feature or result in ground-disturbing activities. FRA subsequently refined the APE in consultation with DC SHPO, VDHR, and other Consulting Parties. By letters dated March 23, 2018, DC SHPO and VDHR concurred with the APE and LOD.

Following the dismissal of the bike-pedestrian crossing option downstream of the existing Long Bridge (see **Section 2.2.5, Bike-Pedestrian Crossing Options**), FRA revised the LOD to remove the alignment of that crossing option and its associated access ramps and landings (see **Figure 3-1**). The APE boundary remains unchanged.

3.2. Identification of Historic Properties

Concurrent with the development of the APE, FRA and DDOT identified historic properties within the APE boundaries in consultation with DC SHPO, VDHR, and the Consulting Parties (as shown in **Figure 3-2**). Per the Section 106 regulation, a historic property is defined as "… any prehistoric or historic district, site, building, structure, or object included in, or eligible for inclusion in, the National Register of Historic Places (NRHP)." The definition of historic properties includes properties of traditional religious and cultural importance to an Indian tribe or Native Hawaiian organization and that meet the National Register criteria (including artifacts, records, and material remains).[8] The following tables provide a list of identified historic properties for the Project. **Appendix A, Area of Potential Effects and Historic Properties Technical Report**, provides more detailed information on the location and significance of these properties.

[7] 36 CFR 800.16(d).
[8] 36 CFR 800.16(l)(1).

Figure 3-1 | Area of Potential Effects and Limits of Disturbance

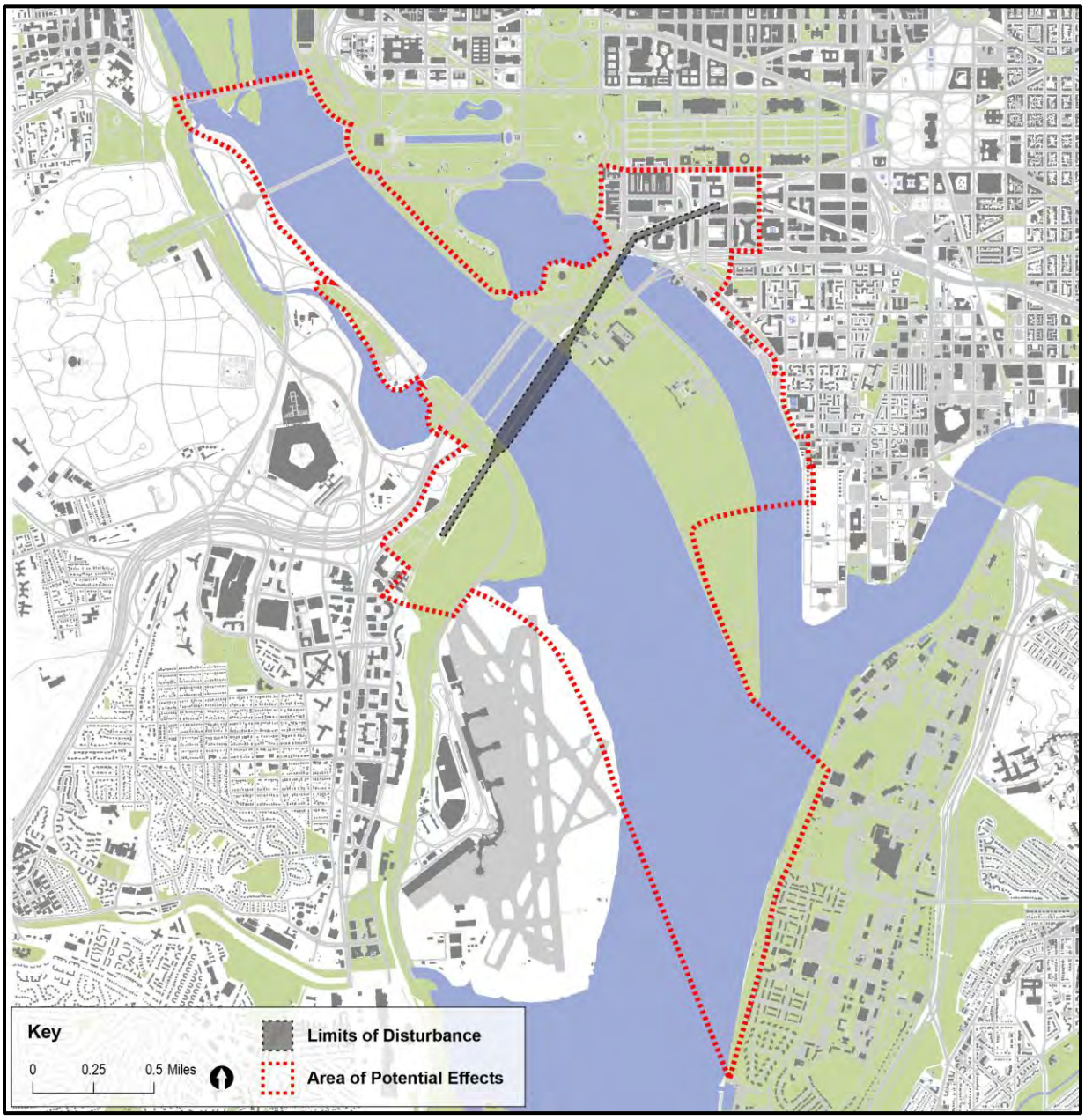
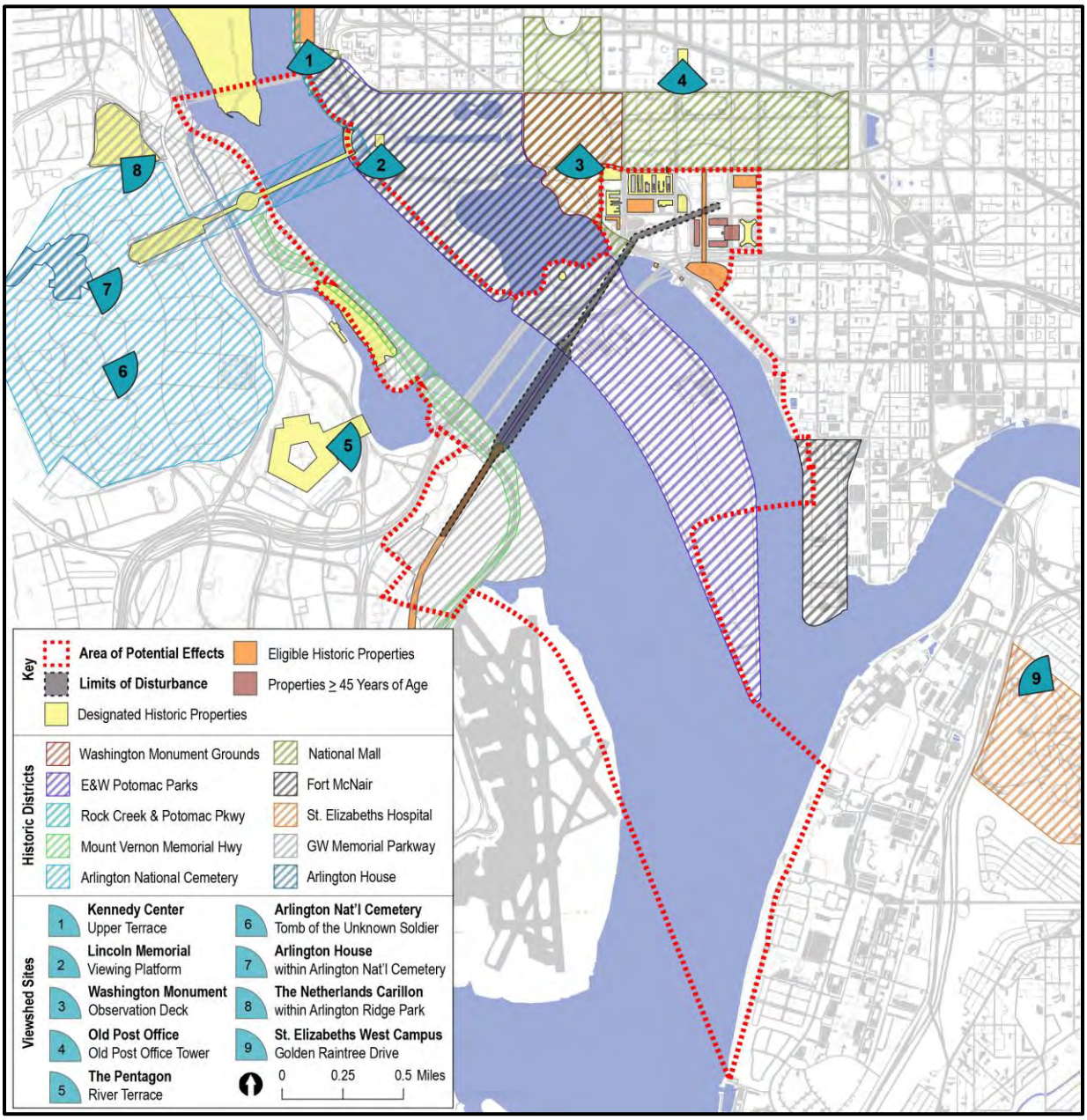


Figure 3-2 | Identification of Historic Properties



3.2.1. Designated Historic Properties

The following properties (**Table 3-1**) have been listed in the NRHP, DC Inventory of Historic Sites (DC), or the Virginia Landmarks Register (VLR). Two properties have been designated as National Historic Landmarks (NHL). In some cases, these properties were determined eligible for NRHP listing (Determination of Eligibility [DOE]) and were subsequently listed.

Table 3-1 | Designated Historic Properties

#	Name	Location	Designation
1.	**National Mall Historic District**	Washington, DC	DC, NRHP
2.	**Parkways of the National Capital Region**	Washington, DC	VLR, NRHP
3.	**Rock Creek and Potomac Parkway Historic District**	Along the Potomac River and Rock Creek from the Lincoln Memorial to the National Zoo, Washington, DC	DC, NRHP
4.	**GWMP**[1]	Arlington, VA; Washington, DC	VLR, NRHP
5.	**Mount Vernon Memorial Highway (MVMH)**[2]	Arlington, VA; Washington, DC	VLR, NRHP
6.	**Plan of the City of Washington**	Washington, DC	DC, NRHP
7.	**East and West Potomac Parks Historic District**	Washington, DC	DC, NRHP
8.	**Thomas Jefferson Memorial**	East Basin Drive SW, Washington, DC	DC, NRHP
9.	**Central Heating Plant**	325 13th Street SW, Washington, DC	DC, NRHP
10.	**United States Department of Agriculture (USDA) Cotton Annex**	300 12th Street SW, Washington, DC	DC, NRHP
11.	**HUD Building (Robert C. Weaver Federal Building)**	451 7th Street, SW, Washington, DC	DC, NRHP
12.	**USDA South Building**	1352 C Street SW, Washington, DC	DC, NRHP
13.	**Bureau of Engraving and Printing**	301 14th Street SW, Washington, DC	DC
14.	**Auditor's Building Complex**	14th Street and Independence Avenue SW, Washington, DC	DC, NRHP
15.	**Arlington Memorial Bridge (and related features)**	Memorial Avenue, Arlington, VA, and Washington, DC	DC, NRHP
16.	**Fort Leslie J. McNair Historic District (The Old Arsenal)**	4th and P Streets SW, Washington, DC	DC, DOE
17.	**Titanic Memorial**	Water and P Streets SW, Washington, DC	DC, NRHP
18.	**Lunch Room Building and Oyster Shucking Shed**	1100 Maine Avenue SW, Washington, DC	DC, DOE
19.	**Cuban Friendship Urn**	Reservation 332, Ohio Drive at 14th Street Bridge SW, Washington, DC	DC, NRHP
20.	**Theodore Roosevelt Island National Memorial (Analostan Island)**	Potomac River west of Georgetown Channel	DC, NRHP
21.	**Lyndon B. Johnson Memorial Grove**	Columbia Island in Lady Bird Johnson Park	DC, NRHP
22.	**Lincoln Memorial (Statue of Lincoln)**[3]	West Potomac Park, Washington, DC	DC, NRHP
23.	**Washington Monument and Grounds Historic District**[3]	14th Street, between Constitution and Independence Avenues, Washington, DC	DC, NRHP
24.	**Arlington House Historic District**[3]	Roughly bound by Sheridan Drive, Ord and Weitzel Drive, Humphrey's Drive and Lee Avenue in Arlington National Cemetery	VLR, NRHP

25.	**Arlington National Cemetery Historic District**[3]	One Memorial Avenue, Arlington, VA	NRHP
26.	**St. Elizabeths Hospital Historic District**[3]	2700 Martin Luther King Jr. Avenue SE, Washington, DC	DC, NRHP, NHL
27.	**Netherlands Carillon (within Arlington Ridge Park)** [3]	Northwest corner of N Meade Street and Marshall Drive, Arlington, VA	VLR, NRHP,
28.	**Old Post Office**[3]	1100 Pennsylvania Avenue NW, Washington, DC	DC, NRHP
29.	**The Pentagon**[3]	US 1, Virginia Route 110, and I-395, Arlington, VA	VLR, NRHP, NHL

[1] Within the Long Bridge Project Area, the GWMP is primarily located in Virginia. Segments of the GWMP, such as where it extends along Lady Bird Johnson Park, are located within the District. Outside of the Project area, the GWMP also extends into Maryland.

[2] The same geographic considerations as described above for the GWMP also apply to the MVMH.

[3] These properties are designated as viewshed locations outside of the contiguous APE boundaries.

3.2.2. Eligible Historic Properties

The following properties have been determined eligible for listing in the NRHP by a Federal agency or recommended as eligible by VDHR or DC SHPO.

Table 3-2 | Eligible Historic Properties

#	Name	Location	Designation
1.	**Bureau of Engraving and Printing Annex**	300 14th Street SW, Washington, DC	DOE
2.	**Federal Office Building 10A (Orville Wright Building)**	800 Independence Ave SW, Washington, DC	DOE
3.	**Benjamin Banneker Park/Overlook; Tenth Street Overlook**	Terminus of 10th Street SW, Washington, DC	DOE
4.	**Richmond, Fredericksburg and Potomac Railroad Historic District**	Along CSX right-of-way in VA from Arlington County to the City of Richmond, VA	DOE
5.	**Washington Marina Building**	1300 Maine Avenue SW, Washington, DC	DOE
6.	**L'Enfant Promenade**	Section of 10th Street SW between Independence Avenue and Banneker Park, Washington, DC	DOE
7.	**Lady Bird Johnson Park**	GWMP, Washington, DC	DOE
8.	**John F. Kennedy Center for the Performing Arts**[1]	2700 F Street NW, Washington, DC	DOE
9.	**Liberty Loan Federal Building**	401 14th Street SW, Washington, DC	DOE

[1] These properties are designated as viewshed locations outside of the contiguous APE boundaries.

3.2.3. Properties at or Greater than 45 Years of Age

Although the scope for this project does not include drafting formal DOEs, properties located within the APE that are at least 45 years of age were evaluated against the NRHP Criteria for Evaluation.[9] An assessment of integrity for each property was also undertaken. This age was selected to account for the 50-year threshold that is generally observed in the evaluation of historic significance, and to account for the implementation schedule of the Project (which would extend 5 or more years into the future). These properties were identified using a range of documentation resources including real property and building permit data, historic maps and photographs, and aerial photographs. A preliminary evaluation of each property's potential historic significance and integrity is provided as a resource for future, or more detailed, evaluation by FRA or others at the time of Project implementation.

Table 3-3 | Properties at or Greater than 45 Years of Age

#	Name	Location	Date(s)	Preliminary Determination of Eligibility
1.	**425 12th Street SW[1]**	425 12th Street SW, Washington, DC	1959	Likely not eligible.
2.	**Astral Building (North Building, L'Enfant Plaza)**	955 L'Enfant Plaza SW, Washington, DC	1968	Potentially eligible.
3.	**Comsat Building (South Building, L'Enfant Plaza)**	950 L'Enfant Plaza SW, Washington, DC	1965	Potentially eligible.
4.	**Loew's L'Enfant Plaza Hotel (East Building, L'Enfant Plaza)**	470-490 L'Enfant Plaza SW, Washington, DC	1971 to 1973	Potentially eligible.
5.	**USPS Building (West Building, L'Enfant Plaza)**	475 L'Enfant Plaza SW, Washington, DC	1969 to 1971	Potentially eligible.
6.	**398 Long Bridge Drive[1]**	398 Long Bridge Drive, Arlington, VA	1957	Likely not eligible.

[1] VDHR or DC SHPO concurred with FRA's preliminary determination of ineligibility. For this reason, these properties are not considered historic properties and are not evaluated for adverse effects.

3.2.4. Archaeological Resources

Archaeological resources will be identified using a phased approach. FRA and DDOT have initiated the process by completing a Phase IA Archaeological Assessment in consultation with DC SHPO and VDHR. The Phase IA consists of a desktop review of known archaeological sites and areas that exhibit high archaeological potential. The Phase IA addresses both Action Alternatives and the potential bike-pedestrian crossing. Additional surveys will be conducted as needed now that a Preferred Alternative has been identified. Because NPS has jurisdiction over a majority of the area within the LOD (including the bottom lands of the Potomac River), FRA and DDOT will coordinate with them regarding potential effects on archaeological resources, including potential underwater archaeology. VDHR provided

[9] *National Register of Historic Places, National Register Bulletin, How to Apply the National Register Criteria for Evaluation* (United States Department of the Interior, NPS, revised 2002).

concurrence on the recommendations and conclusions in the draft Phase IA technical report on November 9, 2018. DC SHPO concurred on November 19, 2018.

4.0 Assessment of Effects

This section provides a description of the criteria and methodology used to assess the Project's effects on historic properties. Following a summary determination of effect, the detailed assessment is organized by historic property and further separated between permanent or long-term effects, cumulative effects associated with the bike-pedestrian crossing options, and temporary or construction-related effects. Effects on archaeological resources are not addressed here but will be identified using the phased approach described above.

4.1. Criteria of Adverse Effect

The Section 106 implementing regulations provide a definition of the criteria of adverse effect: "An adverse effect is found when an undertaking may directly or indirectly alter any of the characteristics of a historic property that qualify it for inclusion in the National Register in a manner that would diminish the property's integrity of location, design, setting, materials, workmanship, feeling, or association."[10]

Examples of adverse effects include:

- Physical destruction or damage;
- Alterations that are inconsistent with the *Secretary's Standards for the Treatment of Historic Properties*, including restoration, rehabilitation, repair, maintenance, stabilization, hazardous material remediation, and provision of handicapped access;
- Removal of the property from its historic location;
- Change of the character of the property's use or of contributing physical features within the property's setting;
- Introduction of visual, atmospheric, or audible elements that diminish the integrity of the property's significant historic features;
- Neglect or deterioration (except in certain religious or cultural cases); and
- Transfer, lease, or sale of property out of Federal ownership or control without adequate preservation controls.

4.2. Assessment of Effects Methodology

For the Project, FRA and DDOT have identified three main categories of potential adverse effects on historic properties:

- **Direct physical effects** that remove, damage, or alter a historic property within the LOD.
- **Indirect visual effects** that change the character of a historic property's setting or alter significant views.
- **Direct or indirect effects** resulting from vibration, or indirect effects from noise that may alter a historic property or diminish its integrity.

At the May 30, 2018, Consulting Party meeting, FRA and DDOT presented a methodology for assessing adverse effects based on each category above. These methodologies are described below.

[10] 36 CFR 800.5(a)(1).

4.2.1. Physical Effects

Based on the results of conceptual engineering for the Action Alternatives, FRA and DDOT described and evaluated the alternatives to determine their potential for direct physical effects on historic properties. For each historic property, the physical changes have been assessed against all seven aspects of historic integrity. If physical changes were determined to diminish any aspects of integrity that contribute to a property's historic significance, a finding of adverse effect has been made.

4.2.2. Visual Effects

Based on the results of conceptual engineering for the Action Alternatives, FRA and DDOT reviewed NRHP and cultural landscape documentation to identify and evaluate significant views and viewsheds for historic properties in the APE. FRA and DDOT also carried out visual assessments utilizing conceptual engineering results and existing survey documentation. For each historic property, the visual effect has been assessed against all seven aspects of historic integrity. If visual effects were determined to diminish any aspects of integrity that contribute to a property's ability to convey its historic significance, a finding of adverse effect has been made. Indirect adverse effects were most likely to result when an alternative permanently removed or impeded views that contribute to the historic significance of a property or diminished a property's historic integrity. Visual effects generally diminished a property's integrity of setting, feeling, and association. This methodology has also followed VDHR guidance for assessing visual effects on historic properties to aid in determining if they are adverse.[11]

4.2.2.1. Viewshed Analysis

To better understand and evaluate the effects of the proposed Action Alternatives, FRA and DDOT prepared a series of photographic simulations that visualize the appearance of these alternatives as compared against existing conditions. The selected locations were sites that demonstrated a moderate or high potential for adverse effects resulting from either Action Alternative. Specific to historic properties, moderate- or high-potential sites were those:

- With views or vistas that contribute demonstrably to the historic significance of a given historic property;
- Where the existing Long Bridge Corridor was currently clearly visible; and
- Where either Action Alternative had the potential to obstruct or alter historic views or vistas or diminish the integrity of a historic property.

At the November 2017 Consulting Parties meeting, FRA and DDOT solicited and received input from the Consulting Parties to determine important viewsheds to include in the APE. In August 2018, FRA and DDOT coordinated with Consulting Parties with technical expertise on the matter, namely the DC SHPO, VDHR, NPS, CFA, and NCPC to develop the list of sites selected for additional visual analysis using photo simulations (see **Figure 4-1** and **Table 4-1**)**Error! Reference source not found.**.

[11] VDHR. Assessing Visual Effects on Historic Properties. Accessed from https://www.dhr.virginia.gov/pdf_files/Assessing_Visual_Effects_JUN10.pdf. Accessed May 9, 2018.

Figure 4-1 | Viewshed Locations (overlaid on APE)

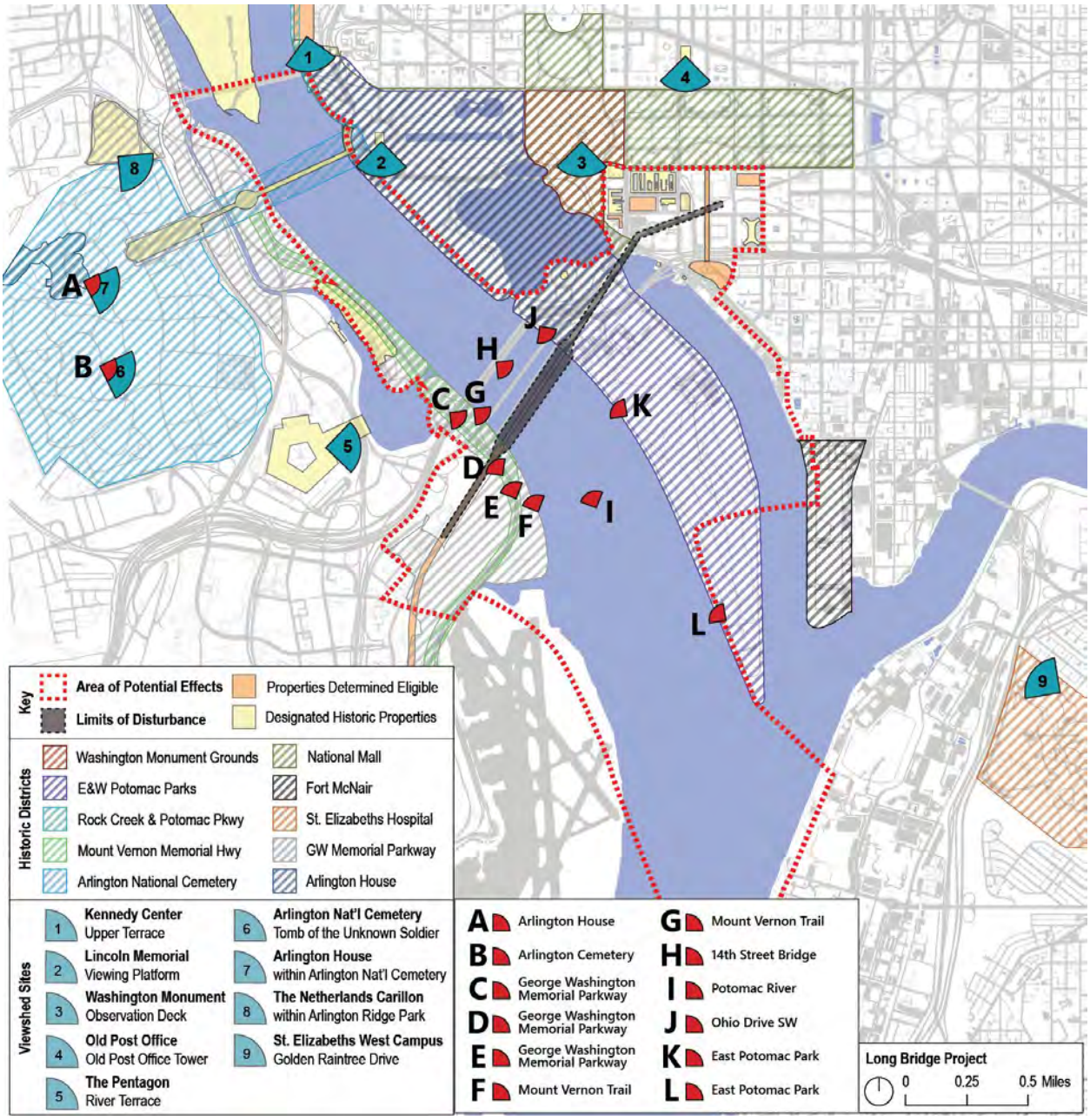


Table 4-1 | Viewshed Analysis Locations

#	Site/Property	Location
A	**Arlington House**	View from Arlington House facing southeast
B	**Arlington National Cemetery**	View from Tomb of the Unknown Solder facing southeast
C	**GWMP**	View from southbound motorway approaching Metrorail Bridge
D	**GWMP**	View from northbound motorway approaching Metrorail and 14th Street bridges
E	**GWMP**	View from northbound motorway approaching GWMP railroad crossing
F	**GWMP, MVT**	View from Gravelly Point Park approaching Long Bridge facing north
G	**GWMP, MVT**	View from north of Long Bridge facing south
H*	**I-395 Bridge**	View from center of bridge facing south
I*	**Potomac River**	View from south of Long Bridge facing north
J	**East Potomac Park**	View from Ohio Drive SW facing southwest
K	**East Potomac Park**	View from Buckeye Drive vicinity facing northwest
L	**East Potomac Park**	View from end of Hains Point facing northwest

** These visualizations will also support analysis of impacts in the Visual Resources chapter of the DEIS but are not presented in this report as they are not historic properties.*

4.2.2.1. Methodology to Create Viewshed Simulations

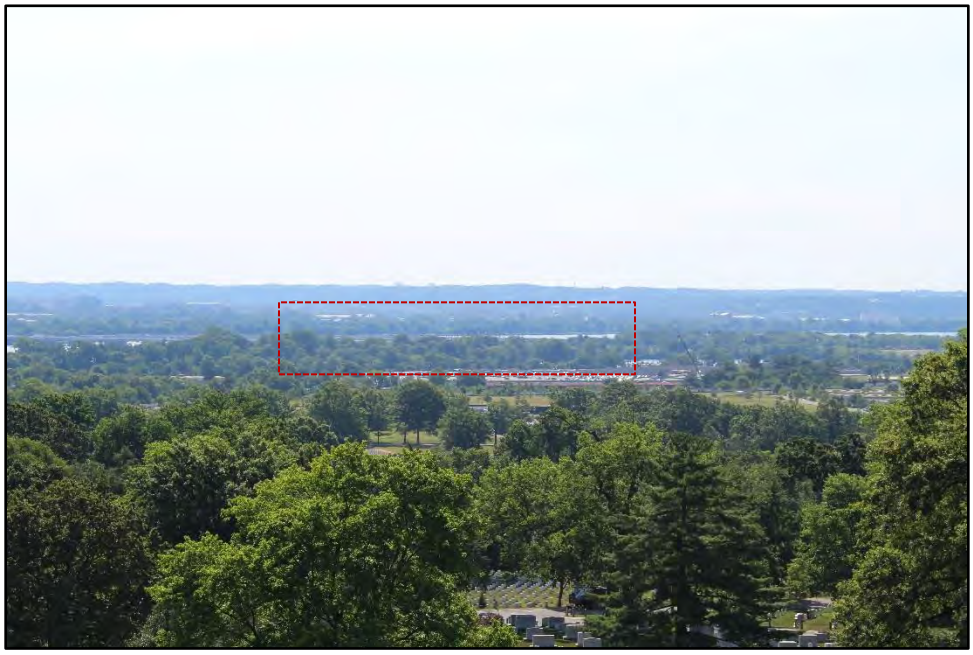
To create these views, FRA and DDOT conducted field surveys to photograph existing conditions. They then created three-dimensional massing models of Action Alternatives A and B that were aligned with the existing Long Bridge Corridor in these locations. The three-dimensional models were overlaid on existing conditions photographs and manipulated digitally to adjust for light and shadow, render materials, and approximate anticipated vegetative conditions. The viewshed simulations are shown on the following pages in **Figures 4-2** through **4-11**.[12]

[12] An additional round of field visits and photo simulations will be conducted in late 2018 to assess winter (leaves-off) views and confirm the findings described in this report. Any changes to the assessment of effects based on winter views will be incorporated into the Final Assessment of Effects Report that will be attached as an appendix to the administrative draft of the DEIS.

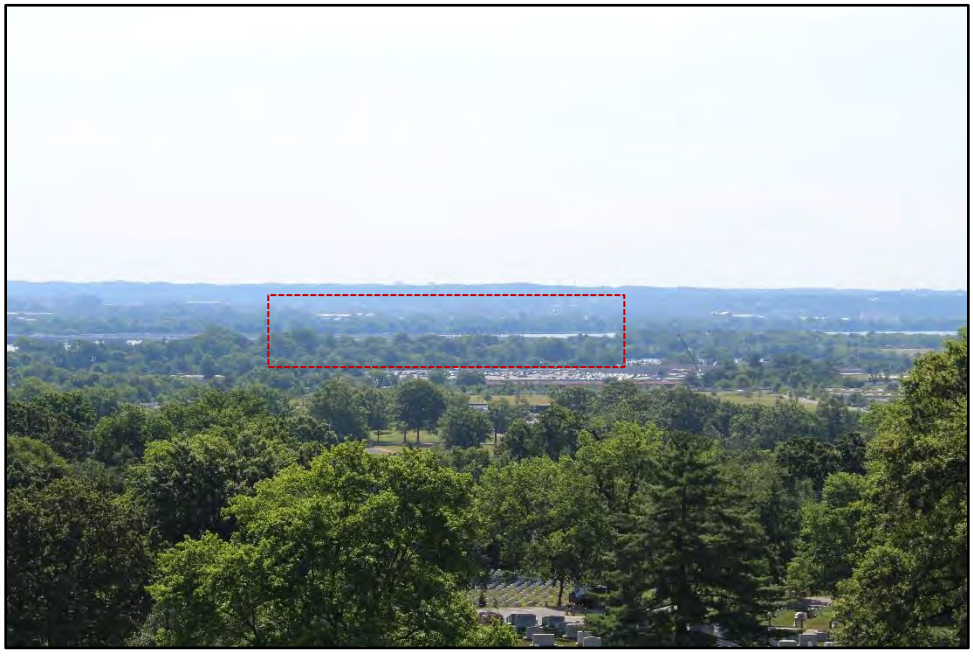
4.2.2.2. Viewshed Simulations

Figure 4-2 | Viewshed Location A (Arlington House)

View from Arlington House facing southeast (existing Long Bridge location outlined in red)



Existing Conditions



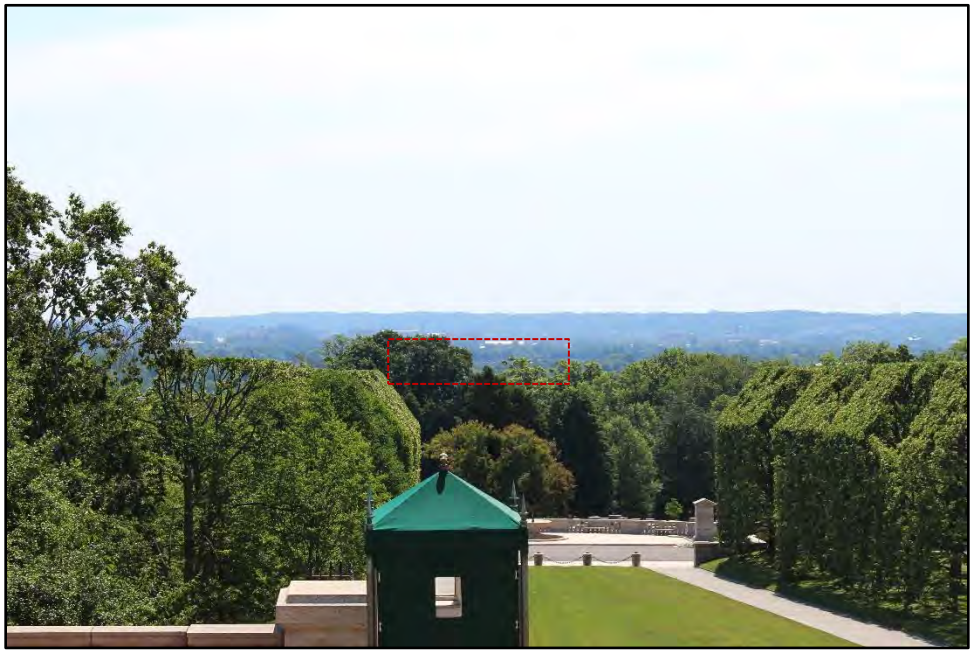
Action Alternative A: New railroad bridge not visually discernable.

Action Alternative B: New railroad bridges not visually discernable.

Figure 4-3 | Viewshed Location B (Arlington National Cemetery)

View from Tomb of the Unknown Soldier facing southeast (existing Long Bridge location outlined in red)

Existing Conditions



Action Alternative A: New railroad bridge not visually discernable.

Action Alternative B: New railroad bridges not visually discernable.

Figure 4-4 | Viewshed Location C (GWMP)

View from southbound motorway approaching Metrorail Bridge

Existing Conditions

Action Alternative A: New railroad bridge visible behind Metrorail Bridge.

Action Alternative B: New railroad bridges visible behind Metrorail Bridge.

Figure 4-5 | Viewshed Location D (GWMP)

View from northbound motorway approaching Metrorail and 14th Street bridges

Existing Conditions

Action Alternative A: New railroad bridge visible behind existing railroad bridge.

Action Alternative B: New railroad bridges visible.

Figure 4-6 | Viewshed Location E (GWMP)

View from northbound motorway approaching GWMP railroad crossing

Existing Conditions

Action Alternative A: New railroad bridge abutment partially visible.

Action Alternative B: New railroad bridges visible.

Figure 4-7 | Viewshed Location F (GWMP, MVT)

View from Gravelly Point Park approaching Long Bridge facing north

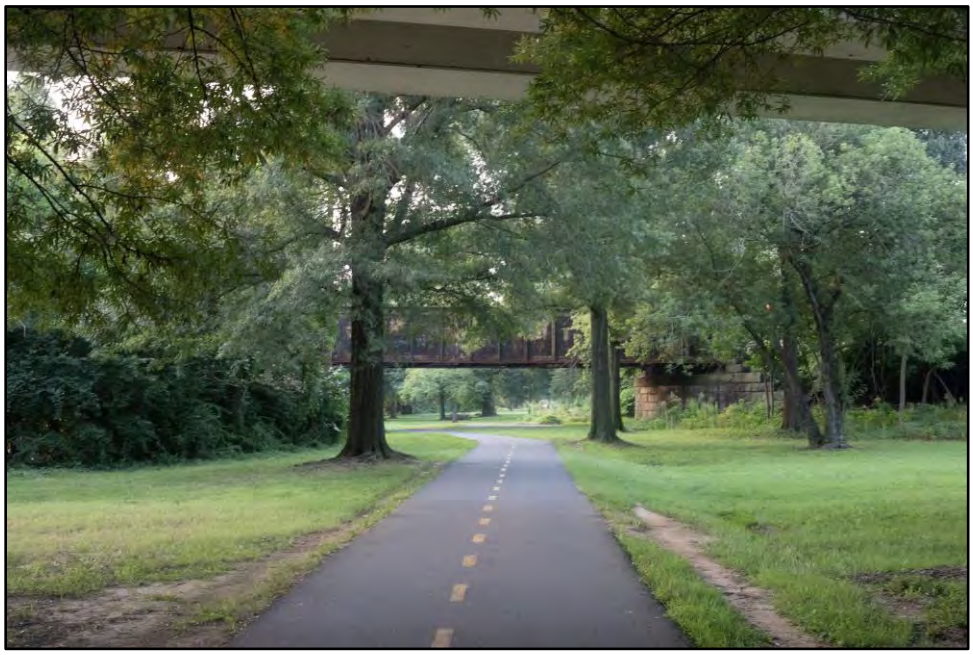
Existing Conditions

Action Alternative A: New railroad bridge not visually discernable.

Action Alternative B: New railroad bridge visible.

Figure 4-8 | Viewshed Location G (GWMP, MVT)

View from north of Long Bridge facing south



Existing Conditions

Action Alternative A: New railroad bridge visible.

Action Alternative B: New railroad bridges visible.

Figure 4-9 | Viewshed Location J (East Potomac Park)

View from Ohio Drive SW facing southwest

Existing Conditions

Action Alternative A: New railroad bridge visible.

Action Alternative B: New railroad bridges visible.

Figure 4-10 | Viewshed Location K (East Potomac Park)

View from Buckeye Drive vicinity facing northwest

Existing Conditions

Action Alternative A: New railroad bridge not visually discernable.

Action Alternative B: New railroad bridge visible.

Figure 4-11 | Viewshed Location L (East Potomac Park)

View from end of Hains Point facing northwest

Existing Conditions

Action Alternative A: New railroad bridge not visually discernable.

Action Alternative B: New railroad bridge visible.

4.2.3. Noise and Vibration Effects

This assessment has been coordinated with the EIS analysis for noise and vibration. FRA and DDOT have overlaid the Noise and Vibration Study Area with the APE (as shown in **Figure 4-12**).**Error! Reference source not found.** In accordance with EIS methodology, noise and vibration analysis has been based on Federal Transit Administration (FTA) Guidelines. Based on the EIS assessment, FRA and DDOT identified historic properties that would experience noise and vibration levels above FTA thresholds. FTA guidelines defer to local construction and operational noise limits where applicable. If noise and vibration levels above FTA or local thresholds were determined to diminish any aspects of integrity that contributed to a property's historic significance, a finding of adverse effect has been made.

The EIS analysis for noise and vibration evaluates both temporary construction and permanent operational effects due to noise and vibration for the following classifications of each:

- **Ground-borne vibration**, defined as the oscillatory motion of the ground, occurs when forces associated with the wheel-rail interaction are transmitted through the track structure into the ground and into adjacent buildings. Vibration may be perceptible and disturb people or sensitive activities in nearby buildings.
- **Noise** is typically defined as unwanted or undesirable sound. Noise is evaluated based on its potential to cause human annoyance. Because humans can hear certain frequencies or pitches of sound better than others, sound levels are measured and reported using a descriptor called the **A-weighted sound level**. A-weighted sound levels weight different frequencies of sound to correspond to human hearing and are expressed in decibel notation as **dBA**.
- **Ground-borne noise** is generated when vibration propagates into a room and causes the walls, ceilings, and floor to vibrate and generate a low frequency rumble. Ground-borne noise is generally only perceptible in buildings where airborne paths (such as paths through windows or openings) are not present. Ground-borne noise is of particular concern for special-use buildings, such as theatres and recording studios.

The process to evaluate the potential effects from noise and vibration included identifying noise- and vibration-sensitive receptors, understanding the predominant sources of noise and vibration, and characterizing existing noise and vibration conditions through measurements. Noise receptors were categorized into the FTA Land Use Noise Categories based on the human use of the property as it relates to the potential for noise to cause human annoyance. Receptors are primarily located at ground-level outdoor areas of frequent human use. Parks that have areas for passive recreation are considered sensitive to noise. Commercial and industrial properties are not typically evaluated for operational noise impact unless there are outdoor areas of frequent human use. Residential, institutional, commercial, and industrial land uses are typically evaluated for construction-period noise effects.

Vibration-sensitive land uses are similar to noise-sensitive land uses except that vibration, as it relates to human annoyance, is only evaluated inside buildings and is not evaluated at parks. All buildings and structures are evaluated for potential structural damage due to high-impact construction equipment such as impact pile driving. The thresholds for potential structural damage are greater than the thresholds for human annoyance. Train operations generally do not generate sufficient vibration to cause structural damage unless the trains are extremely close to sensitive buildings. Historic properties are often more susceptible to vibration and have lower thresholds for increased risk of structural damage.

Figure 4-12 | Noise and Vibration Study Area Overlaid on APE

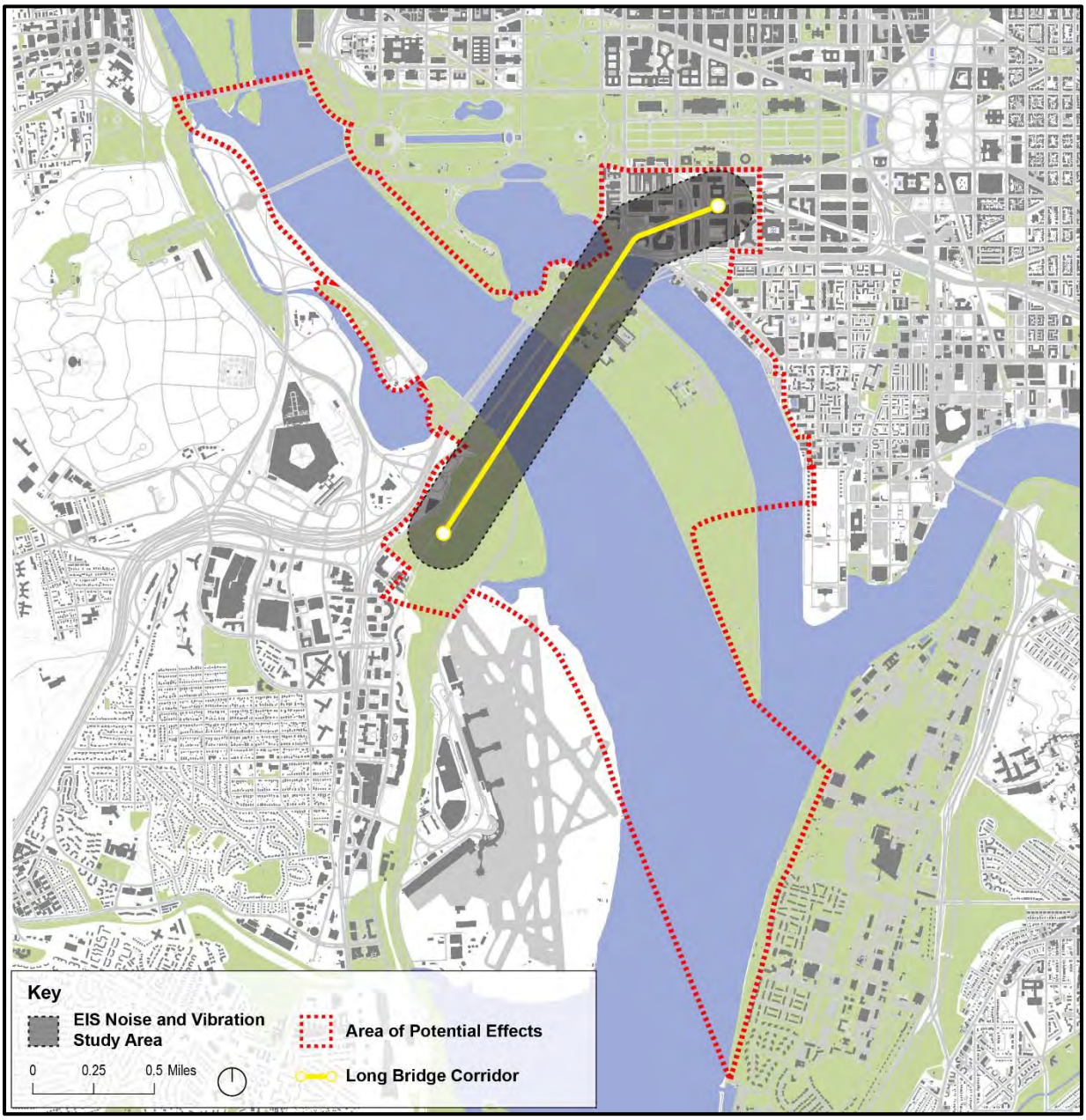
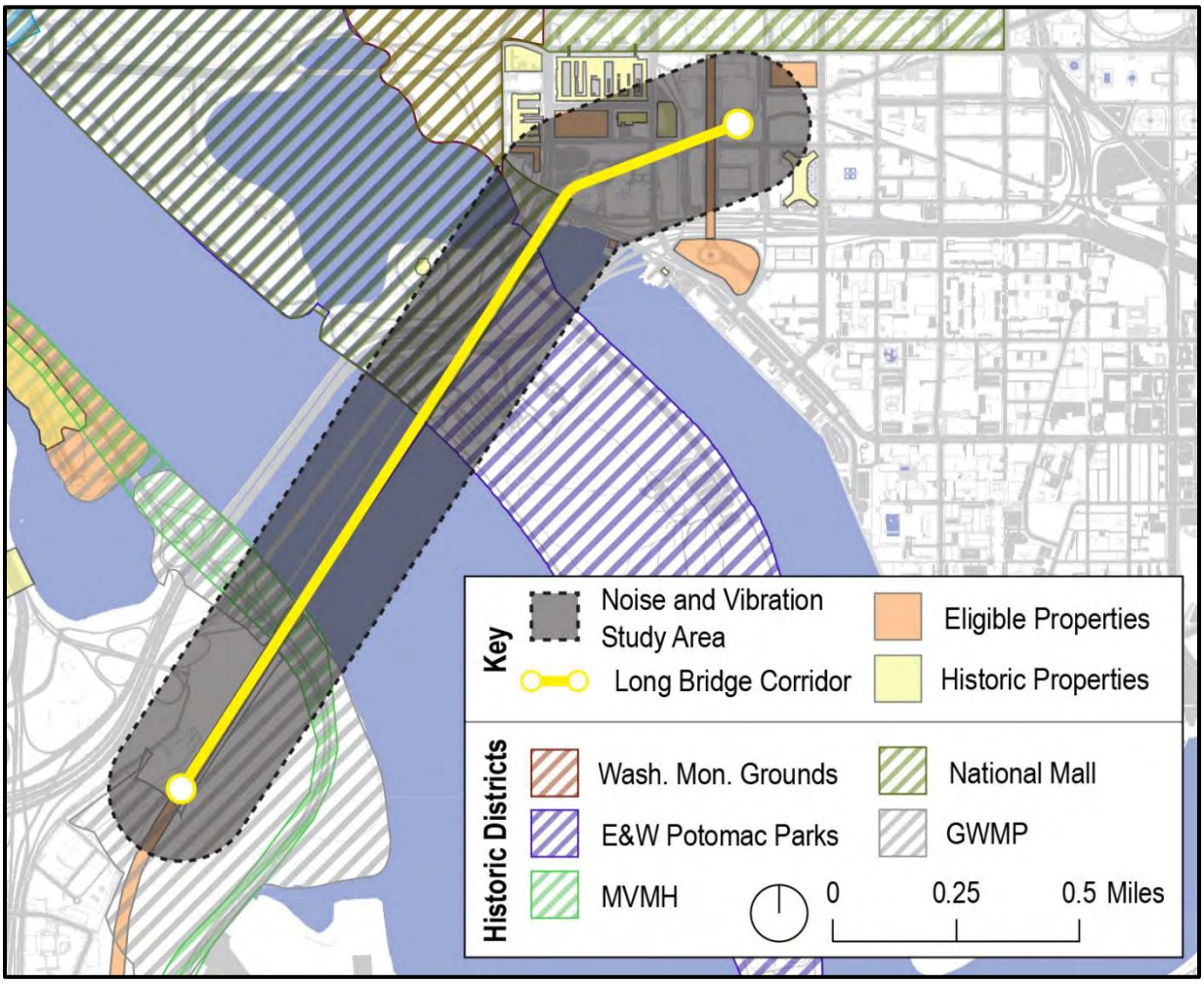


Figure 4-13 | Detail of Noise and Vibration Study Area with Historic Properties



4.3. Summary Determination of Effect

This assessment finds that **both Action Alternatives adversely affect the GWMP, MVMH, and East and West Potomac Parks historic districts**. Direct adverse effects to these resources would result due to the removal or alteration of contributing features, including vegetation. **The direct adverse effects would be intensified in Action Alternative B** because of greater LOD areas, and the removal of the Long Bridge (a contributing resource to the East and West Potomac Parks Historic District) and a component railway bridge above the MVMH and the GWMP (a contributing resource to the GWMP).

Both alternatives create permanent, indirect adverse effects resulting from visual changes on the GWMP, MVMH, and East and West Potomac Parks historic districts.[13] Analysis compiled to support the

[13] This assessment is based on existing NRHP, DC, VLR, DOE, cultural landscape, and other available documentation for each historic property. NPS has indicated that it considers the existing Long Bridge and the circa-1930 component railroad bridge spanning above the motorway to be contributing to the GWMP Historic District. The NRHP documentation for the GWMP

noise and vibration section of the EIS found there would be no permanent, direct or indirect adverse effects on historic properties resulting from noise or vibration.

Construction activities, including **construction-related staging, access, and noise and vibration for both Action Alternatives adversely affect the National Mall, the MVMH, the GWMP, and East and West Potomac Parks historic districts**. These effects are temporary and would be limited to the periods of construction for each Action Alternative. These effects could likely be avoided or minimized in intensity and duration through appropriate construction management techniques. **Section 0**, **Temporary and Construction-Related Effects**, provides a list of the historic properties affected.

4.4. Permanent or Long-Term Effects

An evaluation of permanent and long-term effects anticipated from Action Alternative A and Action Alternative B are described in **Table 4-2**. The evaluation is organized by classifications of historic properties as described previously.

Table 4-2 | Permanent or Long-Term Effects

Property	Action Alternative A (Preferred Alternative)	Action Alternative B
Designated Historic Properties – Historic Districts (HDs)		
National Mall HD (DC)	**Physical Effects:** A portion of the Long Bridge Corridor extends through the National Mall HD. For Action Alternative A, the limits of disturbance would be approximately 6.9 acres within the HD. Despite this, there are no identified contributing features within the railroad corridor. Therefore, **no direct adverse effect** would result under this alternative.	**Physical Effects:** A portion of the Long Bridge Corridor extends through the National Mall HD. For Action Alternative B, the limits of disturbance would be approximately 7.1 acres within the HD. Despite this, there are no identified contributing features within the railroad corridor. Therefore, **no direct adverse effect** would result under this alternative.
	Visual Effects: NRHP and Cultural Landscape documentation identify no significant views within this portion of the HD. Therefore, **no indirect adverse effect** from changes to historic views and viewsheds would result under this alternative.	**Visual Effects:** The effects described under Action Alternative A would be similar under Action Alternative B. Therefore, **no indirect adverse effect** from changes to historic views and viewsheds would result under this alternative.
	Noise and Vibration: The National Mall is located within the Noise and Vibration Study Area. Several receptor locations within the HD were tested to determine the amount of increase of noise and vibration resulting from permanent operational changes. None of these levels exceeded FTA thresholds for noise or vibration. Therefore, **no adverse effects** from permanent operational changes	**Noise and Vibration:** The effects described under Action Alternative A would be similar under Action Alternative B. Therefore, **no adverse effects** from permanent operational changes to noise or vibration would result under this alternative.

references neither structure. However, VDHR has recommended that the component railroad bridge to be contributing to the GWMP Historic District. Additionally, because the Long Bridge was extant during the period of significance of the GWMP (1930-1966), it forms a contributing part of the GWMP historic setting.

Property	Action Alternative A (Preferred Alternative)	Action Alternative B
	to noise or vibration would resulting under this alternative.	
Rock Creek and Potomac Parkway (RCPP) HD (DC)	**Physical Effects:** The RCPP is located outside of the limits of disturbance. Therefore, **no direct adverse effect** would result under either Action Alternative. **Visual Effects:** The RCPP Potomac Waterfront Section cultural landscape report cites the sweeping, panoramic view of the Potomac River shoreline as being contributing to the historic district. Views south from the RCPP to the Project Area are currently impeded by the Roosevelt Bridge. Therefore, **no indirect adverse effects** from changes to historic views and viewsheds would result under either Action Alternative. **Noise and Vibration:** The RCPP is located outside of the noise and vibration study area. Therefore, **no effect** from noise or vibration would result under either Action Alternative.	
George Washington Memorial Parkway (GWMP) HD (DC/VA)	**Physical Effects:** Under Action Alternative A, the limits of disturbance would be approximately 0.9 acres of the GWMP. In addition to the infringement on undeveloped parkland, construction of a new railroad bridge would necessitate the removal of contributing vegetation, especially mature trees that date to the 1932 planting plan of GWMP, which were intended to visually screen the railroad bridge from the motorway. Loss of these trees would diminish the integrity of design, materials (specifically, the contributing vegetation), and feeling of the GWMP, creating a **direct adverse effect**. **Visual Effects:** The existing, non-contributing bridges along this portion of the GWMP have compromised its integrity of feeling, association, and setting. The addition of a new bridge within this existing cluster of structures has no potential to further diminish these aspects of the Parkway's integrity. Therefore, **no indirect adverse effects** from changes to historic views and viewsheds would result under this alternative. See **Figures 4-4, 4-5, and 4-6 Error! Reference source not found.**for illustrations of these changes. Although the introduction of a new railroad bridge structure above the Potomac River would alter views along the shoreline facing north toward the Monumental Core or south to Hains Point, the findings of the viewshed analysis indicates that these are insufficient to	**Physical Effects:** Impacts described under Action Alternative A would be similar under Action Alternative B, although intensified in a result of a second new railroad bridge construction. The expanded limits of disturbance would be approximately 1.6 acres. Action Alternative B also proposes the replacement of the existing component railroad bridge spanning above the GWMP, which has been recommended by VDHR as a contributing resource to the GWMP, resulting in a **direct adverse effect**. **Visual Effects:** For views along the Parkway, the effects described under Action Alternative A would be similar under Action Alternative B. Therefore, **no indirect adverse effects** from changes to historic views and viewsheds would result under this alternative. See **Figure 4-4** for illustrations of these changes. Action Alternative B replaces the existing Long Bridge. This structure and its central through truss span form a significant visual component of the GWMP when traveling north and south along the MVT. In this location, removing this visual element would diminish the integrity of setting and association of the HD, resulting in an **indirect adverse effect**. See **Figures 4-7** and **4-8Error! Reference source not found.** for illustrations of these changes.

Property	Action Alternative A (Preferred Alternative)	Action Alternative B
	diminish any aspect of the integrity of the GWMP.[14] There would be **no indirect adverse effect**. **Noise and Vibration:** A portion of the GWMP is located within the Noise and Vibration Study Area. Vibration analysis has indicated that there would be **no adverse effect** resulting from increased operational vibration. Noise analysis has indicated that the increase in noise resulting from permanent operational changes would be moderate (that is, perceptible to general users). However, several factors minimize this perceived change, including the existing high degree of ambient noise along the GWMP (generally resulting from automobile traffic along the GWMP and surrounding roads), the relatively infrequent occurrence of train traffic relative to automobile traffic, and the HD's primary use for active recreation. For these reasons, the change in operational noise would not be sufficient to diminish the integrity of setting, feeling, and association of the property. Therefore, **no adverse effect** from noise or vibration would result.	**Noise and Vibration:** The effects described under Action Alternative A would be similar under Action Alternative B. Therefore, **no adverse effect** from noise or vibration would result.
MVMH HD (DC/VA)[15]	Effects to the MVMH would be similar and additive to those described above affecting the GWMP, under both Action Alternatives. Both Action Alternatives would create **direct adverse effects** on the MVMH. The limits of disturbance for Action Alternative A encompass approximately 0.9 acres of the HD.	Effects to the MVMH would be similar and additive to those described above affecting the GWMP, under both Action Alternatives. Both Action Alternatives would create **direct adverse effects** on the MVMH. The limits of disturbance for Action Alternative B encompass approximately 1.6 acres of the HD. Action Alternative B would also create **indirect adverse effects** on the MVMH.

[14] The Monumental Core represents the central concentration of the Federal presence in the nation's capital. It is comprised of the National Mall, East and West Potomac Parks, the Federal Triangle, the Northwest Rectangle, and Southwest Federal Center.
[15] The railroad bridge spanning the roadway is described in the NRHP nomination for the MVMH, but it is unclear from the existing NRHP documentation if this structure is classified as a contributing resource. It has been assumed to be contributing for the purposes of this assessment.

Property	Action Alternative A (Preferred Alternative)	Action Alternative B
Plan of the City of Washington HD (DC)	**Physical Effects:** A portion of the Long Bridge Corridor extends through the Plan of the City of Washington HD. Because the Project proposes no alterations to the contributing streets and reservations, there would be **no direct adverse effect** under either Action Alternative. **Visual Effects:** The Project proposes no changes to the contributing views and vistas of the HD. Therefore, **no indirect adverse effects** from changes to historic views and viewsheds would result under either Action Alternative. **Noise and Vibration:** A portion of the Plan of the City of Washington is located within the Noise and Vibration Study Area. Vibration analysis has indicated that there would be **no adverse effect** to contributing components of the Plan of the City of Washington resulting from increased operational vibration. Noise analysis has indicated that the increase in noise resulting from permanent operational changes would be moderate (that is, perceptible to general users) for certain areas along the Long Bridge Corridor that are located within the boundaries of the Plan of the City of Washington. However, several factors minimize this perceived change, including the existing high degree of ambient noise within the SW Quadrant street grid and the lack of sensitive land uses (such as areas of passive recreation). For these reasons, the change in operational noise would not be sufficient to diminish the integrity of setting, feeling, and association of the property. Therefore, **no adverse effect** from noise would result under either Action Alternative.	
East and West Potomac Parks HD (DC)	**Physical Effects:** Under Action Alternative A, the LOD encompass approximately 5.6 acres within East Potomac Park. In addition to the infringement on undeveloped parkland, construction of a new railroad bridge would necessitate the removal of up to four contributing Japanese Cherry Trees along the perimeter of East Potomac Park, in addition to other mature vegetation. Loss of these features would diminish the integrity of design, materials (specifically, the trees themselves), and feeling of the park, creating a **direct adverse effect**. **Visual Effects:** Addition of a new bridge would obstruct views of the existing Long Bridge from the north, diminishing the visual integrity of this contributing structure and resulting in an **indirect adverse effect**. Otherwise, viewshed simulations have indicated that Action Alternative A has no potential to impact contributing views, particularly those around the perimeter of East Potomac Park, including those facing toward the Monumental Core and views up and down the Potomac River toward Virginia. See **Figures 4-9, 4-10,** and **4-11** for illustrations of these changes.	**Physical Effects:** Action Alternative B proposes the removal of the existing Long Bridge to construct a new railroad bridge in its location. The Long Bridge (Potomac Railroad Bridge) is a contributing element of the HD. Removing it would diminish the integrity of design, feeling, association, and materials of the HD, creating a **direct adverse effect**. Additionally, as described under Action Alternative A, removal of the contributing Japanese Cherry Trees and other mature vegetation would result in a **direct adverse effect**. This effect would be intensified because of a second new railroad bridge construction, necessitating the removal of up to seven contributing cherry trees, and the expansion of the LOD to approximately 5.8 acres. **Visual Effects:** The existing Long Bridge, with its central through truss span, is a contributing visual element to the HD. Removing it would diminish the integrity of setting, feeling, and association of the HD, creating an **indirect adverse effect**. The other indirect adverse effects described under

Property	Action Alternative A (Preferred Alternative)	Action Alternative B
	Noise and Vibration: A portion of East Potomac Park is located within the Noise and Vibration Study Area. Several receptor locations within the HD were tested to determine the amount of increase of noise and vibration resulting from permanent operational changes. None of these levels exceeded FTA thresholds for noise or vibration. Therefore, **no adverse effect** from noise or vibration would result.	Action Alternative A would be similar under Action Alternative B. **Noise and Vibration:** The effects described under Action Alternative A would be similar under Action Alternative B. Therefore, **no adverse effect** from noise or vibration would result.
Fort Leslie J. McNair Historic District (The Old Arsenal) HD (DC)	**Physical Effects:** The Project proposes no direct physical changes to this property. Therefore, **no direct adverse effect** would result under either Action Alternative. **Visual Effects:** The NRHP documentation for this property identifies no significant views or viewsheds; however, based on the siting of the HD and its relatively open shoreline, this analysis finds that contributing views would include the views of the Potomac River and the District around the perimeter of the site. The Project has no potential to alter or impede these views. The Project also has no potential to diminish the property's integrity of setting, feeling, or association. Therefore, **no indirect adverse effects** from changes to historic views and viewsheds would result under either Action Alternative. **Noise and Vibration:** This property is located outside of the Noise and Vibration Study Area. Therefore, **no effect** from noise or vibration would result under either Action Alternative.	
Washington Monument and Grounds HD (DC)	**Physical Effects:** The Project proposes no direct physical changes to this property. Therefore, **no direct adverse effect** would result under either Action Alternative. **Visual Effects:** The NRHP and cultural landscape documentation for this property references the multiple significant views and vistas that contribute to the significance of the Monument and its surrounding landscape. Relevant to the Project, this includes views from the top of the Monument to the surrounding cityscape and beyond. Although both Action Alternatives would be visible from the Monument viewing platform, the perceptible changes would be miniscule in relation to the degree and expansive nature of the contextual changes resulting from decades of contemporary development. The Project Area is also located beyond the main focal points in the Monumental Core that the viewing platform provides, such as to the Capitol and White House, and would not obstruct these views. For these reasons, neither Action Alternative has the potential to diminish the property's integrity of setting, feeling, or association. Therefore, **no indirect adverse effects** from changes to historic views and viewsheds would result under either Action Alternative. **Noise and Vibration:** This property is located outside of the Noise and Vibration Study Area. Therefore, **no effect** from noise or vibration would result under either Action Alternative.	
Arlington House HD (VA)	**Physical Effects:** The Project proposes no direct physical changes to this property. Therefore, **no direct adverse effect** would result under either Action Alternative.	

Property	Action Alternative A (Preferred Alternative)	Action Alternative B
	Visual Effects: The NRHP documentation for this property references the dramatic, panoramic views of the District afforded by the house's prominent siting. Viewshed simulations prepared for this property indicate that the Action Alternatives would be minimally visible and have no potential to diminish the property's integrity of setting, feeling, or association. Therefore, **no indirect adverse effects** from changes to historic views and viewsheds would result under either Action Alternative. See **Figure 4-2 Error! Reference source not found.**for illustrations of these changes. **Noise and Vibration:** This property is located outside of the Noise and Vibration Study Area. Therefore, **no effect** from noise or vibration would result under either Action Alternative.	
Arlington National Cemetery HD (VA)	**Physical Effects:** The Project proposes no direct physical changes to this property. Therefore, **no direct adverse effect** would result under either Action Alternative. **Visual Effects:** The NRHP documentation for this property repeatedly references the panoramic views toward the District. Viewshed simulations prepared for this property indicate that the Action Alternatives would be minimally visible and have no potential to diminish the property's integrity of setting, feeling, or association. Therefore, **no indirect adverse effects** from changes to historic views and viewsheds would result under either Action Alternative. See **Figure 4-3 Error! Reference source not found.**for illustrations of these changes. **Noise and Vibration:** This property is located outside of the Noise and Vibration Study Area. Therefore, **no effect** from noise or vibration would result under either Action Alternative.	
St. Elizabeths Hospital HD (DC)	**Physical Effects:** The Project proposes no direct physical changes to this property. Therefore, **no direct adverse effect** would result under either Action Alternative. **Visual Effects:** The NHL and cultural landscape documentation for this property reference the panoramic views of the District and Alexandria, which contribute to the significance of the therapeutic landscape at St. Elizabeths. Although the existing Long Bridge has limited visibility from parts of the landscape, in consideration of the great distance between the two sites, there is no potential to impede or alter these panoramic views under both Action Alternatives and no potential to diminish the property's integrity of setting, feeling, or association. Therefore, **no indirect adverse effects** from changes to historic views and viewsheds would result under either Action Alternative. **Noise and Vibration:** This property is located outside of the Noise and Vibration Study Area. Therefore, **no effect** from noise or vibration would result under either Action Alternative.	
Designated Historic Properties – Individual Historic Properties		
Thomas Jefferson Memorial (DC)	**Physical Effects:** The Project proposes no direct physical changes to this property. Therefore, **no direct adverse effect** would result under either Action Alternative. **Visual Effects:** The NRHP documentation for this property identifies no significant views or viewsheds; however, in consideration of the siting and design of the Memorial, this analysis finds that they would include the vistas of the Tidal Basin and reciprocal views between the Memorial and White House. Because the Long Bridge Corridor is not visible from the Memorial due to substantial groupings of mature vegetation around the southeastern edge of the Memorial site and the adjacent elevated roadways, the project has no potential to alter or impede these views or to diminish the property's integrity of setting, feeling, or association.	

Property	Action Alternative A (Preferred Alternative) Action Alternative B
	Therefore, **no indirect adverse effects** from changes to historic views and viewsheds would result under either Action Alternative. **Noise and Vibration:** This property is located outside of the Noise and Vibration Study Area. Therefore, **no effect** from noise or vibration would result under either Action Alternative.
Central Heating Plant (DC)	**Physical Effects:** The Project proposes no direct physical changes to this property. Therefore, **no direct adverse effect** would result under either Action Alternative. **Visual Effects:** The NRHP documentation for this property identifies no significant views or viewsheds. This analysis has identified no significant views or viewsheds in the direction of the Long Bridge Corridor from any areas that were publicly accessible at the time of field survey. Additionally, the property is located in a highly developed urban context that largely postdates the development of the Long Bridge Corridor. Therefore, the Project has no potential to diminish the property's integrity of setting, feeling, or association. **No indirect adverse effects** from changes to historic views and viewsheds would result under either Action Alternative. **Noise and Vibration:** This property is located within the Noise and Vibration Study Area. Receptor locations within these boundaries were tested to determine the amount of increase of noise and vibration resulting from permanent operational changes. Within close proximity to this property, none of these levels exceeded FTA thresholds for noise or vibration. Therefore, **no adverse effect** from noise or vibration would result under either Action Alternative.
USDA Cotton Annex (DC)	**Physical Effects:** The Project proposes no direct physical changes to this property. Therefore, **no direct adverse effect** would result under either Action Alternative. **Visual Effects:** The NRHP documentation for this property identifies no significant views or viewsheds. This analysis has identified no significant views or viewsheds in the direction of the Long Bridge Corridor from any areas that were publicly accessible at the time of field survey. Additionally, the property is located in a highly developed urban context that largely postdates the development of the Long Bridge Corridor. Therefore, the Project has no potential to diminish the property's integrity of setting, feeling, or association. Therefore, **no indirect adverse effects** from changes to historic views and viewsheds would result under either Action Alternative. **Noise and Vibration:** This property is located within the Noise and Vibration Study Area. Receptor locations within these boundaries were tested to determine the amount of increase of noise and vibration resulting from permanent operational changes. Within close proximity to this property, none of these levels exceeded FTA thresholds for noise or vibration. Therefore, **no adverse effect** from noise or vibration would result under either Action Alternative.
HUD Building (Robert C. Weaver Federal Building) (DC)	**Physical Effects:** The Project proposes no direct physical changes to this property. Therefore, **no direct adverse effect** would result under either Action Alternative. **Visual Effects:** The NRHP documentation for this property identifies no significant views or viewsheds. This analysis has identified no significant views or viewsheds in the direction of the Long Bridge Corridor from any areas that were publicly accessible at the time of field survey.

Property	Action Alternative A (Preferred Alternative)	Action Alternative B
	Additionally, the property is located in a highly developed urban context that largely postdates the development of the Long Bridge Corridor. Therefore, the Project has no potential to diminish the property's integrity of setting, feeling, or association. Therefore, **no indirect adverse effects** from changes to historic views and viewsheds would result under either Action Alternative. **Noise and Vibration:** This property is located within the Noise and Vibration Study Area. Receptor locations within these boundaries were tested to determine the amount of increase of noise and vibration resulting from permanent operational changes. Within close proximity to this property, none of these levels exceeded FTA thresholds for noise or vibration. Therefore, **no adverse effect** from noise or vibration would result under either Action Alternative.	
USDA South Building (DC)	**Physical Effects:** The Project proposes no direct physical changes to this property. Therefore, **no direct adverse effect** would result under either Action Alternative. **Visual Effects:** The NRHP documentation for this property identifies no significant views or viewsheds. This analysis has identified no significant views or viewsheds in the direction of the Long Bridge Corridor from any areas that were publicly accessible at the time of field survey. Additionally, the property is located in a highly developed urban context that largely postdates the development of the Long Bridge Corridor. Therefore, the Project has no potential to diminish the property's integrity of setting, feeling, or association. **No indirect adverse effects** from changes to historic views and viewsheds would result under either Action Alternative. **Noise and Vibration:** This property is located within the Noise and Vibration Study Area. Receptor locations within these boundaries were tested to determine the amount of increase of noise and vibration resulting from permanent operational changes. Within close proximity to this property, none of these levels exceeded FTA thresholds for noise or vibration. Therefore, **no adverse effect** from noise or vibration would result under either Action Alternative.	
Bureau of Engraving and Printing (DC)	**Physical Effects:** The Project proposes no direct physical changes to this property. Therefore, **no direct adverse effect** would result under either Action Alternative. **Visual Effects:** The NRHP documentation for this property identifies no significant views or viewsheds. This analysis has identified no significant views or viewsheds in the direction of the Long Bridge Corridor from any areas that were publicly accessible at the time of field survey. Additionally, the property is located in a highly developed urban context that largely postdates the development of the Long Bridge Corridor. Therefore, the Project has no potential to diminish the property's integrity of setting, feeling, or association. Therefore, **no indirect adverse effects** from changes to historic views and viewsheds would result under either Action Alternative. **Noise and Vibration:** This property is located within the Noise and Vibration Study Area. Receptor locations within these boundaries were tested to determine the amount of increase of noise and vibration resulting from permanent operational changes. Within close proximity to this property, none of these levels exceeded FTA thresholds for noise or vibration. Therefore, **no adverse effect** from noise or vibration would result under either Action Alternative.	

Property	Action Alternative A (Preferred Alternative)	Action Alternative B
Auditor's Building Complex (DC)	**Physical Effects:** The Project proposes no direct physical changes to this property. Therefore, **no direct adverse effect** would result under either Action Alternative. **Visual Effects:** The NRHP documentation for this property identifies no significant views or viewsheds. This analysis has identified no significant views or viewsheds in the direction of the Long Bridge Corridor from any areas that were publicly accessible at the time of field survey. Additionally, the property is located in a highly developed urban context that largely postdates the development of the Long Bridge Corridor. Therefore, the Project has no potential to diminish the property's integrity of setting, feeling, or association. Therefore, **no indirect adverse effects** from changes to historic views and viewsheds would result under either Action Alternative. **Noise and Vibration:** This property is located outside of the Noise and Vibration Study Area. Therefore, **no effect** from noise or vibration would result under either Action Alternative.	
Arlington Memorial Bridge (and related features) (DC/VA)	**Physical Effects:** The Project proposes no direct physical changes to this property. Therefore, **no direct adverse effect** would result under either Action Alternative. **Visual Effects:** The NRHP documentation for this property identifies no significant views or viewsheds. However, based on the bridge's design and urban context, this analysis finds that they include reciprocal views between Arlington National Cemetery and the Lincoln Memorial and the panoramic vistas along the Potomac River. The latter have been interrupted over time by the Roosevelt Bridge and 14th Street-Metrorail complex of bridges. Due to the Project's location relative to the Memorial Bridge and the obstructions listed above, it has no potential to impede contributing views or to diminish the property's integrity of setting, feeling, or association. Therefore, **no indirect adverse effects** from changes to historic views and viewsheds would result under either Action Alternative. **Noise and Vibration:** This property is located outside of the Noise and Vibration Study Area. Therefore, **no effect** from noise or vibration would result under either Action Alternative.	
Titanic Memorial (DC)	**Physical Effects:** The Project proposes no direct physical changes to this property. Therefore, **no direct adverse effect** would result under either Action Alternative. **Visual Effects:** The NRHP documentation for this property identifies no significant views or viewsheds. The memorial was moved to its existing location in 1968 and does not retain integrity of location or setting. The NRHP documentation for the property (prepared in 2006) described the new site as much less successful and appropriate for the memorial than was its original site. Despite this fact, the memorial has retained its general context and siting in proximity to a body of water. Neither Action Alternative has any potential to alter this context, and therefore no potential to further diminish the property's integrity of setting, location, or association. Therefore, **no indirect adverse effects** from changes to historic views and viewsheds would result under either Action Alternative. **Noise and Vibration:** This property is located outside of the Noise and Vibration Study Area. Therefore, **no effect** from noise or vibration would result under either Action Alternative.	
Lunch Room Building and	**Physical Effects:** The Project proposes no direct physical changes to this property. Therefore, **no direct adverse effect** would result under either Action Alternative.	

Property	Action Alternative A (Preferred Alternative)	Action Alternative B
Oyster Shucking Shed (DC)	**Visual Effects:** The NRHP documentation for this property identifies no significant views or viewsheds. This analysis has identified no significant views or viewsheds in the direction of the Long Bridge Corridor from any areas that were publicly accessible at the time of field survey. Additionally, the property is located in a highly developed urban context that largely postdates the development of the Long Bridge Corridor. Therefore, the Project has no potential to diminish the property's integrity of setting, feeling, or association. Therefore, **no indirect adverse effects** from changes to historic views and viewsheds would result under either Action Alternative. **Noise and Vibration:** This property is located outside of the Noise and Vibration Study Area. Therefore, **no effect** from noise or vibration would result under either Action Alternative.	
Cuban Friendship Urn (DC)	**Physical Effects:** The Project proposes no direct physical changes to this property. Therefore, **no direct adverse effect** would result under either Action Alternative. **Visual Effects:** The NRHP documentation for this property identifies no significant views or viewsheds. The urn was moved to its existing location in 1997 and does not retain integrity of location or setting. Therefore, **no indirect adverse effects** from changes to historic views and viewsheds would result under either Action Alternative. **Noise and Vibration:** This property is located within the Noise and Vibration Study Area. Receptor locations within these boundaries were tested to determine the amount of increase of noise and vibration resulting from permanent operational changes. Within close proximity to this property, none of these levels exceeded FTA thresholds for noise or vibration. Therefore, **no adverse effect** from noise or vibration would result under either Action Alternative.	
Theodore Roosevelt Island National Memorial (Analostan Island) (DC)	**Physical Effects:** The Project proposes no direct physical changes to this property. Therefore, **no direct adverse effect** would result under either Action Alternative. **Visual Effects:** The NRHP documentation for this property identifies no significant views or viewsheds. In consideration of the period of significance of the property and the failed attempts to develop planned viewing platforms, this analysis identifies no significant views in the direction of the Long Bridge Corridor.[16] Therefore, the project has no potential to alter contributing views or to diminish the property's integrity of setting, feeling, or association. Therefore, **no indirect adverse effects** from changes to historic views and viewsheds would result under either Action Alternative. **Noise and Vibration:** This property is located outside of the Noise and Vibration Study Area. Therefore, **no effect** from noise or vibration would result under either Action Alternative.	
Lyndon B. Johnson	**Physical Effects:** The Project proposes no direct physical changes to this property. Therefore, **no direct adverse effect** would result under either Action Alternative.	

[16] During the 1930s, a viewing platform at the south end of the island was planned, allowing views facing south and east toward the Lincoln Memorial and generally toward the Potomac River and Long Bridge beyond. These plans were scrapped during the construction of the Roosevelt Bridge in the 1960s. During much of the nineteenth and twentieth centuries, the Potomac River shorelines along Georgetown and Foggy Bottom were industrial in character, and these views from Roosevelt Island were considered undesirable and contrary to its natural character.

Property	Action Alternative A (Preferred Alternative)	Action Alternative B
Memorial Grove (DC/VA)	**Visual Effects:** The NRHP documentation identifies significant views from the property to the Monumental Core of the District. Because the Long Bridge Corridor extends to the southeast of the Grove and is not visible from within the property, the Project it has no potential to alter or impede these views or to diminish the property's integrity of setting, feeling, or association. Therefore, **no indirect adverse effects** from changes to historic views and viewsheds would result under either Action Alternative. **Noise and Vibration:** This property is located outside of the Noise and Vibration Study Area. Therefore, **no effect** from noise or vibration would result under either Action Alternative.	
Lincoln Memorial (Statue of Lincoln) (DC)	**Physical Effects:** The Project proposes no direct physical changes to this property. Therefore, **no direct adverse effect** would result under either Action Alternative. **Visual Effects:** The NRHP and cultural landscape documentation for this property notes the importance of the West Potomac Park setting to the design of the Lincoln Memorial, including the panoramic views of the Potomac River and Mall its site afforded. Maturing vegetation in addition to several modern bridges has since obscured these views to the south, southeast, and northeast. In consideration of these existing conditions and the far distance between the Lincoln Memorial and the Long Bridge Corridor, both Action Alternatives would result in **no indirect adverse effect** on the property. **Noise and Vibration:** This property is located outside of the Noise and Vibration Study Area. Therefore, **no effect** from noise or vibration would result under either Action Alternative.	
Arlington Ridge Park (VA)	**Physical Effects:** The Project proposes no direct physical changes to this property. Therefore, **no direct adverse effect** would result under either Action Alternative. **Visual Effects:** The NRHP documentation for this property identifies the park and contributing Netherlands Carillon as a significant western backdrop for the National Mall and West Potomac Park. However, the Netherlands Carillon was not intended to serve as a public viewing platform and views from it do not contribute to the significance of the property. The Long Bridge Corridor is not visible from the property at ground level, and therefore the Project has no potential to affect contributing views or viewsheds or to diminish the property's integrity of setting, feeling, or association. Therefore, **no indirect adverse effects** from changes to historic views and viewsheds would result under either Action Alternative. **Noise and Vibration:** This property is located outside of the Noise and Vibration Study Area. Therefore, **no effect** from noise or vibration would result under either Action Alternative.	
Old Post Office (DC)	**Physical Effects:** The Project proposes no direct physical changes to this property. Therefore, **no direct adverse effect** would result under either Action Alternative. **Visual Effects:** The NRHP documentation for this property identifies no significant views or viewsheds. The existing viewing platform was created after the property's period of significance and does not contribute to its significance. This analysis has identified no significant views or viewsheds in the direction of the Long Bridge Corridor from any areas that were publicly accessible at the time of field survey. Therefore, the Project has no potential to affect contributing views or viewsheds or to diminish the property's integrity of setting, feeling, or	

Property	Action Alternative A (Preferred Alternative) Action Alternative B
	association. Therefore, **no indirect adverse effects** from changes to historic views and viewsheds would result under either Action Alternative. **Noise and Vibration:** This property is located outside of the Noise and Vibration Study Area. Therefore, **no effect** from noise or vibration would result under either Action Alternative.
The Pentagon (VA)	**Physical Effects:** The Project proposes no direct physical changes to this property. Therefore, **no direct adverse effect** would result under either Action Alternative. **Visual Effects:** The NRHP documentation for this property identifies no significant views or viewsheds; However, the landmark boundaries extend to include the plaza facing the Potomac River, so this analysis finds that the related views of the District's Monumental Core and Potomac River are important to the character of the property. Although the existing Long Bridge is minimally visible from this plaza, given the relationship of the Long Bridge Corridor to the southeast of this viewshed, there is no potential to impede views under either Action Alternative. Therefore, **no indirect adverse effects** from changes to historic views and viewsheds would result under either Action Alternative. **Noise and Vibration:** This property is located outside of the Noise and Vibration Study Area. Therefore, **no effect** from noise or vibration would result under either Action Alternative.
Properties Determined Eligible	
Bureau of Engraving and Printing Annex (DC)	**Physical Effects:** The Project proposes no direct physical changes to this property. Therefore, **no direct adverse effect** would result under either Action Alternative. **Visual Effects:** The DOE documentation for this property identifies no significant views or viewsheds. This analysis has identified no significant views or viewsheds in the direction of the Long Bridge Corridor from any areas that were publicly accessible at the time of field survey. Additionally, the property is located in a highly developed urban context that largely postdates the development of the Long Bridge Corridor. Therefore, the Project has no potential to diminish the property's integrity of setting, feeling, or association. Therefore, **no indirect adverse effects** from changes to historic views and viewsheds would result under either Action Alternative. **Noise and Vibration:** This property is located within the Noise and Vibration Study Area. Receptor locations within these boundaries were tested to determine the amount of increase of noise and vibration resulting from permanent operational changes. Within close proximity to this property, none of these levels exceeded FTA thresholds for noise or vibration. Therefore, **no adverse effect** from noise or vibration would result under either Action Alternative.
Federal Office Building 10A (Orville Wright Building) (DC)	**Physical Effects:** The Project proposes no direct physical changes to this property. Therefore, **no direct adverse effect** would result under either Action Alternative. **Visual Effects:** The DOE documentation for this property identifies no significant views or viewsheds. This analysis has identified no significant views or viewsheds in the direction of the Long Bridge Corridor from any areas that were publicly accessible at the time of field survey. Additionally, the property is located in a highly developed urban context that largely postdates the development of the Long Bridge Corridor. Therefore, the Project has no potential to diminish the property's integrity of setting, feeling, or association. Therefore, **no indirect**

Property	Action Alternative A (Preferred Alternative)	Action Alternative B
	adverse effects from changes to historic views and viewsheds would result under either Action Alternative. **Noise and Vibration:** This property is located within the Noise and Vibration Study Area. Receptor locations within these boundaries were tested to determine the amount of increase of noise and vibration resulting from permanent operational changes. Within close proximity to this property, none of these levels exceeded FTA thresholds for noise or vibration. Therefore, **no adverse effect** from noise or vibration would result under either Action Alternative.	
Benjamin Banneker Park/Overlook; Tenth Street Overlook (DC)	**Physical Effects:** The Project proposes no direct physical changes to this property. Therefore, **no direct adverse effect** would result under either Action Alternative. **Visual Effects:** The cultural landscape and DOE documentation for this property identifies significant views facing south and east overlooking the cityscape below and Potomac River and Washington Channel beyond. This documentation also notes that potential views toward the Tidal Basin and Jefferson Memorial were obscured by the 14th Street Bridges at the time of the Overlook's construction. Due to the Project's location relative to the Overlook, it has no potential to impede extant contributing views toward the Potomac River or cityscape below. Additionally, the property is located in a highly developed urban context that largely postdates the development of the Long Bridge Corridor. Therefore, the Project has no potential to diminish the property's integrity of setting, feeling, or association. Therefore, **no indirect adverse effects** from changes to historic views and viewsheds would result under either Action Alternative. **Noise and Vibration:** This property is located outside of the Noise and Vibration Study Area. Therefore, **no effect** from noise or vibration would result under either Action Alternative.	
Richmond, Fredericksburg and Potomac (RF&P) Railroad HD (VA)	**Physical Effects:** The Project proposes alterations to the RF&P Railroad at its eastern terminus to accommodate the additional two tracks and link these tracks to the new bridge proposed under each Action Alternative. Despite this change, the HD would continue its use as a railroad corridor, and the primary components of its operation and design would remain intact, both within this section and along the remainder of its approximately 110-mile length between the Potomac River and Richmond. For these reasons, the property would retain its integrity of design, materials, feeling, location, workmanship, association, and setting. Therefore, the Action Alternatives would result in **no adverse effect**. **Visual Effects:** The DOE documentation for this property identifies no significant views or viewsheds and this analysis has identified none further. Therefore, **no indirect adverse effects** from changes to historic views and viewsheds would result under either Action Alternative. **Noise and Vibration:** This property is located within the Noise and Vibration Study Area. Because the property's significance is directly related to its historic and current use as a railroad corridor, a moderate (that is, perceptible but not severe) increase in noise in vibration would not indirectly diminish its integrity. The permanent changes in operational vibration would not exceed FTA thresholds for vibration. Therefore, **no adverse effect** from noise or vibration would result under either Action Alternative.	

Property	Action Alternative A (Preferred Alternative)	Action Alternative B
Washington Marina Building (DC)	**Physical Effects:** The Project proposes no direct physical changes to this property. Therefore, **no direct adverse effect** would result under either Action Alternative. **Visual Effects:** The DOE documentation for this property identifies no significant views or viewsheds. This analysis has identified no significant views or viewsheds in the direction of the Long Bridge Corridor from any areas that were publicly accessible at the time of field survey. Additionally, the property is located in a highly developed urban context that largely postdates the development of the Long Bridge Corridor. Therefore, the Project has no potential to diminish the property's integrity of setting, feeling, or association. Therefore, **no indirect adverse effects** from changes to historic views and viewsheds would result under either Action Alternative. **Noise and Vibration:** This property is located within the Noise and Vibration Study Area. Receptor locations within these boundaries were tested to determine the amount of increase of noise and vibration resulting from permanent operational changes. Within close proximity to this property, none of these levels exceeded FTA thresholds for noise or vibration. Therefore, **no adverse effect** from noise or vibration would result under either Action Alternative.	
L'Enfant Promenade (DC)	**Physical Effects:** The L'Enfant (10th Street) Promenade extends directly above the Long Bridge Corridor. However, the Project proposes no direct physical changes to this property. Therefore, **no direct adverse effect** would result under either Action Alternative. **Visual Effects:** The DOE documentation for this property identifies no significant views or viewsheds. This analysis has identified no significant views or viewsheds in the direction of the Long Bridge Corridor from any areas that were publicly accessible at the time of field survey. Additionally, the property is located in a highly developed urban context that largely postdates the development of the Long Bridge Corridor. Therefore, the Project has no potential to diminish the property's integrity of setting, feeling, or association. Therefore, **no indirect adverse effects** from changes to historic views and viewsheds would result under either Action Alternative. **Noise and Vibration:** This property is located within the Noise and Vibration Study Area. Receptor locations within these boundaries were tested to determine the amount of increase of noise and vibration resulting from permanent operational changes. Within close proximity to this property, none of these levels exceeded FTA thresholds for noise or vibration. Therefore, **no adverse effect** from noise or vibration would result under either Action Alternative.	
Lady Bird Johnson Park (DC)	**Physical Effects:** The Project proposes no direct physical changes to this property. Therefore, **no direct adverse effect** would result under either Action Alternative. **Visual Effects:** The DOE and cultural landscape documentation for this property identifies multiple views and vistas that contribute to the significance of the island that comprises Lady Bird Johnson Park. Relevant to the Long Bridge Project, this includes panoramic views of vehicles traveling along the MVMH and GWMP and general internal views north and south along the island. Field survey conducted along the motorway has indicated that the existing Long Bridge is nearly imperceptible when travelling along the motorway and not at all visible from the interior of the island. This is due to the angle of visibility, the extent of mature vegetation, and the visual obstructions caused by the Memorial and 14th Street-Metrorail	

Property	Action Alternative A (Preferred Alternative)	Action Alternative B
	Bridges. For this reason, the Project has no potential to impact contributing views or viewsheds. No **indirect adverse effect** would result under either Action Alternative. **Noise and Vibration:** This property is located outside of the Noise and Vibration Study Area. Therefore, **no effect** from noise or vibration would result under either Action Alternative.	
John F. Kennedy Center for the Performing Arts (DC)	**Physical Effects:** The Project proposes no direct physical changes to this property. Therefore, **no direct adverse effect** would result under either Action Alternative. **Visual Effects:** The DOE documentation for this property identifies no significant views or viewsheds. However, in consideration of the design and siting of the Kennedy Center, this analysis has identified the panoramic views of the Potomac River and environs as being contributing to the significance of this property. Field survey has indicated that the existing Long Bridge is minimally visible from the upper terrace of the property, but these views are diminished by the far distance and intervening obstructions, notably the 14th Street and Metrorail bridges. For this reason, the Project has no potential to alter or impede contributing views. Therefore, **no indirect adverse effects** from changes to historic views and viewsheds would result under either Action Alternative. **Noise and Vibration:** This property is located outside of the Noise and Vibration Study Area. Therefore, **no effect** from noise or vibration would result under either Action Alternative.	
Liberty Loan Federal Building (DC)	**Physical Effects:** The Project proposes no direct physical changes to this property. Therefore, **no direct adverse effect** would result under either Action Alternative. **Visual Effects:** The DOE documentation for this property identifies no significant views or viewsheds. This analysis has identified no significant views or viewsheds in the direction of the Long Bridge Corridor from any areas that were publicly accessible at the time of field survey. Additionally, the property is located in a highly developed urban context that largely postdates the development of the Long Bridge Corridor. Therefore, the Project has no potential to diminish the property's integrity of setting, feeling, or association. Therefore, **no indirect adverse effects** from changes to historic views and viewsheds would result under either Action Alternative. **Noise and Vibration:** This property is located within the Noise and Vibration Study Area. Receptor locations within these boundaries were tested to determine the amount of increase of noise and vibration resulting from permanent operational changes. Within close proximity to this property, none of these levels exceeded FTA thresholds for noise or vibration. Therefore, **no adverse effect** from noise or vibration would result under either Action Alternative.	
Properties at or Greater than 45 Years of Age		
Astral Building (DC)	**Physical Effects:** The Project proposes no direct physical changes to this property. Therefore, **no direct adverse effect** would result under either Action Alternative. **Visual Effects:** Given the nature of the Project and the location of this property relative to the Long Bridge Corridor, there would likely be **no adverse effect** under either Action Alternative on contributing views or viewsheds. This finding will be reevaluated if contributing views or viewsheds are identified prior to Project implementation.	

Property	Action Alternative A (Preferred Alternative)	Action Alternative B
	Noise and Vibration: This property is located within the Noise and Vibration Study Area. Receptor locations within these boundaries were tested to determine the amount of increase of noise and vibration resulting from permanent operational changes. Within close proximity to this property, none of these levels exceeded FTA thresholds for noise or vibration. Therefore, **no adverse effect** from noise or vibration would result under either Action Alternative.	
Comsat Building (DC)	**Physical Effects:** The Project proposes no direct physical changes to this property. Therefore, **no direct adverse effect** would result under either Action Alternative. **Visual Effects:** Given the nature of the Project and the location of this property relative to the Long Bridge Corridor, there would likely be **no adverse effect** under either Action Alternative on contributing views or viewsheds. This finding will be reevaluated if contributing views or viewsheds are identified prior to Project implementation. **Noise and Vibration:** This property is located within the Noise and Vibration Study Area. Receptor locations within these boundaries were tested to determine the amount of increase of noise and vibration resulting from permanent operational changes. Within close proximity to this property, none of these levels exceeded FTA thresholds for noise or vibration. Therefore, **no adverse effect** from noise or vibration would result under either Action Alternative.	
Loew's L'Enfant Plaza Hotel (DC)	**Physical Effects:** The Project proposes no direct physical changes to this property. Therefore, **no direct adverse effect** would result under either Action Alternative. **Visual Effects:** Given the nature of the Project and the location of this property relative to the Long Bridge Corridor, there would likely be **no adverse effect** under either Action Alternative on contributing views or viewsheds. This finding will be reevaluated if contributing views or viewsheds are identified prior to Project implementation. **Noise and Vibration:** This property is located within the Noise and Vibration Study Area. Receptor locations within these boundaries were tested to determine the amount of increase of noise and vibration resulting from permanent operational changes. Within close proximity to this property, none of these levels exceeded FTA thresholds for noise or vibration. Therefore, **no adverse effect** from noise or vibration would result under either Action Alternative.	
USPS Building (DC)	**Physical Effects:** The Project proposes no direct physical changes to this property. Therefore, **no direct adverse effect** would result under either Action Alternative. **Visual Effects:** Given the nature of the Project and the location of this property relative to the Long Bridge Corridor, there would likely be **no adverse effect** under either Action Alternative on contributing views or viewsheds. This finding will be reevaluated if contributing views or viewsheds are identified prior to Project implementation. **Noise and Vibration:** This property is located within the Noise and Vibration Study Area. Receptor locations within these boundaries were tested to determine the amount of increase of noise and vibration resulting from permanent operational changes. Within close proximity to this property, none of these levels exceeded FTA thresholds for noise or vibration. Therefore, **no adverse effect** from noise or vibration would result under either Action Alternative.	

4.5. Cumulative Effects

As previously stated, the Long Bridge Project is exploring the potential for a bike and pedestrian connection that follows the trajectory of Long Bridge. This potential connection (Option 2) could constitute a cumulative effect as a result of the Long Bridge Project. An evaluation of these effects is described in **Table 4-3** below. The evaluation is organized by classifications of historic properties as described previously. For properties not included in this list, no adverse effects are anticipated.

Table 4-3 | Cumulative Effects – Bike-Pedestrian Crossing Option

Property	Option 2 – Independent Bridge
Designated Historic Properties – Historic Districts (HD)	
GWMP HD (DC/VA)	The LOD for Option 2 would encompass approximately 0.7 acres of the HD. In addition to the infringement on undeveloped parkland, construction of a possible bike-pedestrian crossing and access ramp has the potential to remove contributing vegetation, especially mature trees that date to the 1932 planting plan of the parkway, which were intended to visually screen the railroad bridge from the motorway. This would result in a **direct adverse effect**. The existing, non-contributing bridges along this portion of the GWMP have compromised its integrity of feeling, association, and setting. The addition of a potential bike-pedestrian bridge within this existing cluster of structures has no potential to further diminish these aspects of the GWMP's integrity. Therefore, **no indirect adverse effects** from changes to historic views and viewsheds would result under this alternative.
MVMH HD (DC/VA)	Effects to the MVMH would be similar and additive to those described above affecting the GWMP. Option 2 would create **direct adverse effects** on the MVMH. Under Option 2, the LOD would encompass approximately 0.6 acres of the HD.
East and West Potomac Parks HD (DC)	Construction of a bike-pedestrian crossing and access ramp would necessitate the removal of up to two contributing Japanese Cherry Trees along the perimeter of East Potomac Park in addition to other mature vegetation. This would result in a **direct adverse effect**. The LOD for Option 2 would encompass approximately 0.3 acres of the HD. The ramp crossing and access ramp also have the potential to obstruct views of the existing Long Bridge from the north. This obstruction would diminish the visual integrity of the HD and would create an **indirect adverse effect**.

4.6. Temporary Effects

The two Action Alternatives for the Project can be feasibly constructed. However, the proposed new bridge structures and other infrastructure along the Long Bridge Corridor combined with site constraints present challenges for contractor access and staging, material transportation, and completing site work. For both Action Alternatives, it is anticipated that construction materials and equipment would be transported via trucks as well as barging up the Potomac River. Materials and equipment transported via river would be unloaded onto temporary bulkheads constructed within the Potomac River on the NPS-administered parkland on either side of the river in both the District and Virginia.

Although no specific construction start date or schedule has been determined, it is projected that Action Alternative A (Preferred Alternative) construction would last approximately 60 months. Under Action Alternative B, this schedule extends to approximately 99 months, which includes phasing the bridges over the Potomac River where the new upstream bridge is constructed and put into service before demolition can begin on the existing Long Bridge. The new downstream bridge would then be constructed in the same location as the existing Long Bridge. Apart from the new Potomac River bridge(s) proposed under each Action Alternative, construction activities would primarily include track construction throughout the Long Bridge Corridor, associated bridge construction at abutments and piers, construction of embankments and retaining walls, and bridge superstructure construction.

An evaluation of temporary direct and indirect adverse effects resulting from visual and physical changes are described in **Table 4-4**. Temporary impacts under Action Alternative B would be similar to those described for Action Alternative A (Preferred Alternative) except that the estimated duration of construction would be approximately 99 months due to the replacement of the existing Long Bridge and component railroad bridge that crosses the GWMP.

Table 4-4 | Temporary Effect Assessment Resulting from Visual and Physical Changes

Property	Effect Determination
Designated Historic Properties – Historic Districts (HD)	
National Mall HD (DC)	Construction activities for both Action Alternatives would require temporary use of, and access to, various areas of East Potomac Park that form a part of the National Mall HD. Both NPS Parking Lot B and NPS Parking Lot C would be closed during construction and used for construction staging and access. These parking lots are located within, but do not contribute to, the National Mall HD. Temporary construction access and staging areas would also be required for areas between the DOD Facility and I-395 North lanes, both east and west of the CSXT tracks. Use of these areas for construction access and staging would temporarily diminish the integrity of setting, feeling, and association of the National Mall Historic District and would constitute a **temporary indirect adverse effect** on this property.
GWMP HD (DC/VA)	Construction of both Action Alternatives would require the temporary use of land along the GWMP and MVT to support construction activities. Construction staging and access areas would be located at the GWMP crossing in the median of the roadway as well as west and east of the crossing. Construction would require temporary relocation of a portion of the MVT for public safety and to allow construction access and staging along the water.

Property	Effect Determination
	Temporary effects in this area would last over 4 years and would diminish the integrity of feeling, association, and setting of the GWMP through both construction staging and trail relocation. This would constitute a **temporary direct and indirect adverse effect** on this property.
MVMH HD (DC/VA)	Under both Action Alternatives, impacts to the MVMH would be similar and additive to those described above affecting the GWMP. Temporary effects in this area would last over four years and would diminish the integrity of feeling, association, and setting of the GWMP through both construction staging and trail relocation. This would constitute a **temporary direct and indirect adverse effect** on this property.
East and West Potomac Parks HD (DC)	Construction activities for both Action Alternatives would require temporary use of, and access to, various areas of East Potomac Park. Both NPS Parking Lot B and NPS Parking Lot C would be closed during construction and used for construction staging and access. These parking lots are located within, but do not contribute to, the historic district. It is anticipated that one of these staging locations would be the site of a temporary concrete plant during construction. Temporary construction access and staging areas would also be required for areas between the DOD Facility and I-395 North lanes, both east and west of the CSXT tracks near the WMATA portal. Finally, access would be required in a section along the southern bank of the Washington Channel, in close proximity the U.S. Engineer's Storehouse, which is a contributing building to the historic district. The Storehouse is located approximately 200 feet from the Long Bridge Corridor. Temporary effects in this area would last over 4 years and would diminish the integrity of feeling, association, and setting of the East Potomac Park through construction staging. This would constitute a **temporary indirect adverse effect** on this property.

The information presented in **Table 4-5** below summarizes where temporary adverse effects resulting from increased noise are anticipated under both Action Alternatives (vibration caused from temporary constructed activities were not found to exceed FTA thresholds at any of the receptor locations). This list was derived from the noise and vibration analysis, which considers various factors (type of construction activity, distance of this activity from the historic property, and construction noise level) in determining if construction noise would exceed FTA threshold criteria. In some cases, an approximate range of construction noise levels has been included.

Construction noise w evaluated according to the District noise ordinance and Arlington County Noise Control Code, Chapter 15.[17] The District imposes a noise ordinance prohibiting construction sound levels above 80 dBA (except for pile driving) measured 25 feet from the outermost limits of the site between 7:00 AM and 7:00 PM unless a variance is granted. For this reason, it is very likely that construction noise within the District exceeding 80 dBA (also the FTA threshold) would be reduced to comply with the ordinance. Therefore, *the effects for properties located in the District have been listed below as potential*

[17] DC Municipal Regulations Chapters 20–27; Arlington County. Arlington County Code: Chapter 15, Noise Control Ordinance. Accessed from https://countyboard.arlingtonva.us/wp-content/uploads/sites/22/2016/04/Chapter-15-NOISE-CONTROL.pdf. Accessed May 1, 2018.

effects. It is very likely these effects could be fully avoided through appropriate construction management procedures.

The Arlington County noise ordinance allows construction activity to produce sound no greater than 70 dBA in manufacturing zones, 65 dBA in commercial zones, and 55 dBA in residential and special-purpose zones during nighttime houses. The Arlington County noise ordinance does not limit daytime construction noise (7:00 AM to 9:00 PM on weekdays and 10:00 AM to 9:00 PM on weekends and legal holidays). The GWMP and MVMH historic districts, including the MVT, are located in a special-purpose zone S-3A, which imposes a 55-dBA nighttime construction noise limit.

Table 4-5 | Temporary Effect Assessment Resulting from Noise

Historic Property[18]	Construction Noise Level (dBA)*	Noise Threshold (dBA)*	Exceeds Criteria	Potential for Effect
National Mall HD	61.1-68.9	80	No	None
GWMP HD	81.5-83.4	55	**Yes**	Potential to diminish the integrity of setting, feeling, and association of the HD
MVMH HD	81.5-83.4	55	**Yes**	Potential to diminish the integrity of setting, feeling, and association of the HD
Plan of the City of Washington HD	61.1-87.3	80	**Yes**	Based on use and general ambient noise, potential for adverse effect is minimal
East and West Potomac Parks HD	61.1-84.7	80	**Yes**	Potential to adversely affect contributing buildings within HD, especially the U.S. Engineer's Storehouse adjacent to the Washington Channel and Long Bridge Corridor
Thomas Jefferson Memorial	61.1	80	No	None
Central Heating Plant	72.3-73.2	80	No	None
USDA Cotton Annex	72.3-73.2	80	No	None
HUD Building	70.8-77.1	80	No	None
USDA South Building	63.9-68.6	80	No	None
Bureau of Engraving and Printing	63.9-68.6	80	No	None
Cuban Friendship Urn	61.9-68.9	80	No	None
Bureau of Engraving and Printing Annex	63.9-68.6	80	No	None
Federal Office Building 10A	70.8-77.1	80	No	None

[18] Because not every historic property within the Noise and Vibration Study Area was utilized as a receptor location, this table extrapolates data using the closest available receptor.

Historic Property[18]	Construction Noise Level (dBA)*	Noise Threshold (dBA)*	Exceeds Criteria	Potential for Effect
Richmond, Fredericksburg and Potomac Railroad HD	81.5-83.4	70	**Yes**	Based on use and general ambient noise, potential for adverse effect is minimal
Washington Marina Building	70.8-77.1	80	No	None
L'Enfant Promenade	67.7-81.8	80	**Yes**	Based on use and general ambient noise, potential for adverse effect is minimal
Liberty Loan Federal Building	63.9-68.6	80	No	None
Astral Building	72.3-73.2	80	No	None
Comsat Building	72.3-73.2	80	No	None
Loew's L'Enfant Plaza Hotel	72.3-73.2	80	No	None
USPS Building	72.3-73.2	80	No	None

** dBA is a method of measuring units of sound (decibels) that have been weighted to account for relative loudness as perceived by the human ear.*

5.0 Resolution of Effects

5.1. Avoidance and Minimization Measures

Throughout the Project, FRA and DDOT, in consultation with DC SHPO, VDHR, and the Consulting Parties, have identified measures to avoid or minimize potential adverse effects on historic properties, including those resulting from temporary construction activities. The following measures have been adopted to date to avoid or minimize anticipated effects:

- Action Alternative A (Preferred Alternative) retains the existing Long Bridge, which is a contributing element to the East and West Potomac Parks Historic District. Action Alternative A also retains the existing component railroad bridge that carries the Long Bridge above the GWMP, which is a contributing element to the GWMP Historic District. In comments following the 4th Consulting Parties meeting, DC SHPO, VHDR, and other Consulting Parties indicated a preference for Action Alternative A, which has fewer and less intense adverse effects on historic properties than Action Alternative B.
- Alternatives that considered the construction of a new railroad bridge and associated railroad infrastructure outside of the existing Long Bridge Corridor were dismissed from further consideration. This avoids potential effects generated by expanding the scope and constructing the project within a significantly larger geographic area.
- The new railroad bridge would be designed with a vertical clearance, visual appearance of the structural system, and alignment that closely references that of the existing Long Bridge as well as of the adjacent 14th Street-Metrorail bridge complex. This design approach avoids potential adverse visual effects that could have been caused by a less compatible type of new bridge structure, including a signature span bridge. In comments following the 4th Consulting Parties meeting, DC SHPO requested that the new bridge design be compatible with the existing Long Bridge. Further, DC SHPO indicated a preference for a through plate girder bridge type to create a consistent aesthetic for the railroad bridges and distinguish them from the Metrorail bridge.
- As recommended by NPS, any new component bridges or other structures introduced into NPS-administered properties would be designed and aesthetically treated to be compatible with the character of existing resources. This minimizes the potential adverse effect of introducing new features into the historic districts. For example, within the GWMP and MVMH historic districts, new bridge piers could be clad with stone to match the piers of the existing railroad bridge. To the extent possible, trees and other vegetation could be introduced to partially mitigate the loss of mature vegetation and to visually screen new bridge structures.
- The bicycle-pedestrian crossing option (Option 2) closely parallels the Long Bridge Corridor upstream of the existing Long Bridge. This minimizes potential adverse physical and visual effects with longer or more geographically dispersed crossing options. As the design of this crossing option advances, consultation will continue on the alignment and aesthetics of the bridge to avoid and minimize adverse effects. In comments following the 4th Consulting Parties meeting, DC SHPO, VDHR, and other Consulting Parties indicated a preference for Option 2. This

option has a smaller footprint and less intense adverse effects on historic properties than Option 1B[19].

- Temporary effects resulting from noise and vibration could be avoided or minimized using a variety of construction management techniques. Visual effects can be minimized by providing appropriate screening between construction staging areas and cultural resources, limiting the size of construction staging areas, and locating them away from sensitive views and viewsheds. In the District, compliance with construction noise ordinances would fully avoid most temporary effects otherwise resulting from construction noise.
- For construction access and staging activities, potential effects on archaeological resources can be minimized or avoided by locating these activities away from areas of high archaeological potential or within sites that are paved or have been previously disturbed.

5.2. Effects Summary

After incorporating the avoidance and minimization measures, **Table 5-1** below provides a summary of determinations for historic properties where adverse effects were unavoidable.

Table 5-1 | Summary of Adverse Effects Determination

Historic Property	Action Alternative A	Action Alternative B	Cumulative Effects	Temporary Effects
National Mall HD (DC)	No adverse effect	No adverse effect	No adverse effect	**Indirect adverse effect**
GWMP HD (DC/VA)	**Direct adverse effect**	**Direct and indirect adverse effect**	**Direct adverse effect**	**Direct and indirect adverse effect**
MVMH HD (DC/VA)	**Direct adverse effect**	**Direct and indirect adverse effect**	**Direct adverse effect**	**Direct and indirect adverse effect**
East and West Potomac Parks HD (DC)	**Direct and indirect adverse effect**	**Direct and indirect adverse effect**	**Direct adverse and indirect effect**	**Direct and indirect adverse effect**

5.3. Mitigation Measures and Next Steps

In comments following the 4th Consulting Parties meeting, DC SHPO, VDHR, and other Consulting Parties provided suggestions for potential mitigation strategies. These include the following categories:

- **Interpretation**: Development of physical or digital interpretive materials to document the history of the Long Bridge Corridor and its adjacent historic properties.
- **Vegetation Restoration**: Restoration of mature vegetation removed during project implementation, in accordance with NRHP and cultural landscape documentation where available, in addition to the removal of invasive vegetation.
- **Cultural Landscape Documentation**: Development of cultural landscape inventories or reports for affected landscapes adjacent to the railroad corridor.

[19] FRA and DDOT assessed the effects of Option 1B, and presented those findings to SHPOs and Consulting Parties in the Draft Assessment of Effects Report and at the 4th Consulting Parties Meeting.

- **Physical Rehabilitation**: Rehabilitation and repair of railroad infrastructure in the District or contributing resources within East and West Potomac Parks Historic District.
- **Archaeological Investigation**: Continuation of phased archaeological investigation, including underwater archaeology.
- **Viewshed Protection**: Creation and implementation of a viewshed protection plan for GWMP and MVMH in the vicinity of the railroad corridor.

The Section 106 consultation process is ongoing. FRA and DDOT will continue to consult with DC SHPO, VDHR, and the Consulting Parties to identify ways to minimize and mitigate adverse effects on these historic properties. FRA will also notify the Advisory Council of Historic Preservation notice of the adverse effect determination for the Project and provide the Council an opportunity to comment. A Section 106 agreement document (Programmatic Agreement or Memorandum of Agreement) will identify minimization and mitigation measures and describe any consultation that would continue through the design and construction processes.

LONG BRIDGE PROJECT
Connecting North and South Through our Nation's Capital

Appendix A:

Area of Potential Effects and Historic Properties Technical Report

LONG BRIDGE PROJECT

Connecting North and South Through our Nation's Capital

Long Bridge Project

Environmental Impact Statement

Area of Potential Effects and Historic Properties Technical Report

February 23, 2018

District Department of Transportation

U.S. Department of Transportation
Federal Railroad Administration

Long Bridge Project

Area of Potential Effects and Historic Properties Technical Report

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1.0 Introduction

The Federal Railroad Administration (FRA) and District Department of Transportation (DDOT) are concurrently preparing an Environmental Impact Statement (EIS) in accordance with the National Environmental Policy Act (NEPA), and an assessment of effects on historic properties per Section 106 of the National Historic Preservation Act (NHPA) for the Long Bridge Project (the Project). The Long Bridge Project consists of potential improvements to the Long Bridge and related railroad infrastructure located between the Rosslyn (RO) Interlocking near Long Bridge Park in Arlington, Virginia, and the L'Enfant (LE) Interlocking near 10th Street SW in the District (the Long Bridge Corridor). The Long Bridge Corridor is shown in Figure 1-1.

The purpose of the Proposed Action is to provide additional long-term railroad capacity and to improve the reliability of railroad service through the Long Bridge Corridor. Currently, there is insufficient capacity, resiliency, and redundancy to accommodate the projected demand in future railroad services. The Proposed Action is needed to address these issues and to ensure the Long Bridge Corridor continues to serve as a critical link connecting the local, regional, and national transportation network.

Although not part of the Proposed Action's Purpose and Need, the Project will explore the potential opportunity *to* accommodate connections that follow the trajectory of the Long Bridge Corridor to the pedestrian and bicycle network. The feasibility of this opportunity will be assessed as the Project progresses and will consider whether a crossing can be designed to be consistent with railroad operator plans and pursuant to railroad safety practices. Future efforts to accommodate connections to the pedestrian and bicycle network may be advanced as part of the Project, or as part of a separate project(s) sponsored by independent entities.

This report outlines the methodology for delineating and refining the Area of Potential Effects (APE) in accordance with Section 106 of the NHPA (54 U.S.C. § 300101 *et seq*.)[1] and its implementing regulations (36 CFR Part 800) for the Project.[2]

This report includes the following:

1. A description of the methodology used to delineate the APE;
2. Results of the field survey completed to inform APE development; and
3. An identification of historic properties as well as properties at or greater than 45 years of age that may be affected by the Long Bridge Project.

[1] 54 USC 300101, National Park Service and Related Programs, National Preservation Programs, Division A-Historic Preservation http://uscode.house.gov/view.xhtml?req=(title:54%20section:300101%20edition:prelim)

[2] 36 CFR Part 800, Protection of Historic Properties, http://www.achp.gov/regs-rev04.pdf.

Figure 1-1 | Long Bridge Project Area Limits

2.0 APE Methodology

2.1. Section 106 and Virginia Department of Historic Resources (VDHR) Guidance

The Section 106 regulations define an APE as, "…the geographic area within which an undertaking may directly or indirectly cause alterations in the character or use of historic properties, if any such properties exist. The APE is influenced by the scale and nature of an undertaking and may be different for different kinds of effects caused by the undertaking" (36 CFR 800.16[d])[1]. The APE is defined to allow for the evaluation of potential effects to historic properties resulting from an undertaking. According to the steps prescribed by the Section 106 regulations, the APE must be defined before the identification of historic properties and evaluation of potential effects occurs. Types of effects on historic properties may include:

- Direct (such as physical destruction, damage, relocation, or alteration of a property);
- Indirect (such as introduction of visual, atmospheric, or audible elements that diminish the integrity of a property's significant historic features);
- Temporary;
- Future; and
- Cumulative.

Adverse effects occur when an undertaking may directly or indirectly alter characteristics of a historic property that qualify it for inclusion in the National Register of Historic Places. Examples of adverse effects are stated in 36 CFR Part 800.5(a)(2). Adverse effects have the potential to occur both during the construction and operational periods of a project.

For each undertaking, the Section 106 regulations (36 CFR Part 800) require the lead Federal agency to determine an APE boundary that considers multiple types of effects on historic properties, rather than multiple APEs that address various effects. However, non-contiguous APEs may be developed to include multiple alternative project areas or multiple areas where possible effects may be reasonably anticipated. The regulations also require the lead Federal agency seek information from consulting parties and others likely to have knowledge of, or concerns with, historic properties in the area, to identify issues relating to the undertaking's potential effects on historic properties.

The VDHR provides guidance on APE development, requiring the APE to include all locations where the project will cause ground disturbance, all locations from which the project may be visible or audible, and all locations where the project may result in changes to land use, public access, traffic patterns, etc.[3] The DC Historic Preservation Office (DCSHPO) does not offer comparable guidance.

2.2. Development of the APE

The APE for the Long Bridge Project was delineated to identify and document the areas from which the Project could result in ground disturbance or could be reasonably visible or audible. Assumptions for the area within which the alternatives could be located were identified based on the results of Level 1 Concept Screening presented to the public and agencies in May 2017. Level 1 Concept Screening

[3] *VDHR, Defining Your Area of Potential Effects*, http://www.dhr.virginia.gov/pdf_files/Defining_Your_APE.pdf.

assessed preliminary concepts by their ability to meet the Project's Purpose and Need based on railroad capacity, transportation network connectivity, and railroad resiliency and redundancy. The 6 concepts found to meet Purpose and Need, as a result of Level 1 Screening were:

- 3-track crossing
- 3-track crossing with bike-pedestrian crossing
- 4-track crossing
- 4-track crossing with bike-pedestrian crossing
- 5-track crossing
- 5-track crossing with bike-pedestrian crossing

These concepts all occur within the existing Long Bridge Corridor. Only above ground crossings (bridges) were found to meet Purpose and Need because a freight tunnel could not feasibly connect to existing freight infrastructure, and a passenger-only tunnel would not improve redundancy. The concepts vary in terms of the number of tracks and whether or not a bike-pedestrian crossing is included. Because of the need for any new bridge to tie back into the existing railroad corridor (network connectivity), all concepts would be constructed within a relatively tight band either within the current Long Bridge alignment, or upstream or downstream of the current alignment. The opportunity is currently being explored to provide a bike-pedestrian connection on a new railroad bridge, or on a separated structure upstream or downstream of a railroad bridge. Upstream bike-pedestrian c alignments are constrained by the Metrorail bridge, while downstream alignments would need to avoid a Department of Defense Facility in East Potomac Park, and would therefore land close to the NPS headquarters building. Therefore, the outer limits of the potential Limits of Disturbance are set by the bike-pedestrian crossing alignment options, as depicted in

Figure 2-1.

Figure 2-1 | Potential Bike-Pedestrian Crossing Alignment Options

The APE and Limits of Disturbance boundaries were mapped two dimensionally, although it was assumed that the boundaries encompass both above-ground and below-ground resources, including potential underwater and archaeological resources.

The Limits of Disturbance boundary (

Figure 2-2, black dashed line) represents the area within which the Project has the potential to directly alter an existing feature or result in ground-disturbing activities.4 Along the span of the existing Long Bridge and on NPS land on either side of the Potomac River, the Limits of Disturbance includes potential realignments of the existing railroad bridge in addition to potential bike and pedestrian crossings. These potential bridge alignments extend from the existing Metrorail Bridge to a distance of approximately 500 feet to the southeast. Additionally, the Limits of Disturbance extend outward from these points on the east and west banks of the Potomac, at a distance of approximately 250-300 feet, to incorporate associated bike-pedestrian access ramps on each side. Along the remainder of the Long Bridge corridor, the Limits of Disturbance includes a buffer of approximately 50' on either side of the existing corridor centerline between RO and LE Interlockings.

The APE (

Figure 2-2, red dashed line) represents areas from which atmospheric or environmental changes are possible. The methodologies used to develop the APE included:

- Digital mapping and aerial photography to guide and supplement field data;
- The impact of topographic and other vertical changes (such as buildings and viewing platforms) and their effect on potential views and viewsheds, including sightlines from various locations in and surrounding the National Mall and wider viewsheds in areas along the banks of the Potomac River; and
- Windshield-level field surveys around the Project Area to determine the visibility of the Project, based on height of the existing Long Bridge steel trestle and component bridge, abutment, and track structures.[5]

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[4] The LOD is defined as the geographic area(s) within which ground disturbance is anticipated to occur resulting from a specific project. It is developed to better understand the potential effects to archaeological resources within the APE. For the Long Bridge Project, once FRA the LOD may be refined, in consultation with SHPOs, as project engineering progresses by the size and location of bridge piers, abutments, etc. and the associated limits of ground disturbance.

[5] Visibility of the existing Long Bridge Project area was generally used as a determinant of the delineation of the APE boundaries over potential effects resulting from sound and vibration. Sound diminishes as a function of distance at a higher rate than light. An object further away could still be seen but may not be heard; or could be heard to a small degree that would not cause adverse effects. Therefore, changes to views and viewsheds resulting from Project implementation will have the greatest potential to affect historic properties. Additionally, permanent changes in sound regularity or intensity are not anticipated; however, there may be temporary effects during construction.

The process to evaluate the affected environment for noise and vibration will include identifying noise and vibration-sensitive receptors, understanding the predominant sources of noise and vibration, and characterizing existing noise and vibration conditions through measurements and modeling. This process will be conducted concurrently with the EIS studies, and the findings will be incorporated into the delineation of the final APE and in the assessment of effects on historic properties.

Therefore, although other indirect effects (such as audial changes) have be considered, there is a lesser potential for these effects to influence the outer boundaries of the APE. At the time in the Section 106 process when adverse effects are identified, it will be necessary to use available engineering data to quantify and evaluate the potential adverse effects associated with temporary and permanent impacts resulting from the project. Temporary impacts may include construction noise and vibrations; permanent impacts may include increased railroad traffic noise and vibration.

Field survey photographs led to the identification of viewshed locations outside of the contiguous APE boundary. The field survey and photographs were used to determine visibility of the Long Bridge from specific viewshed vantage points. The selection of the viewshed sites was informed by several factors. Viewshed sites are areas from which the project area was clearly visible from a specific exterior vantage point or publicly accessible plaza or viewing platform. However, the view was sufficiently limited in these locations to not warrant expanding the APE to encompass the entirety of each site (for example, the Long Bridge was visible from Arlington House and the Tomb of the Unknown Soldier but not the entirety of Arlington Cemetery). Interiors of buildings were excluded from consideration. All viewshed sites are also historic properties, so there may be potential for impacts to these properties from the implementation of the Long Bridge Project. The viewsheds identified (

Figure **2-2**) include:

- The Kennedy Center
- The Washington Monument
- The Lincoln Memorial
- St. Elizabeths West Campus
- Arlington Cemetery, Tomb of the Unknown Soldier
- Arlington House[6]
- Netherland Carillon (within Arlington Ridge Park)
- The Old Post Office Tower
- The Pentagon[7]

Future refinement of the APE will include:

- Reconsidering and adjusting the Limits of Disturbance boundary as EIS alternatives are further refined;[8]
- Incorporating future noise and vibration analysis findings; and
- Accounting for any additional feedback from DCSHPO and VDHR.

2.3. Long Bridge Section 106 Consultation

The first Section 106 consulting parties meeting for the Long Bridge Project was held on April 25, 2017 at the DDOT offices. The attendees provided preliminary guidance for the development of an APE in the context of the preliminary project concepts presented. The comments received indicated a preference for a single, comprehensive APE inclusive of all possible project alternatives (including options for potential bicycle and pedestrian access that follows the trajectory of the Long Bridge Corridor); that considers multiple types of effects (direct and indirect); and is sufficiently sized to accommodate the

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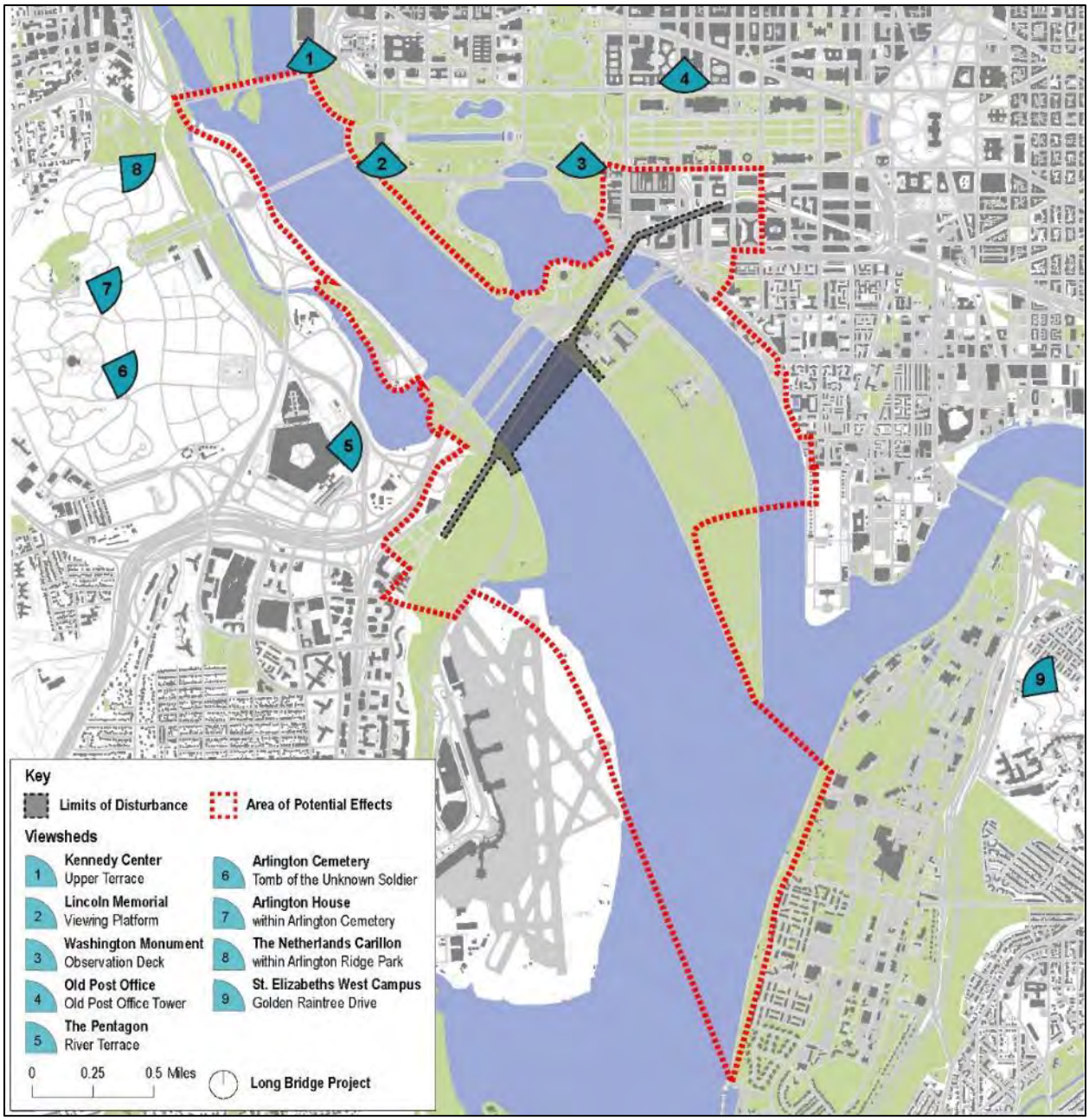
6 Arlington House is located within the boundaries of Arlington National Cemetery. It is not administered by Arlington Cemetery but rather separately administered by the National Park Service.

7 Site visits and field surveys photographs were taken from several additional viewshed points from which Long Bridge was either not visible These sites include the Air Force Memorial, the Marine Corps War Memorial, at ground level at Arlington Ridge Park, the Washington National Airport historic terminal, and the Pentagon Metro Station.

expansive and uninterrupted views along the Potomac River to the Long Bridge Corridor. Following the meeting, FRA and DDOT provided the Consulting Parties with a comment period ending May 9, 2017.

The second Section 106 consulting parties meeting was held on November 15, 2017 at the DCSHPO office. At this meeting, FRA and DDOT presented Draft APE and Limits of Disturbance boundaries in addition to the preliminary identification of historic properties. The attendees provided comments on the historic property identification, additional viewshed sites from which the Project area is visible, potential archaeological resources, and the graphic representation of the APE. FRA and DDOT incorporated those comments into the findings of this report. Following the meeting, FRA and DDOT provided the Consulting Parties with a comment period ending December 6, 2017.

Figure 2-2 | Map of APE, Limits of Disturbance, and Viewshed Sites



2.4. Field Survey Documentation

To establish preliminary boundaries for the APE, Esri ArcGIS and Google Maps were used to identify reasonable outer extents for a potential APE boundary. These reasonable outer extents included areas

of higher elevation (from which views would be more likely); major roadways (particularly elevated highways that would have a greater potential to block views); and other urban conditions like building density, street patterns, tree coverage, and potential viewsheds.

Impacts of topographic and other vertical changes, effects on potential views and viewsheds, and sightlines were tested by visiting specific viewing locations and viewing platforms. The existence of views toward the Long Bridge and the Long Bridge Corridor were recorded in field notes and digital photography. Exteriors of buildings and sites (such as the Kennedy Center upper and lower terraces) were also visited to confirm the visibility of the Long Bridge from these points.

The windshield survey was conducted to establish the outer boundaries of the Draft APE. Ten separate field surveys (on June 30, July 3, September 14, September 15, September 19, September 22, November 6, November 28, December 1, and December 5, 2017) were conducted to test and document the visibility of the Long Bridge Project from multiple and various geographic areas. The locations of these field survey points are documented in Figure 2-3.

The field survey locations indicated in Figure 2-3 are points chosen as representative areas within the APE that illustrate visibility of the Long Bridge Corridor. These points are distributed geographically across the APE. These areas are shown in further detail with accompanying supporting maps and photographs to depict views of the Long Bridge in

Figure 2-4 through Figure 2-31. Site visits and field surveys photographs were taken from several additional viewshed points from which the Long Bridge was not visible. These sites include the Air Force Memorial, the Marine Corps War Memorial, at ground level at Arlington Ridge Park, the Washington National Airport historic terminal, and the Pentagon Metro Station.

Figure 2-3 | Map of Field Survey Locations

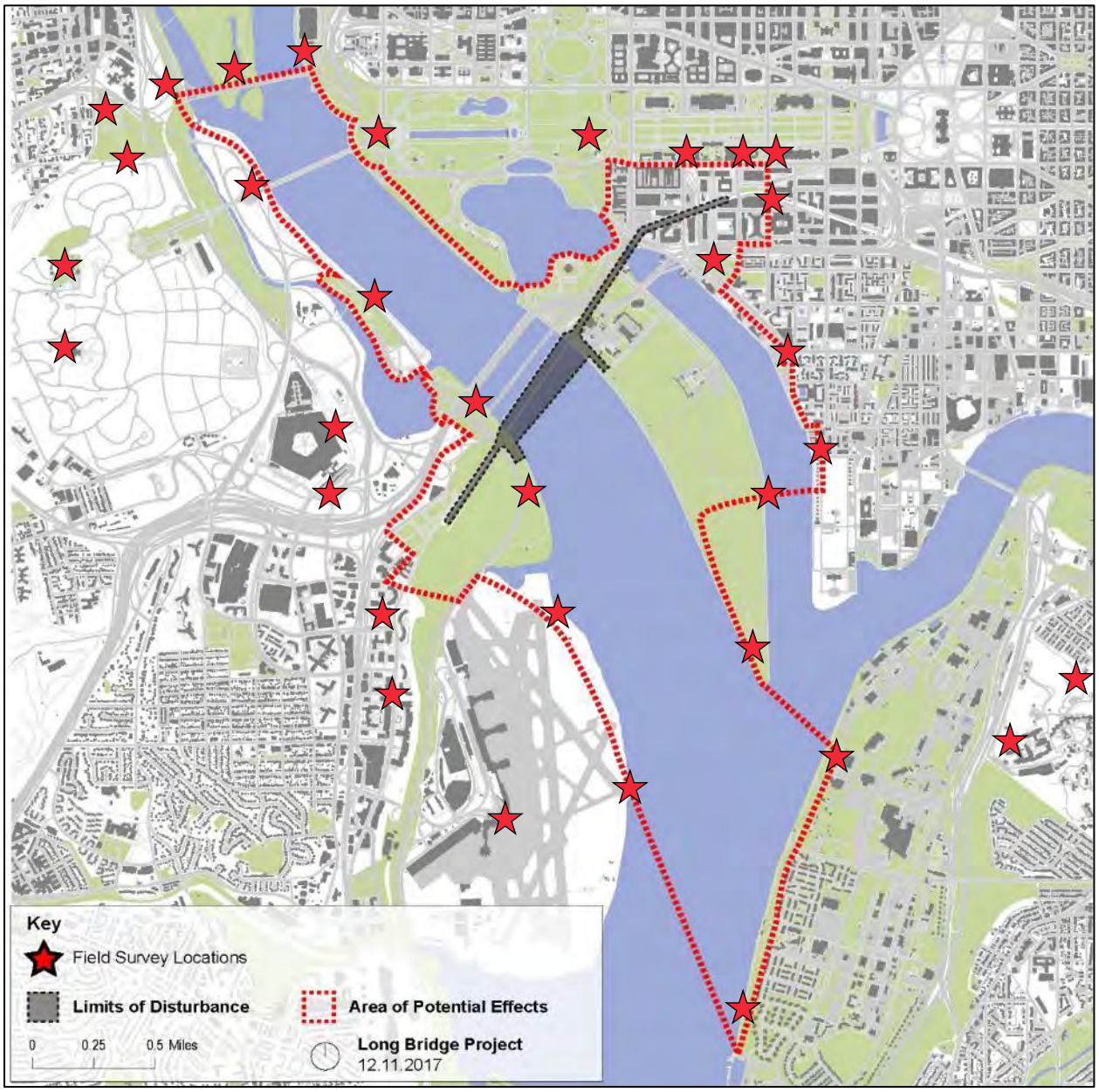


Figure 2-4 | Representative Areas within the APE That Illustrate the Visibility of the Long Bridge Corridor

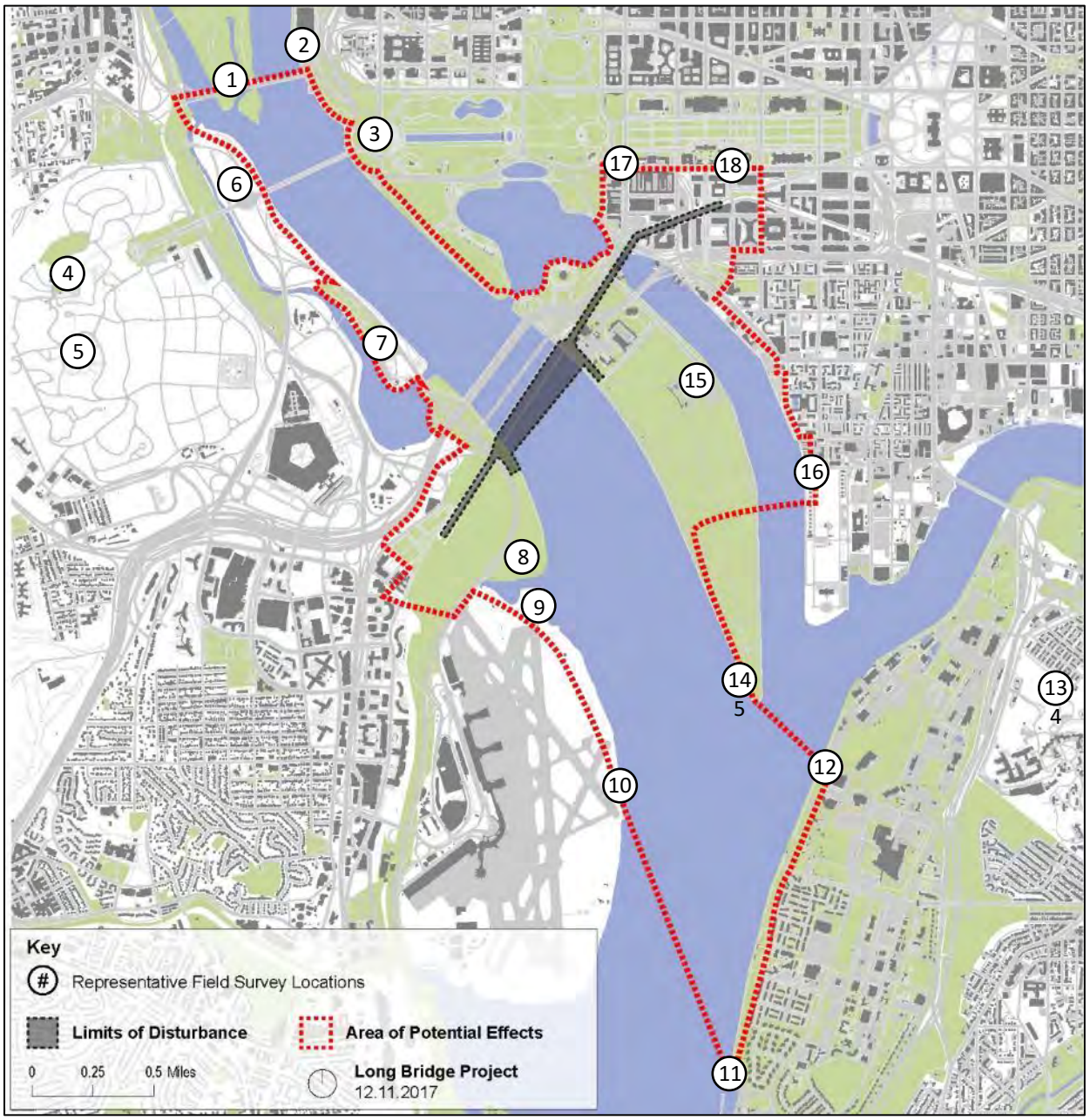


Figure 2-5 | Map detail of photograph locations 1, 2, and 3

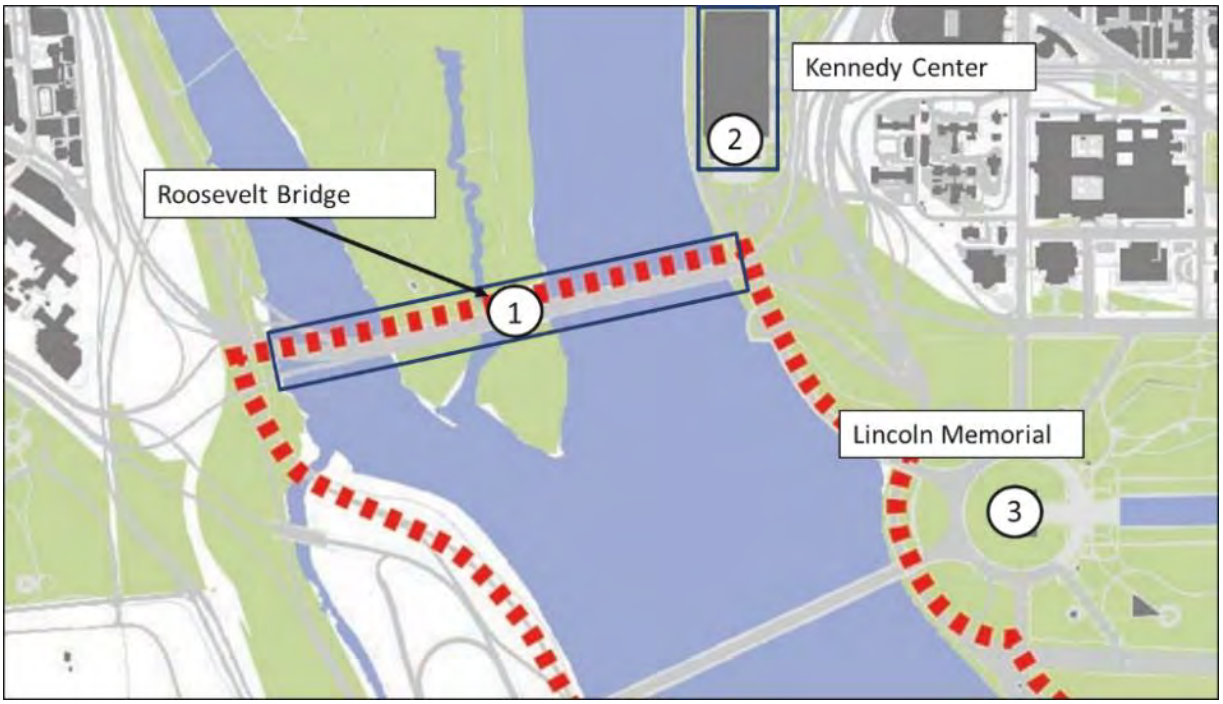


Figure 2-6 | Photograph location 1. Long Bridge from the west end of the Roosevelt Bridge, facing southeast

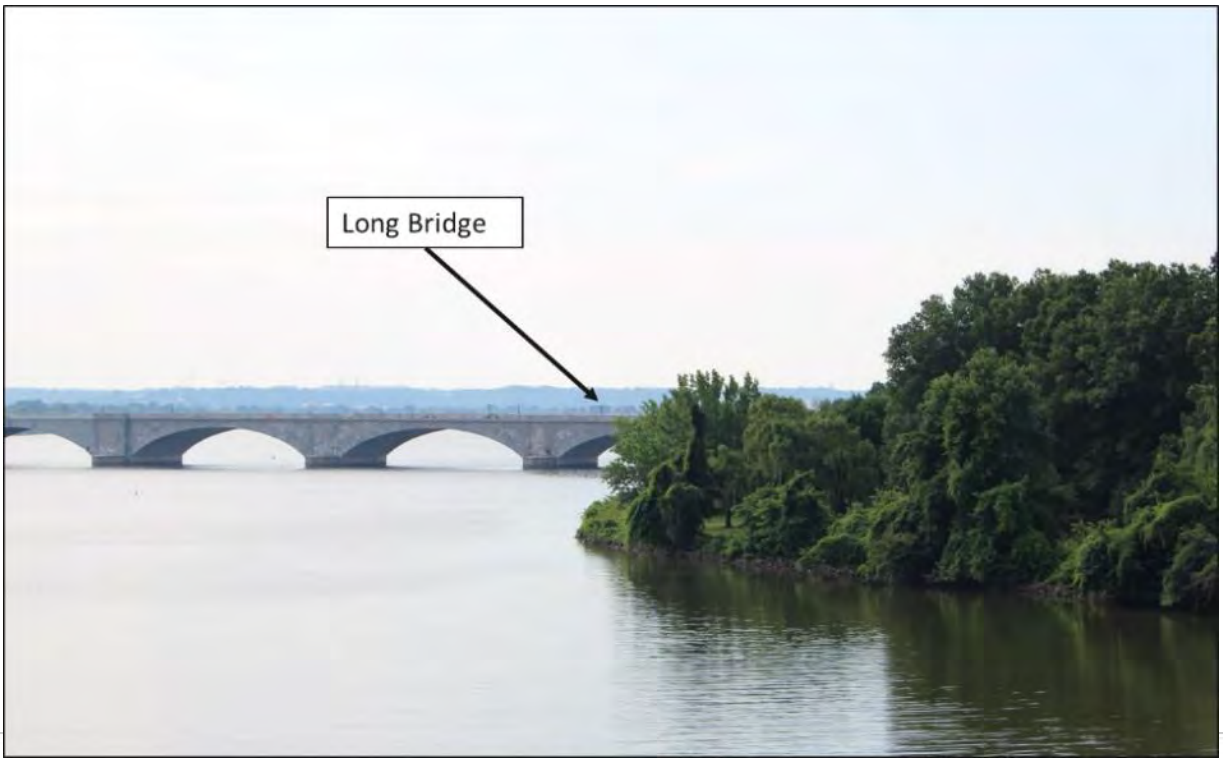


Figure 2-7 | Photograph location 2. Long Bridge from the west section of the Kennedy Center upper terrace, facing southeast

Figure 2-8 | Photograph location 3. Long Bridge from the Lincoln Memorial public viewing platform, facing southeast

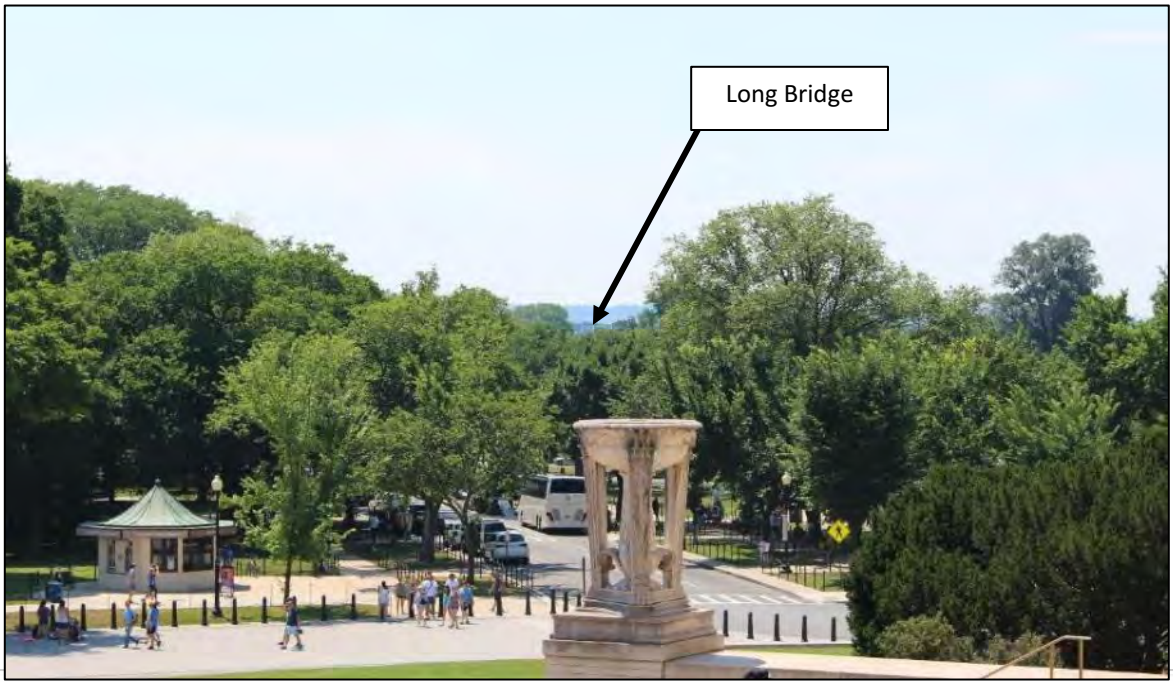


Figure 2-9 | Map detail of photograph locations 4 and 5 at Arlington National Cemetery

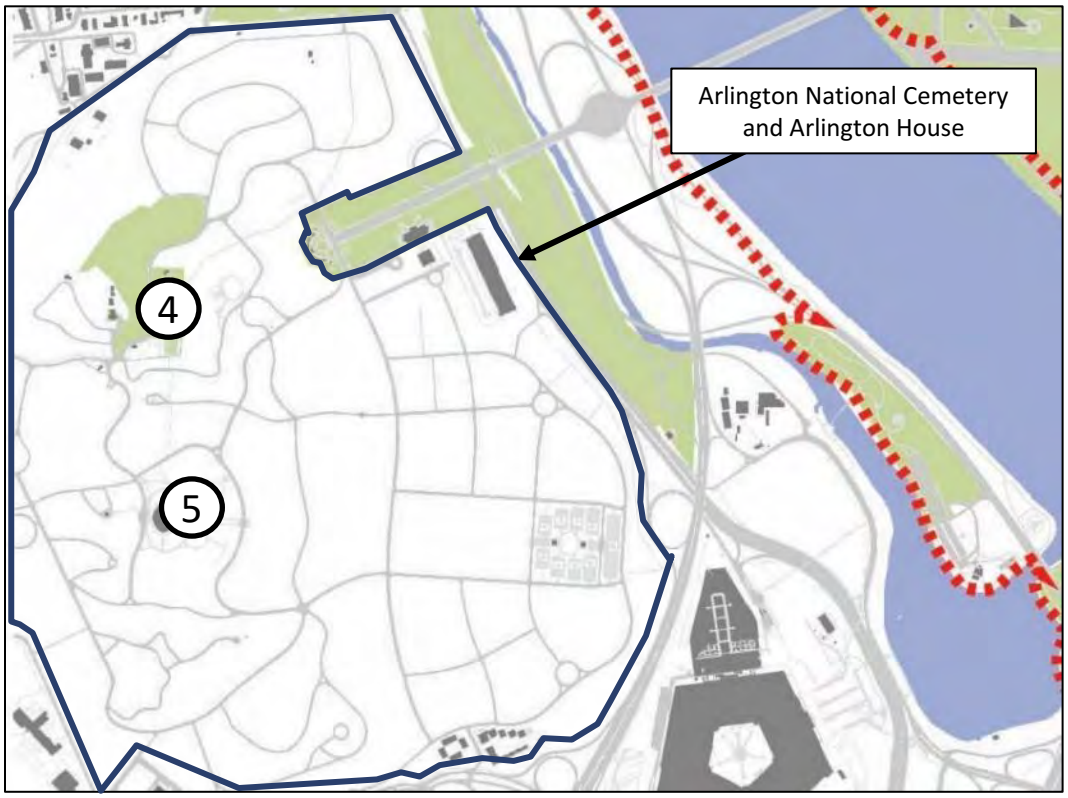


Figure 2-10 | Photograph location 4. Long Bridge from Arlington House, facing southeast

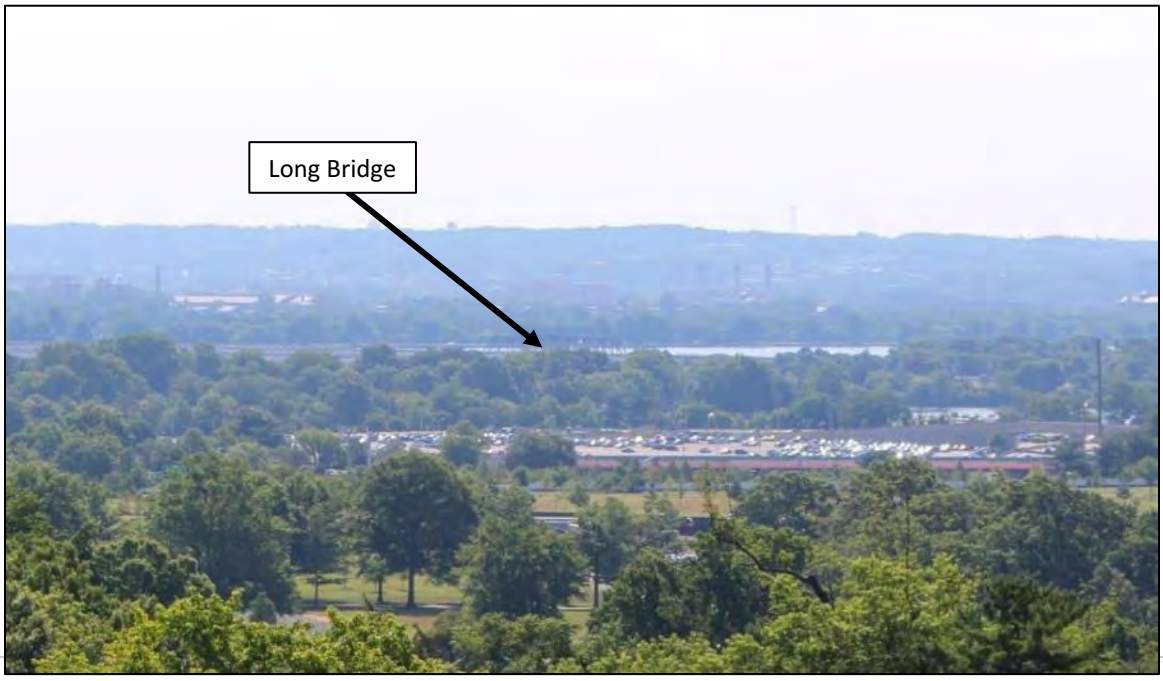


Figure 2-11 | Photograph location 5. Long Bridge from the Tomb of the Unknown Soldier, facing west

Figure 2-12 | Map detail of photograph locations 6, 7, and 8 at George Washington Memorial Parkway, Gravelly Point, and Mount Vernon Trail.

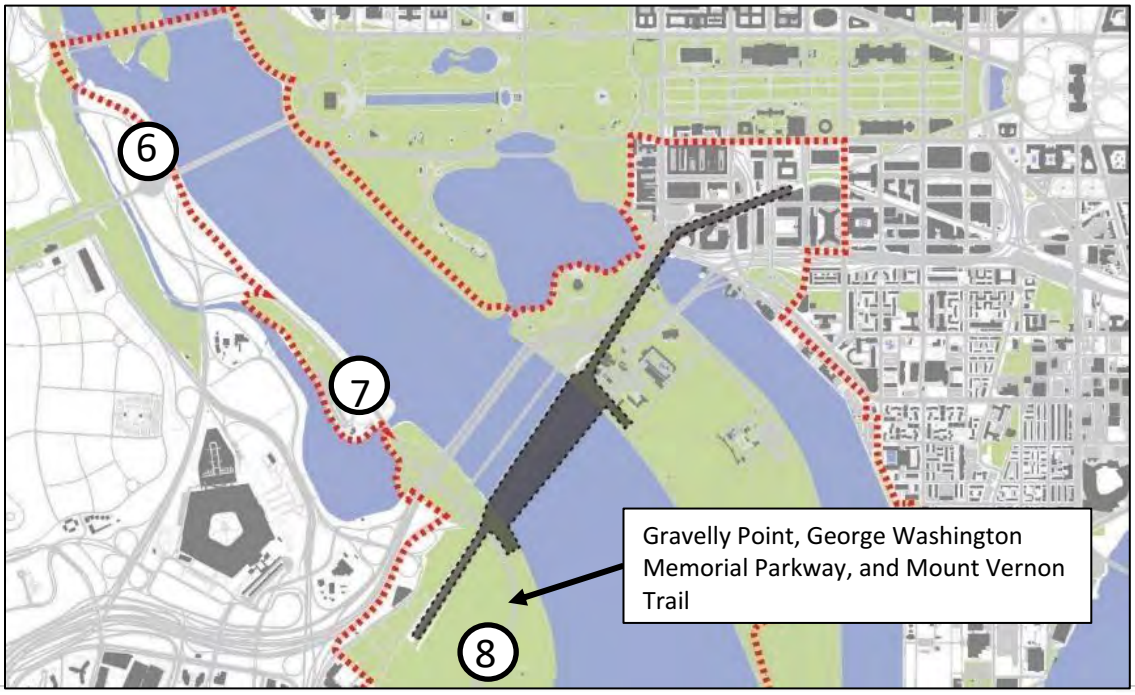


Figure 2-13 | Photograph location 6. Long Bridge from Mount Vernon Trail to the north of Arlington Memorial Bridge, facing southeast

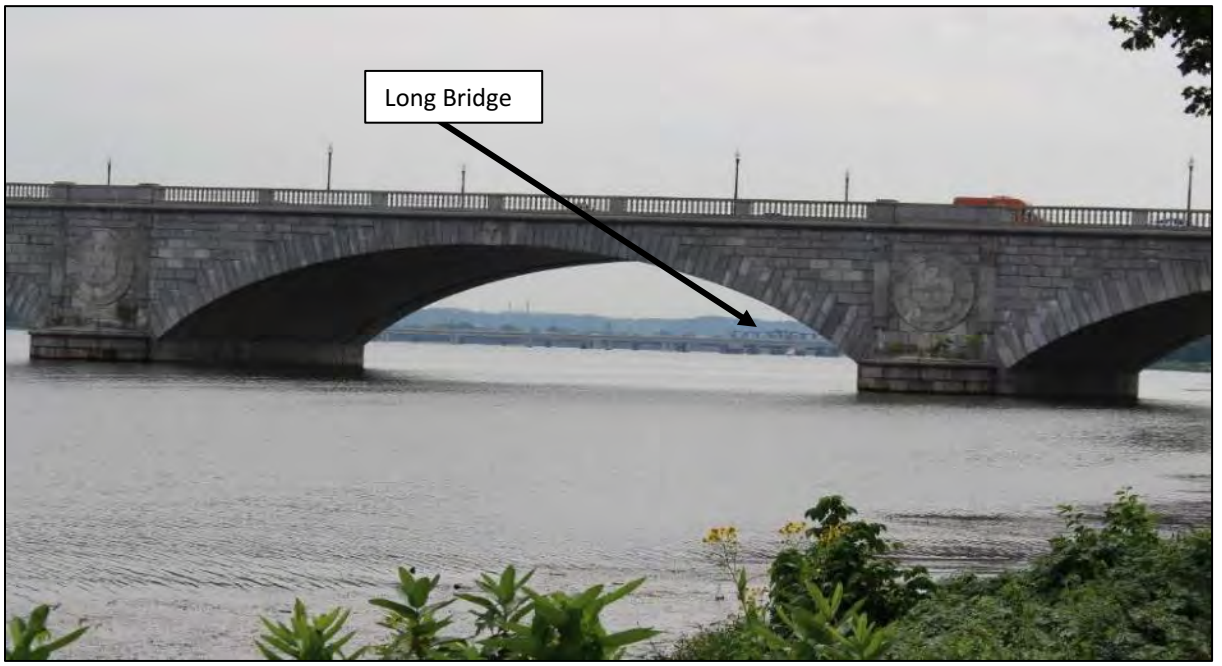


Figure 2-14 | Photograph location 7. Long Bridge from the Mount Vernon Trail to the north of I-395, facing southeast

Figure 2-15 | Photograph location 8. Long Bridge from Gravelly Point, facing north

Figure 2-16 | Map detail of photograph locations 9 and 10 at Reagan National Airport

Figure 2-17 | Photograph location 9. Long Bridge from north boundary of Reagan Airport at the Potomac River, facing north

Figure 2-18 | Photograph location 10. Long Bridge from the southern edge of the airport, facing north/northwest

Figure 2-19 | Map detail of photograph locations 11 and 12, Joint Base Anacostia-Bolling

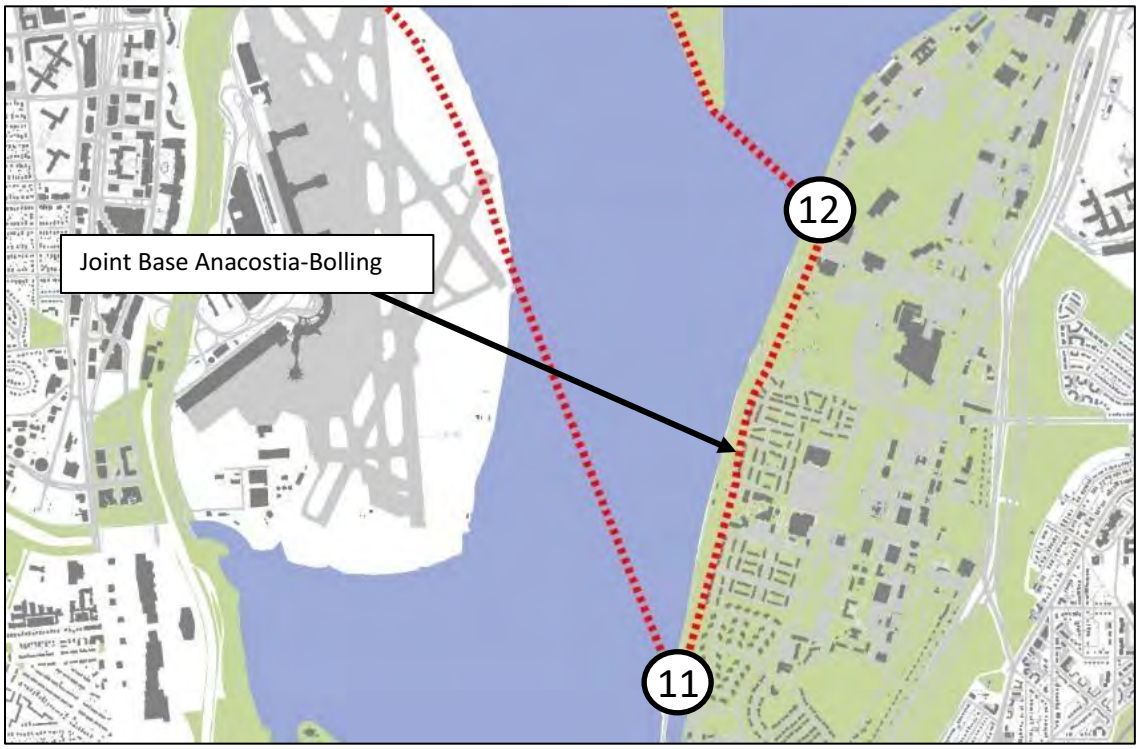


Figure 2-20 | Photograph location 11. Long Bridge from Arnold Avenue, SW, facing northwest

Figure 2-21 | Photograph location 12. Long Bridge to the west of Boundary Drive at the Anacostia River, facing northwest

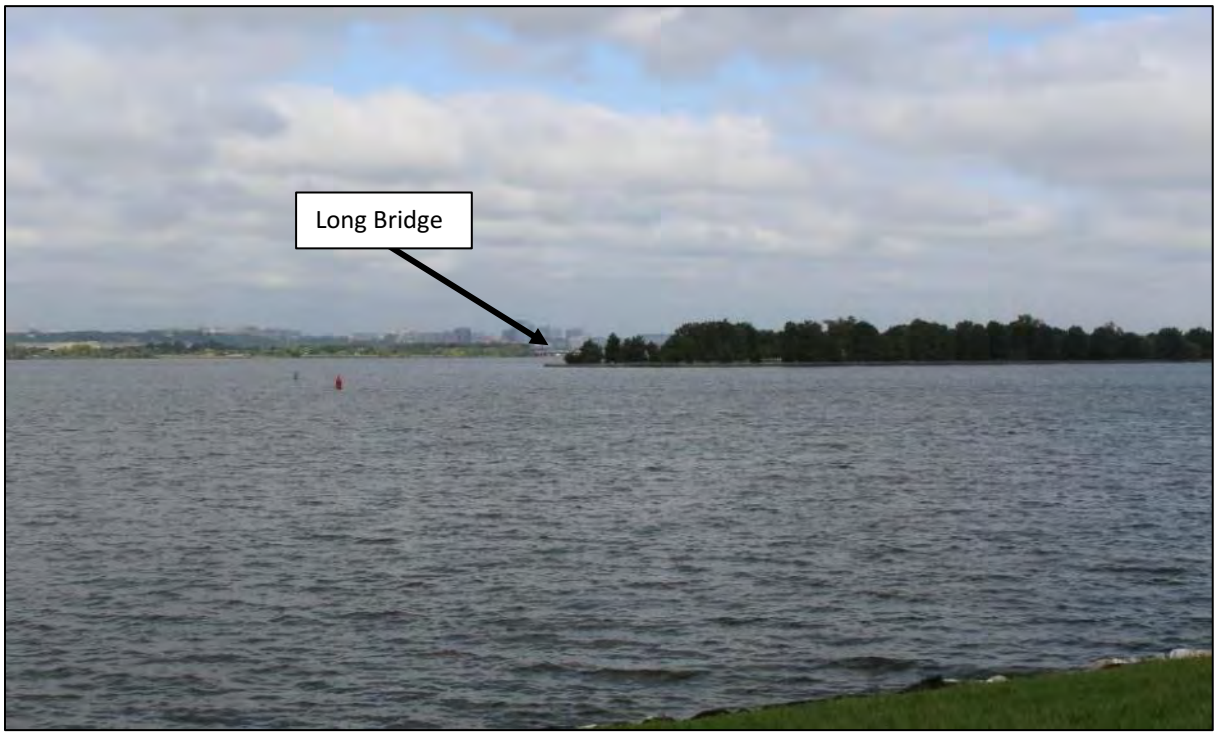


Figure 2-22 | Map detail of photograph location 14, St. Elizabeths West Campus

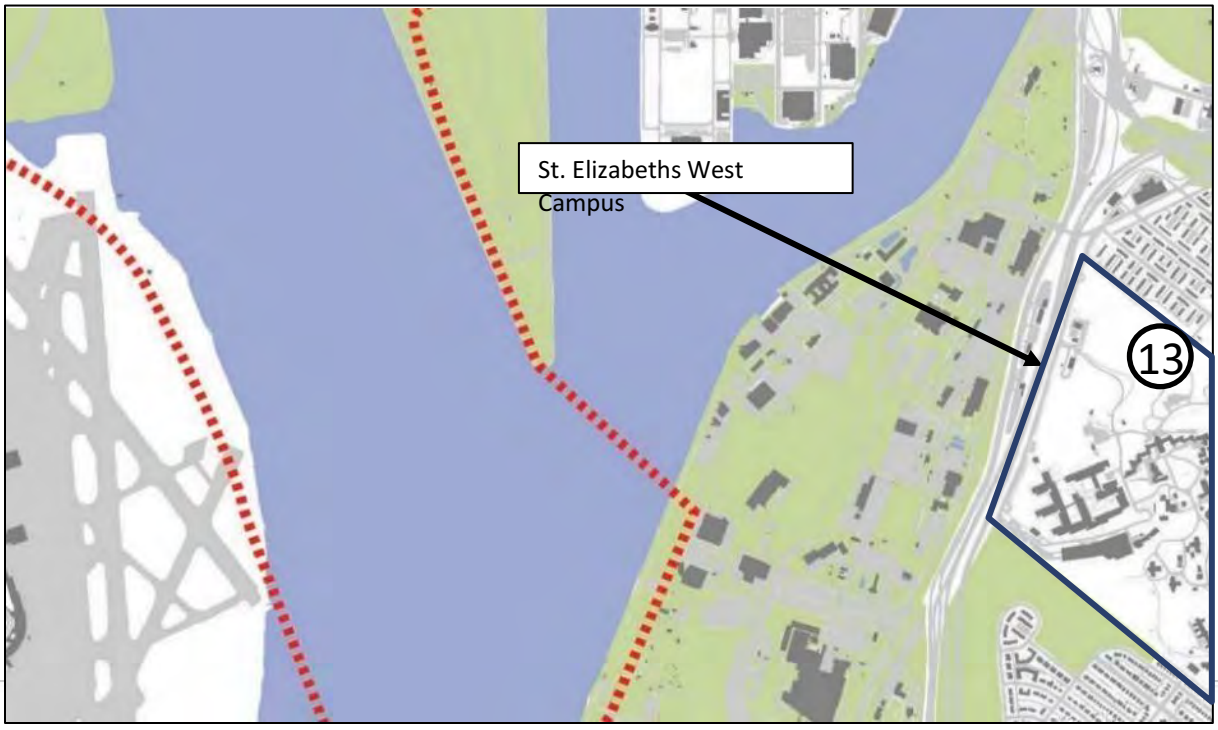


Figure 2-23 | Photograph 2. Long Bridge from Saint Elizabeths West Campus, facing northwest

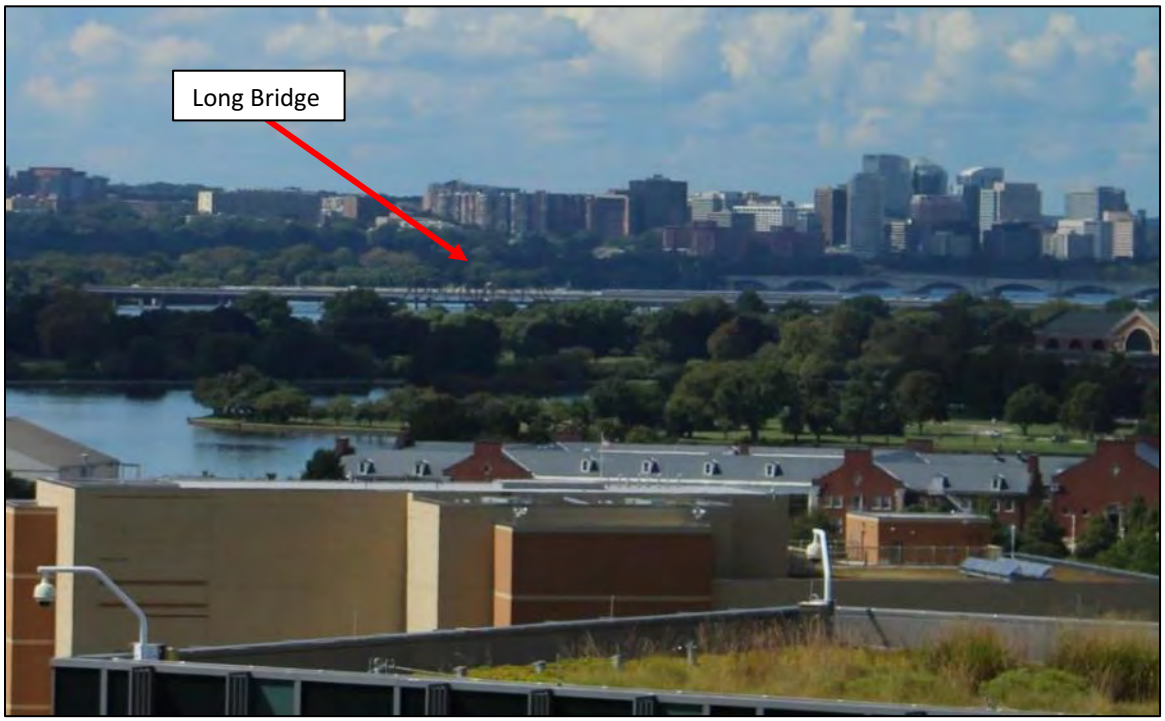


Figure 2-24 | Map detail of photograph locations 14, 15, and 16, East Potomac Park, Hains Point, and Fort McNair

Figure 2-25 | Photograph location 14. Long Bridge from Hains Point, facing northwest

Figure 2-26 | Photograph location 15. Long Bridge Corridor from East Potomac Park at the Washington Channel, facing northwest

Figure 2-27 | Photograph location 16. Long Bridge Corridor from Fort McNair at B Street SW, facing northwest

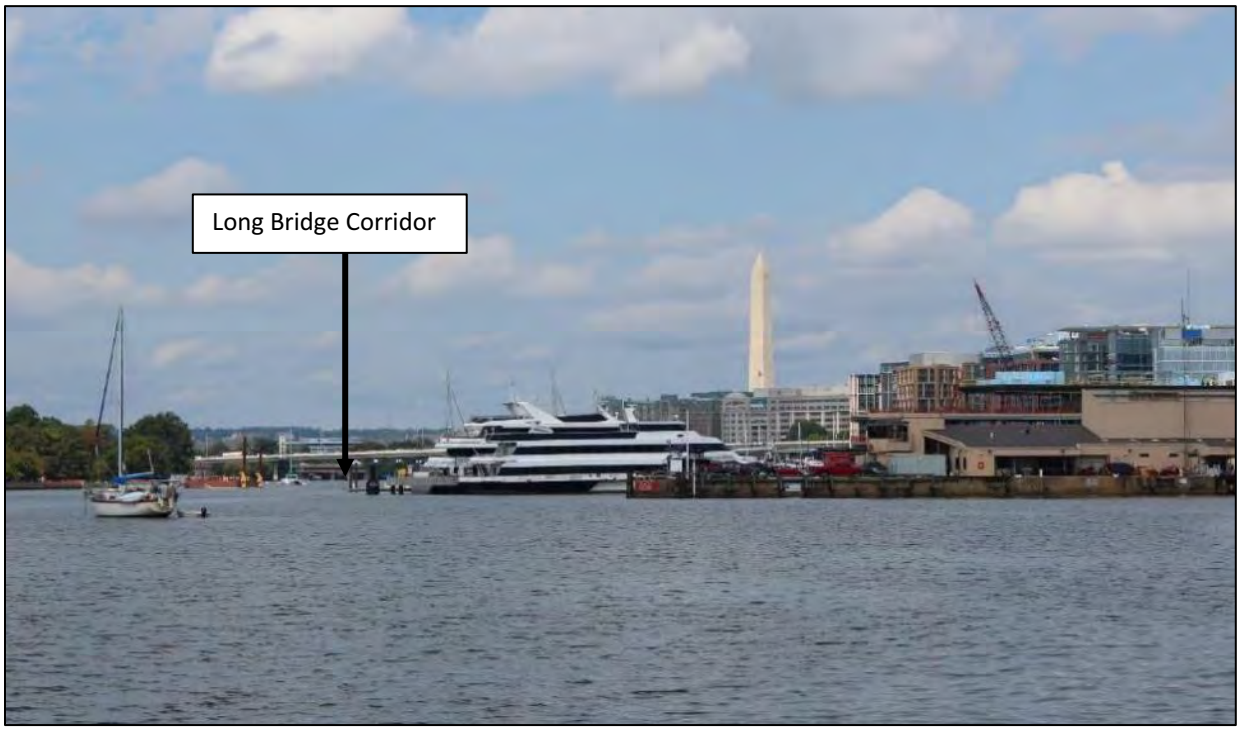


Figure 2-28 | Map detail of photograph locations 17, 18, and 19

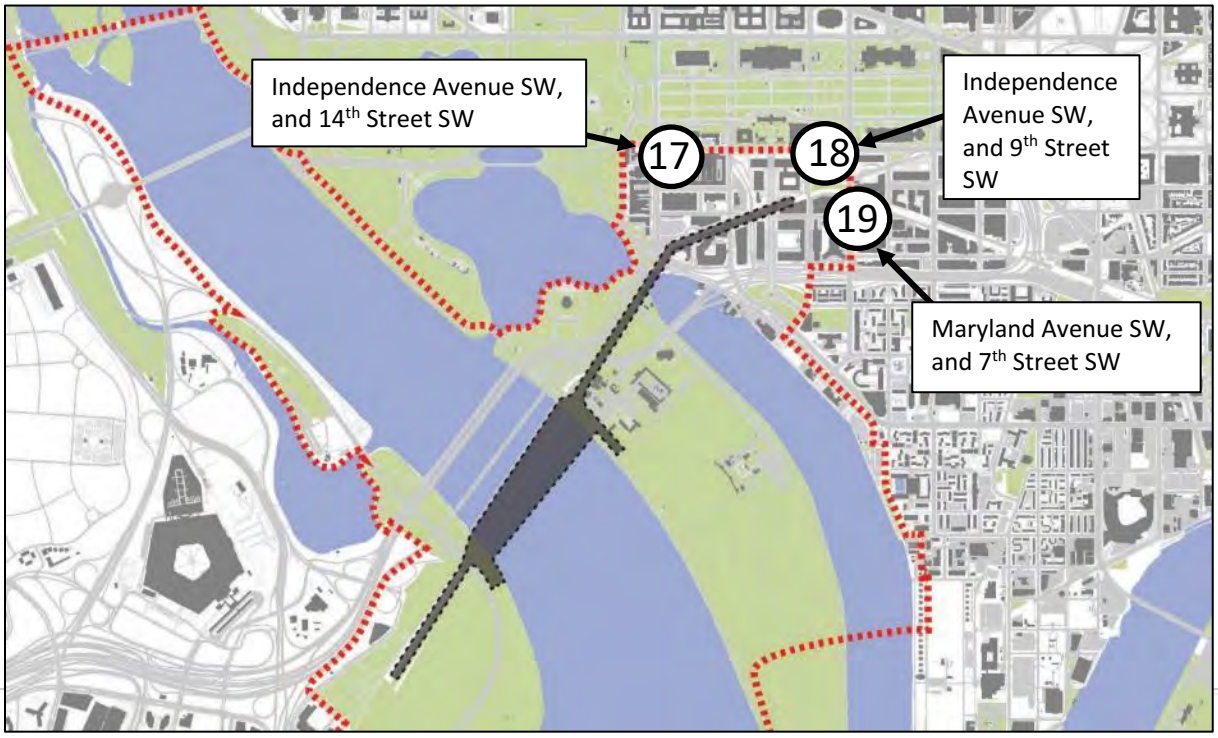


Figure 2-29 | Photograph location 17. Long Bridge Corridor from Independence Avenue SW, and 14th Street SW facing south

Figure 2-30 | Photograph location 18. Long Bridge Corridor from intersection of Independence Avenue SW and 9th Street SW, facing south

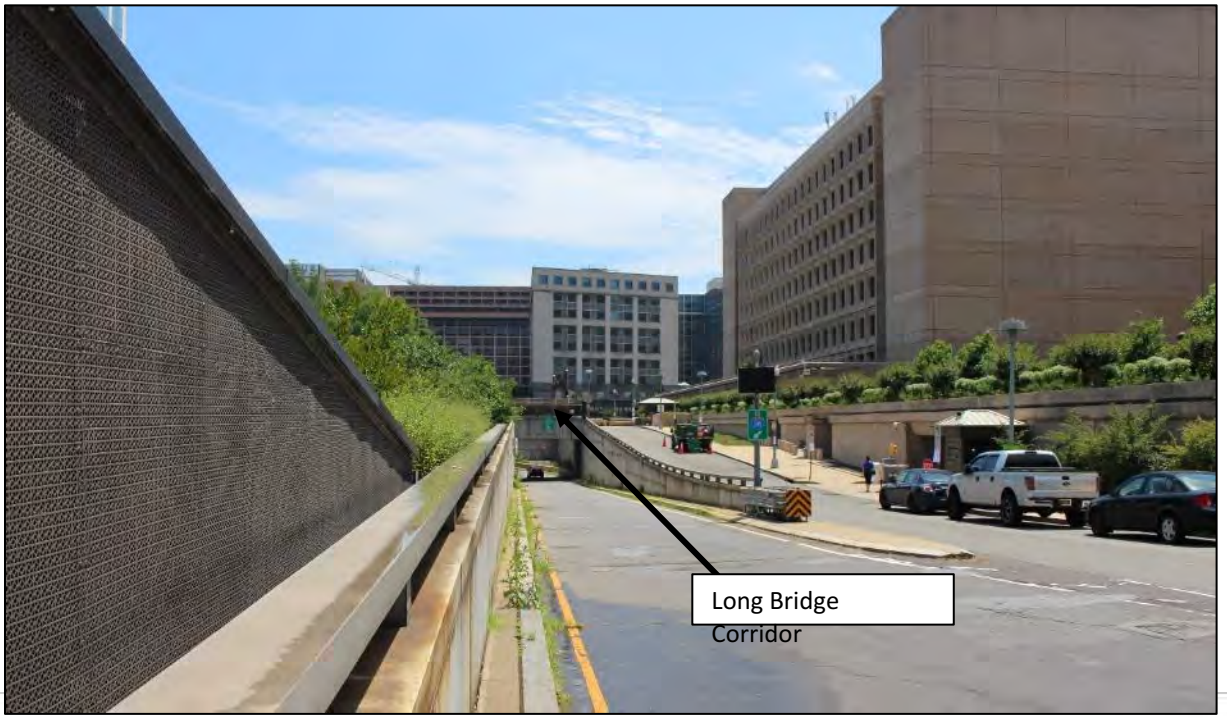


Figure 2-31 | Photograph location 19. Long Bridge Corridor from intersection of Maryland Avenue SW, and 7th Street SW, facing southwest

3.0 Identification of Historic Properties

Once an APE has been defined, the Federal agency must "…make a reasonable and good faith effort…" to identify historic properties within its boundaries (36 CFR § 800.4(b)(1)). A historic property is defined as "any prehistoric or historic district, site, building, structure, or object included on, or eligible for inclusion in, the National Register of Historic Places (NRHP) maintained by the Secretary of the Interior. This term includes artifacts, records, and remains that are related to and located within such properties. The term includes properties of traditional religious and cultural importance to an Indian tribe or Native Hawaiian organization and that meet the National Register criteria" (including artifacts, records, and material remains relating to the district, site, building, structure or object" (36 CFR § 800.16(l)(1)).

In August 2016, FRA and DDOT completed the *Long Bridge Project, Environmental Data Collection Report* (Data Collection Report), which included preliminary identification of historic properties within and in the vicinity of the designated study area. The study area was defined by a 1,000-foot buffer along the length of the Long Bridge Corridor.[9] Historic properties were identified using the following information sources:

- Geographic Information System (GIS) mapping data provided by the District and Arlington County;
- DCSHPO Inventory of Historic Sites;
- NRHP database;
- General Services Administration (GSA) *Historic Buildings* website;
- Virginia Landmarks Register (VLR); and
- Virginia Cultural Resource Information System (V-CRIS).

The *Data Collection Report* was shared with several consulting parties, including VDHR and DCSHPO in September 2016, and the findings related to historic properties were again presented at the consulting party meetings in April and November 2017.

The APE has extended beyond this study area; as such, the above sources were reexamined to identify additional historic properties within the APE. The identification effort was expanded to include the following additional sources of information:

- Properties that are pending or have been recently listed in the NRHP, which were not listed in the August 2016 *Data Collection Report*;
- Properties that have been formally determined eligible for NRHP listing;
- Properties at or greater than 45 years of age that have not been previously evaluated for NRHP eligibility; and
- Contributing streets and avenues, views and vistas, reservations, and other contributing components listed in the Plan of the City of Washington (L'Enfant Plan; L'Enfant-McMillan Plan) NRHP Documentation.

In the future, the identification effort will be expanded to include:

- Potential archaeological resources within the Limits of Disturbance; and

[9] A 1000-foot buffer was uniformly selected for all environmental resources in the Data Collection Report. FRA selected this buffer to compile preliminary existing data on environmental resources within the vicinity of the Long Bridge Corridor; but it is not an indication that FRA has made any determination that effects would only occur within this 1000-foot buffer zone.

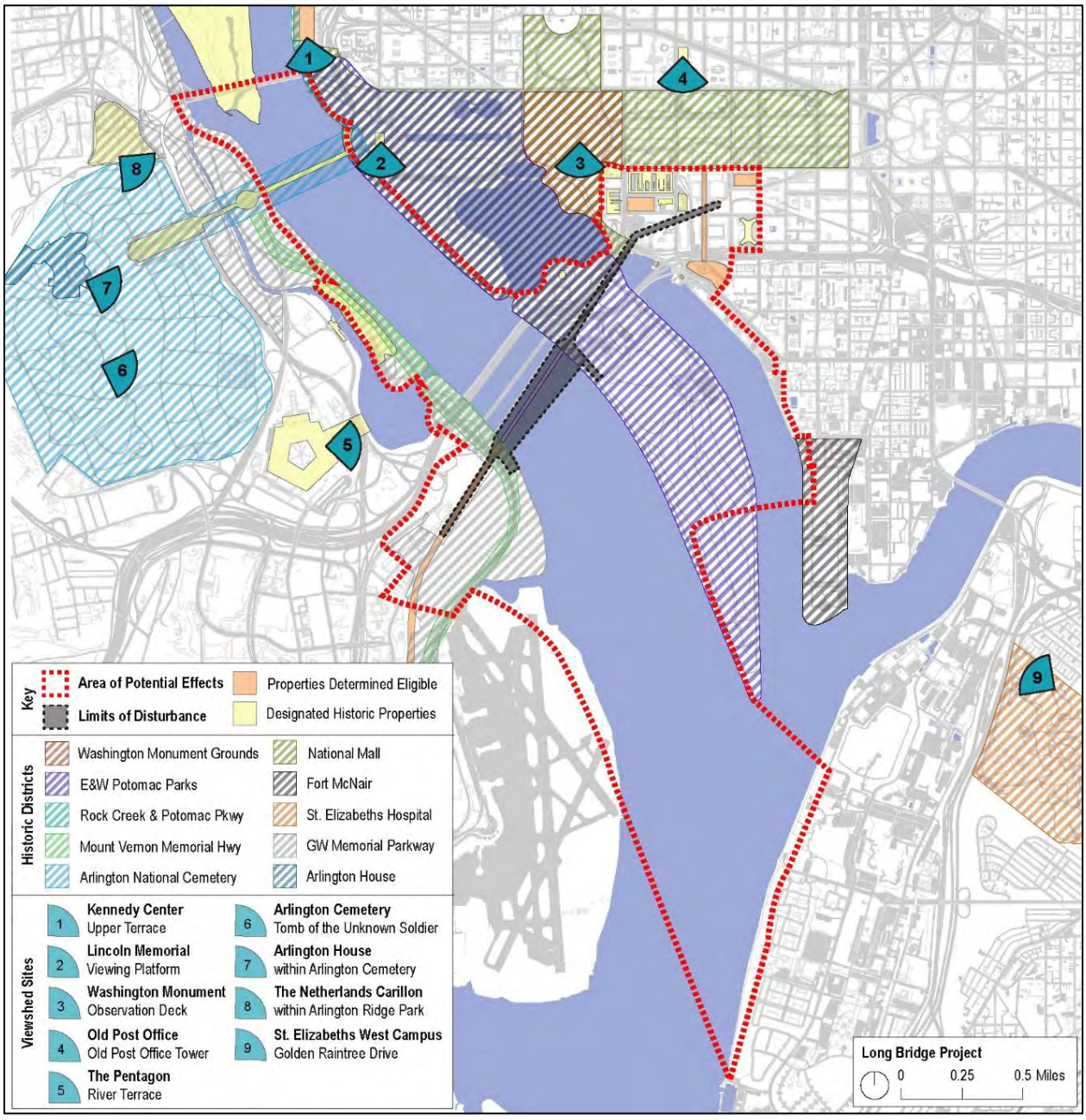
- Any additional feedback from DCSHPO, VDHR, and other consulting parties.

Although the scope for this project does not include drafting formal determinations of eligibility, properties located within the APE that are at least 45 years of age were evaluated against the NRHP Criteria for Evaluation.[10] An assessment of integrity for each property was also undertaken. This age was selected to account for the fifty-year threshold that is generally observed in the evaluation of historic significance, and to account for the implementation schedule of the Long Bridge Project (which may extend five or more years into the future). These properties were identified using a range of documentation resources including real property and building permit data, historic maps and photographs, and aerial photographs. A preliminary evaluation of each property's potential historic significance and integrity is provided herein as a resource for future, more detailed evaluation by the FRA or others at the time of project implementation.

Archaeological resources will be identified using a phased approach. FRA and DDOT will initiate the process by completing a Phase 1A Archaeological Assessment in consultation with DCSHPO and VDHR. The Phase 1A will consist of a desktop review of known archaeological sites and areas that exhibit high archaeological potential. The Phase 1A will address all alternatives, once a Preferred Alternative is identified, additional surveys will be conducted as needed. Because the U.S. Department of the Interior has jurisdiction over a majority of the area within the Limits of Disturbance (including the bottom lands of the Potomac River), FRA and DDOT will coordinate with the National Park Service regarding potential impacts to archaeological resources, including potential underwater archaeology.

[10] National Register of Historic Places, Frequently Asked Questions. http://www.nationalregisterofhistoricplaces.com/faq.html

Figure 3-1 | Map of APE with Designated and Eligible Historic Properties



3.1. Designated Historic Properties

The following properties have been listed in the NRHP, DC Inventory of Historic Sites (DC), and/or the VLR. Two properties have been designated as National Historic Landmarks (NHL). In some cases, these properties were determined eligible for National Register listing (Determination of Eligibility [DOE]) and were subsequently listed.

Table 3-1 | List of historic properties previously listed in the NRHP, DC Inventory, or VLR. Several of the below properties listed on the DC Inventory have also been determined eligible for listing on the NRHP.

#	Name	Location	Designation
1.	**National Mall Historic District**	Washington, DC	DC, NRHP
2.	**Parkways of the National Capital Region**	Washington, DC	VLR, NRHP
3.	**Rock Creek and Potomac Parkway Historic District**	Along the Potomac River and Rock Creek from the Lincoln Memorial to the National Zoo.	DC, NRHP
4.	**George Washington Memorial Parkway**	Arlington County, (Extends to City of Alexandria and Fairfax County)	VLR, NRHP
5.	**Mount Vernon Memorial Highway**	Arlington County (Extends to City of Alexandria, and Fairfax County)	VLR, NRHP
6.	**Plan of the City of Washington**	Washington Region Multi-Property Submission	DC, NRHP
7.	**East and West Potomac Parks Historic District**	Washington, DC	DC, NRHP
8.	**Thomas Jefferson Memorial**	East Basin Drive SW, Washington, DC	DC, NRHP
9.	**Central Heating Plant**	325 13th Street SW, Washington, DC	DC, NRHP
10.	**U.S. Department of Agriculture (USDA) Cotton Annex**	300 12th Street SW, Washington, DC	DC, NRHP
11.	**HUD Building (Robert C. Weaver Federal Building)**	451 7th Street, SW, Washington, DC	DC, NRHP
12.	**U.S. Department of Agriculture South Building**	1352 C Street SW, Washington, DC	DC, NRHP
13.	**Bureau of Engraving and Printing**	301 14th Street SW, Washington, DC	DC
14.	**Auditor's Building Complex**	14th Street and Independence Avenue SW	DC, NRHP
15.	**Arlington Memorial Bridge (and related features)**	Memorial Avenue, DC & Virginia	DC, NRHP
16.	**Fort Leslie J. McNair Historic District (The Old Arsenal)**	4th and P Streets SW	DC, DOE
17.	**Titanic Memorial**	Water and P Streets SW	DC, NRHP
18.	**Lunch Room Building and Oyster Shucking Shed**	1100 Maine Avenue SW	DC, DOE
19.	**Cuban Friendship Urn**	Reservation 332, Ohio Drive at 14th Street Bridge SW	DC, NRHP
20.	**Theodore Roosevelt Island National Memorial (Analostan Island)**	Potomac River west of Georgetown Channel	DC, NRHP
21.	**Lyndon B. Johnson Memorial Grove**	Columbia Island in Lady Bird Johnson Park	DC, NRHP
22.	**Lincoln Memorial (Statue of Lincoln) ***	West Potomac Park, Washington, DC	DC, NRHP

#	Name	Location	Designation
23.	**Washington Monument and Grounds Historic District***	14th Street, between Constitution and Independence Avenues, Washington, DC	DC, NRHP
24.	**Arlington House Historic District***	Roughly bound by Sheridan Drive, Ord and Weitzel Drive, Humphrey's Drive and Lee Avenue in Arlington National Cemetery	VLR, NRHP
25.	**Arlington National Cemetery Historic District***	One Memorial Avenue, Arlington, VA	NRHP
26.	**St. Elizabeths Hospital Historic District***	2700 Martin Luther King Jr., Avenue, SE	DC, NRHP, NHL
27.	**Netherlands Carillon (within Arlington Ridge Park)***	Northwest corner of N Meade Street and Marshall Drive in Arlington, VA	VLR, NRHP,
28.	**Old Post Office***	1100 Pennsylvania Avenue, NW	DC, NRHP
29.	**The Pentagon***	U.S. 1, Va. 110, and Interstate 395	VLR, NRHP, NHL

** These properties are designated as viewshed locations outside of the contiguous APE boundaries.*

1. National Mall Historic District

Location: Washington, DC
Designation: DC, NRHP

The National Mall Historic District (the Mall) is comprised of the monumental core of Washington, DC, an original design element of Major General Pierre Charles L'Enfant's Plan for the Capital City. The L'Enfant Plan was further refined and expanded in the McMillan Commission's 1901-1902 plan for the City of Washington. L'Enfant designed the National Mall to serve as the central axis of Washington's monumental core. The Plan called for the Mall to be a 400-foot-wide, mile long, "grand avenue" from the Capitol to a point directly south of the President's house. The site was to be lined with landscaped areas and gardens. The 1901 McMillan Commission restored and supplemented the L'Enfant Plan primarily by removing obtrusive elements and bordering the Mall with public buildings.

Figure 3-2 | National Mall

2. Parkways of the National Capital Region
Location: Throughout the Washington, DC, metropolitan region.
Designation: NRHP, VLR

Multi-property documentation for scenic parkways of the Washington, DC region including the George Washington Memorial Parkway, the Mount Vernon Memorial Highway, and the Rock Creek and Potomac Parkway, among others.

Figure 3-3 | Rock Creek and Potomac Parkway

3. Rock Creek and Potomac Parkway
Location: Along the Potomac River and Rock Creek from the Lincoln Memorial to the National Zoo.
Designation: DC, NRHP

The first parkway for which legislation was passed in the Nation's Capital and one of the earliest parkways constructed in the region. In 1913, Congress passed the Public Buildings Act, which authorized the creation of the parkway. Planning, design, and land acquisition of the parkway continued through the 1930s, and the parkway was completed in 1935.

Figure 3-4 | Rock Creek and Potomac Parkway

4. George Washington Memorial Parkway
Location: Arlington County, City of Alexandria, and Fairfax County
Designation: VLR, NRHP

The George Washington Memorial Parkway is a 25-mile scenic parkway administered by the National Park Service. Constructed predominantly in the 1930s, the parkway provides a ceremonial and recreational corridor between northern Virginia and Mount Vernon, the home and estate of George Washington.

Figure 3-5 | George Washington Memorial Parkway (Mount Vernon)

5. Mount Vernon Memorial Highway
Location: Arlington County, City of Alexandria, and Fairfax County
Designation: VLR, NRHP

Original 15.2-mile segment of the scenic parkway commemorating the birth of George Washington.

Figure 3-6 | Mount Vernon Memorial Highway (Google Maps)

6. Plan of the City of Washington
Location: Includes original elements of Pierre Charles L'Enfant's plan for the City of Washington, including later elements proposed by the McMillan Commission
Designation: NRHP, DC

Multi-property submission for the street grid, diagonal avenues, parks, vistas among monuments and sites over Federal land within the L'Enfant Plan boundary, and the airspace above this matrix up to the legal height limit in the City.

Figure 3-7 | Detail, L'Enfant Plan Facsimile, 1887 (Library of Congress)

7. East and West Potomac Parks Historic District
Location: Washington, DC
Designation: NRHP, DC

Historic district comprising 730 acres of park land along the Potomac River. Standing memorials in the parks include the Lincoln and Jefferson Memorials. Contributing features to this historic district include the Inlet Bridge, the U. S. Engineers Storehouse, the National Capital Region Building complex, East Potomac Park Golf Course, East Potomac Park Field House, East Potomac Park Swimming Pool, and D-1 Substation Building.

Figure 3-8 | Hains Point, East and West Potomac Parks Historic District

The Long Bridge, constructed in 1904, is a contributing feature to the East and West Potomac Parks historic district.[11]

Figure 3-9 | Long Bridge

8. Thomas Jefferson Memorial
Location: 16 East Basin Drive SW, Washington, DC
Designation: NRHP, DC

National Memorial dedicated to third U.S. President Thomas Jefferson. Designed by notable architect John Russell Pope, the memorial was constructed between 1937 and 1942. Sited facing the Tidal Basin, the memorial forms a significant component of the city's monumental plan.

Figure 3-10 | Jefferson Memorial (National Park Service)

9. Central Heating Plant
Location: 325 13th Street SW, Washington, DC
Designation: NRHP, DC

A heating plant completed in 1934 to supply steam to Federal buildings. Designed in the Art Deco style by architect Paul Phillipe Cret under the direction of the Supervising Architect of the Treasury Department.

Figure 3-11 | Central Heating Plant

[11] The Evening Star. 1904. *First Train Passes, New Railway Bridge Used for First Time*. August 25, 1904.

10. USDA Cotton Annex
Location: 300 13th Street SW, Washington, DC
Designation: NRHP, DC

The Bureau of Agricultural Economics (BAE) Building, now known as the Cotton Annex, was built in 1936 to 1937 for the USDA under the auspices of Supervising Architect of the Treasury Louis A. Simon (1933–1939).

Figure 3-12 | USDA Cotton Annex

11. U.S. Department of Housing and Urban Development (HUD) Building (Robert C. Weaver Federal Building)
Location: 451 7th Street SW, Washington, DC
Designation: NRHP, DC

Completed in 1968 by the architect Marcel Breuer. The modernist design and execution of the HUD building exemplifies the primary tenets of the "Guiding Principles for Federal Architecture" as set forth by President John F. Kennedy's administration in 1962.

Figure 3-13 | HUD Building

12. USDA South Building
Location: 1352 C Street SW, Washington, DC
Designation: DC, NRHP

Completed in 1936, the South Building is significant for its association with the growth of the Department of Agriculture; broader patterns of city development in the District; and as an excellent example of the Stripped Classical style of Federal architecture of the 1930s.

Figure 3-14 | USDA South Building

13. Bureau of Engraving and Printing (BEP) (Main Building)
Location: 301 14th Street SW, Washington, DC
Designation: DC

The building was designed by the Office of the Supervising Architect of the Treasury, under Supervising Architect James Knox Taylor. The Neoclassical style building was completed in February 1914.

Figure 3-15 | BEP Main Building

14. Auditor's Building Complex
Location: 14th Street and Independence Avenue SW, Washington, DC
Designation: DC, NRHP

The Auditors Building was the first building designed and constructed for the U.S. Department of the Treasury Bureau of Engraving and Printing. Originally completed in 1880, the building had three major additions in 1891, 1895, and 1900. Originally designed by James B. Hill, Supervising Architect of the Treasury Department, the building is also significant for its architectural style.

Figure 3-16 | Auditor's Building (Library of Congress)

15. Arlington Memorial Bridge (and Related Features)
Location: Memorial Avenue, DC and Virginia
Designation: DC, NRHP

The 1932 bridge and its related features are a major element of 1902 McMillan Commission plan for the city. The bridge serves as a symbolic link between the north and the south, connecting Arlington House (home of Robert E. Lee) and the Lincoln Memorial.

Figure 3-17 | Memorial Bridge

16. Fort Leslie J. McNair Historic District (The Old Arsenal)
Location: Fourth and P Streets SW, Washington, DC
Designation: DC, DOE

Fort McNair was established in 1791 and today is the third oldest U.S. Army installation in continuous use. The district is significant in the fields of architecture, military history, military education, and health and medicine.

Figure 3-18 | Fort McNair (National Defense University)

17. Titanic Memorial
Location: Water and P Streets SW, Washington, DC
Designation: DC, NRHP

The Titanic Memorial was designed by the female sculptor Gertrude Vanderbilt Whitney. The sculpture is significant as it is only one of five located in the District designed by a woman. Completed in 1916, the statue was originally erected at the Rock Creek and Potomac Parkway in 1930. In 1968, the statue was relocated to its present location.

Figure 3-19 | Titanic Memorial

18. Lunch Room Building and Oyster Shucking Shed
Location: 1100 Maine Avenue SW, Washington, DC
Designation: DC, DOE

The Lunch Room Building and Oyster Shucking Shed are significant as they are the only extant buildings associated with the 1916-1918 Municipal Fish Wharf and Market on Water Street. The buildings illustrate Congress' support for the City Beautiful movement as implemented by the improvement of the District's shoreline, and recognition of the need to address issues with the District's fishing industry, as well as they health and welfare of the District's citizens.

Figure 3-20 | Lunch Room

19. Cuban Friendship Urn
Location: Reservation 332, Ohio Drive at Fourteenth Street Bridge SW, Washington, DC
Designation: DC, NRHP

The urn is significant as it is the second gift of sculpture presented to the District of Columbia by a foreign nation. It was presented to President Calvin Coolidge in Havana in 1928, and Congress authorized its acceptance on May 22, 1928.

Figure 3-21 | Cuban Friendship Urn (Wikimedia Commons)

20. Theodore Roosevelt Island National Memorial (Analostan Island)
Location: Potomac River west of Georgetown Channel
Designation: DC, NRHP

The 88-acre island is a memorial to Theodore Roosevelt, twenty-sixth President of the United States. It was presented to the U.S. by the Roosevelt Memorial Association in 1931 and opened to the public in 1936.

Figure 3-22 | Roosevelt Memorial (National Park Service)

21. Lyndon B. Johnson Memorial Grove on the Potomac

Location: George Washington Memorial Parkway
Designation: NRHP

Authorized by Congress in 1973, the Memorial Grove established an official memorial to President Lyndon B. Johnson. The site is significant for its association with the historic pattern of creating presidential memorials, which began with the Washington Monument, and as an excellent example of twentieth century landscape architecture.

Figure 3-23 | Johnson Memorial Grove (National Park Service)

22. Lincoln Memorial (Statue of Lincoln)

Location: West Potomac Park, Washington, DC
Designation: DC, NRHP

The Lincoln Memorial is significant as an important example of Neoclassical style architecture. It is the foremost memorial to the sixteenth President of the United States, and as the terminus of the extended Mall plan in the Senate Park Commission's (popularly known as the McMillan Commission) 1902 plan for the city. The memorial was designed by architect Henry Bacon, and Lincoln's statue is the work of sculptor Daniel Chester French.

Figure 3-24 | Lincoln Memorial (National Park Service)

23. Washington Monument and Grounds Historic District

Location: 14th Street, between Constitution and Independence Avenues, Washington, DC
Designation: DC, NRHP

The Washington Monument and Grounds Historic District is significant under Criterion A in the areas of: politics and government as part of the establishment of the national capital; social history as a gathering place for the American citizenry to express their First Amendment rights; ethnic heritage for its association with the 1963 March on Washington for Jobs and Freedom; and locally as the site of continuing entertainment and recreation. The historic district is also significant for its architecture, planning, and design, and as a planned cultural landscape. There are several views and vistas that contribute to the significance of the historic district, including views from the top of the monument to surrounding city and important sites.

Figure 3-25 | Washington Monument and Grounds (National Park Service)

24. Arlington House Historic District

Location: Roughly bound by Sheridan Drive, Ord and Weitzel Drive, Humphrey's Drive and Lee Avenue in Arlington National Cemetery, Arlington, VA
Designation: VLR, NRHP

The Arlington House Historic District is significant for its association with George Washington Parke Custis (step-grandson of George Washington) and General Robert Edward Lee (military leader and important figure in the American Civil War); its architecture and landscape design; its reflection of the ethnic heritage of enslaved African Americans and household slaves who worked and lived on site; its association with Arlington National Cemetery; as one of the Federal government's first attempts at historic preservation (1925 legislation, 1928-1935 restoration); and its archaeology. There are several views and vistas that contribute to the significance of the historic district, including views from the house eastward. Arlington House Historic District is located within the boundaries of the Arlington National Cemetery Historic District. It

Figure 3-26 | Arlington House (National Park Service)

is not administered by Arlington Cemetery but rather separately by the National Park Service.

25. Arlington National Cemetery Historic District
Location: One Memorial Avenue, Arlington, VA
Designation: NRHP

Arlington National Cemetery Historic District is significant as the country's most sacred national cemetery. Created from the former estate of Mary Anna Custis Lee (wife of Civil War Confederate General Robert E. Lee) and purchased by the Federal Government in 1864, the site includes several significant contributing architectural features, including Arlington House, the Tomb of the Unknown Soldier, the Arlington Memorial Amphitheater, and numerous additional memorials. The current Long Bridge is visible from Arlington House, the Tomb of the Unknown Soldier, and their immediately surrounding landscapes.

Figure 3-27 | Arlington National Cemetery (Arlington Cemetery)

26. St. Elizabeths Hospital Historic District
Location: 2700 Martin Luther King Jr., Avenue SE, Washington, DC
Designation: DC, NRHP, NHL

St. Elizabeths Hospital Historic District is one of the nation's earliest institutions for the treatment of mental illness. Established through the efforts of Dorothea Dix, the leading mental health reformer of the 19th century, the hospital was chartered by Congress in 1852 as the Government Hospital for the Insane, with the

mission to provide humane care for patients from the Army, Navy, and District of Columbia. The historic district features a significant collection of late-19th and early 20th-century architecture, including the Center Building (1853-1855), an early example of the linear plan for mental hospital wards developed by reformer Thomas Kirkbride.

Figure 3-28 | St. Elizabeths West Campus

27. Netherland Carillon (within Arlington Ridge Park)
Location: Within Arlington Ridge Park at the northwest corner of N Meade Street and Marshall Drive in Arlington, VA
Designation: Contributing resource within Arlington Ridge Park (NRHP, VLR)

The Netherlands Carillon is located at the south end of Arlington Ridge Park. The Netherlands Carillon, designed by Dutch architect Joost W.C. Boks, is a Modernist steel framework with a memorial carillon. The carillon was presented as a gift to the United States by the Netherlands in thanks for the aid provided by the United States during and after World War II. The carillon is set within a picturesque landscape designed by National Park Service landscape architects in the early 1960s. The Netherlands Carillon appears to be potentially individually eligible per NPS documentation.

Figure 3-29 | The Netherlands Carillon (National Park Service)

28. Old Post Office
Location: 1100 Pennsylvania Avenue, NW
Designation: DC, NHRP (located within Federal Triangle (DC, DOE) and Pennsylvania Avenue National Historic Site (NHS, NR, DC)

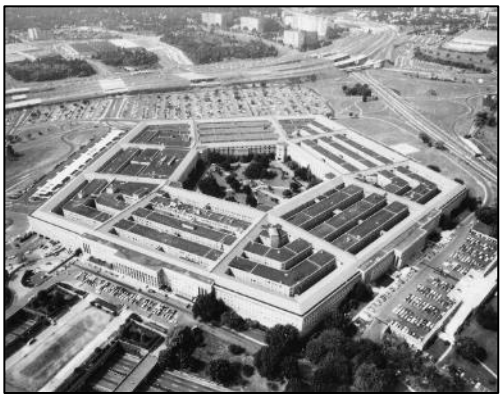
The Old Post Office and Clock Tower (1891 – 1899) was designed by the Office of the Supervising Architect of the Treasury under Willoughby J. Edbrooke to house both the Post Office Department as well as the City Post Office. The first Federal Office building to be constructed in the area later known as Federal Triangle, it is one of the few Romanesque Revival style buildings of monumental scale to be constructed in Washington. At the time of its completion, its 315-foot clock tower was the third highest building in the District, after the Washington Monument and the Capitol.

Figure 3-30 | The Old Post Office (National Park Service)

29. The Pentagon
Location: U.S. 1, Va. 110, and Interstate 395
Designation: VLR, NRHP, NHL

The Pentagon (1941 – 1943) was primarily designed by architects George Edwin Bergstrom and David J. Witmer. The Pentagon is significant as a NHL for its association with "events that have made a significant contribution to the geopolitical role of the United States as a world power" from World War II to the present, and for its association with the lives of nationally significant individuals from 1941 to today. Although the building's architecture did not qualify the building as an NHL, the building is considered architecturally important as it embodies the Stripped Classical style of architecture popular during the period, and as the largest and one of the last of Washington's monumental buildings designed in accordance with the McMillan Commission's 1902 plan for the City of Washington.

Figure 3-31 | The Pentagon (VDHR)



3.2. Eligible Historic Properties

The following properties have been determined eligible or recommended as eligible for listing in the National Register of Historic Places.

Table 3-2 | List of historic properties that have been determined eligible for listing in the NRHP by a Federal agency or recommended as eligible by a SHPO.

#	Name	Location	Designation
1.	**Bureau of Engraving and Printing Annex**	300 14th Street SW, Washington, DC	DOE
2.	**Federal Office Building 10A (Orville Wright Building)**	800 Independence Ave SW, Washington, DC	DOE
3.	**Benjamin Banneker Park/Overlook; Tenth Street Overlook**	Terminus of 10th Street SW, Washington, DC	DOE
4.	**Richmond, Fredericksburg and Potomac Railroad Historic District**	Along CSX right-of-way in VA from Arlington County to the City of Richmond	DOE
5.	**Washington Marina Building**	1300 Maine Avenue SW	DOE
6.	**L'Enfant Promenade**	Section of 10th Street SW between Independence Avenue and Banneker Park	DOE
7.	**Lady Bird Johnson Park**	George Washington Memorial Parkway	DOE
8.	**John F. Kennedy Center for the Performing Arts***	2700 F Street NW, Washington, DC	DOE
9.	**Liberty Loan Federal Building**	401 14th Street SW, Washington, DC	DOE

** These properties are designated as viewshed locations outside of the contiguous APE boundaries.*

1. Bureau of Engraving and Printing (BEP) Annex
Location: 300 14th Street SW, Washington, DC
Designation: DOE

The BEP Annex was constructed between 1936-1938 for the BEP under the auspices of the Office of the Supervising Architect, Louis A. Simon, Supervising Architect, and Neal A. Melick, Supervising Engineer. The BEP Annex is significant for its association with the operation and growth of the BEP during the twentieth century, and as a distinctive example of a Stripped Classic style Federal building constructed in the 1930s.

Figure 3-32 | BEP Annex

2. FOB 10A; Orville Wright Building

Location: 800 Independence Avenue SW, Washington, DC
Designation: DOE

FOB 10A was originally constructed between 1961 and 1963 for GSA, and was one of the earliest to be constructed as part of the urban renewal program for southwest Washington, DC. The International style building was designed by the architectural firms of Holabird & Root & Burgee, and Carroll, Grisdale & Van Alen.

Figure 3-33 | FOB 10A (GSA)

3. Benjamin Banneker Park/Overlook; Tenth Street Overlook

Location: Terminus of 10th Street SW, Washington, DC
Designation: DOE

Landscape completed in 1969 and designed by landscape architect Dan Kiley, is a 200-foot wide elliptical concrete plaza with a large, central, conical, fountain of green granite. Designed and constructed as part of the National Capital Planning Commission's (NCPC) 1956 Urban Renewal Plan: Southwest Urban Renewal Project C.

Figure 3-34 | Banneker Park

4. Richmond, Fredericksburg and Potomac Railroad Historic District

Location: Along CSX right-of-way in eastern Virginia from the Potomac River in Arlington County to the South Broad Street Station in the City of Richmond, VA
Designation: DOE (recommended as eligible by VDHR staff)

The Richmond, Fredericksburg, and Potomac Railroad was a railroad connecting Richmond, Virginia, to Washington, DC. The railroad corridor conveys its association with transportation from ca. 1837 through 1943, when the demand for railroad transportation began to wane. In 2017, VDHR staff recommended the railroad corridor potentially eligible as an historic district.

Figure 3-35 | Richmond, Fredericksburg and Potomac Railroad (Richmond, Fredericksburg & Potomac Railroad Historical Society, Inc.)

5. Washington Marina Building
Location: 1300 Maine Avenue SW, Washington, DC
Designation: DOE

Completed in 1938, the Washington Marina Building was an element of a larger Works Progress Administration (WPA) project to improve the Washington Channel. The project was completed by the WPA and the U.S. Army Corps of Engineers. The building is significant for its association with the WPA and improvement of the District's waterfront.

Figure 3-36 | Washington Marina Building

6. L'Enfant Promenade
Location: Section Tenth Street SW between Independence Avenue and Banneker Park
Designation: DOE

The promenade, originally known as the Tenth Street Mall, was a key element of I.M Pei and Harry Weese's plan for Southwest Redevelopment Area. The promenade is significant for its association with the creation and implementation of the NCPC's *1950 Comprehensive Plan for the District of Columbia.*

Figure 3-37 | L'Enfant Promenade

7. Lady Bird Johnson Park
Location: In the George Washington Memorial Parkway along the Potomac River, directly across the river from West Potomac Park
Designation: DOE

The park is comprised of a man-made island, originally known as Columbia Island, that was constructed between 1915 and 1930. The park was constructed in connection with the Arlington Memorial Bridge's construction. In the 1960s and 1970s, the island was improved as part of the Johnson Administration's beautification program, and by a tree planting plan

Figure 3-38 | Lady Bird Johnson Park (Cultural Landscape Foundation)

designed by the landscape architect Edward Durrell Stone, Jr.

8. John F. Kennedy Center for the Performing Arts
Location: 2700 F Street NW, Washington, DC
Designation: DOE

The Modernist style building was designed by the American architect Edward Durrell Stone and was constructed between 1964 and 1971. The Kennedy Center has been determined historically significant as an important work by Stone, and as the only memorial to President Kennedy in the vicinity of Washington, DC.

Figure 3-39 | Kennedy Center (Wikimedia Commons)

9. Liberty Loan Federal Building
Location: 401 14th Street SW, Washington, DC
Designation: DOE

The building was originally constructed as one of many temporary office buildings to support wartime bureaucratic expansion and housed the Liberty Loans bond program during World War I. It is the only surviving "tempo" building. The building has housed several Treasury organizations and Federal agencies. Today, the building is used by the U.S. Department of the Treasury's Bureau of the Fiscal Service.[12] DCSHPO and the General Services Administration (GSA) consider the building eligible for NRHP listing and GSA is currently preparing a formal DOE.

Figure 3-40 | Liberty Loan Federal Building (Google Maps)

[12] "Liberty Loan Federal Building," GSA, accessed October 18, 2017, https://www.gsa.gov/real-estate/gsa-properties/visiting-public-buildings/liberty-loan-federal-building.

3.3. Properties at or Greater than Forty-Five Years of Age

The following properties were constructed prior to 1972. Preliminary determinations have been made regarding each property's potential eligibility for listing in the NRHP.

Table 3-3 | List of historic properties that have been determined eligible for listing in the NRHP by a Federal agency or recommended as eligible by a SHPO.

#	Name	Location	Date(s)	Preliminary Determination of Eligibility
1.	**425 12th Street SW**	425 12th Street SW, Washington, DC	1959	Likely not eligible.
2.	**Astral Building (North Building, L'Enfant Plaza)**	955 L'Enfant Plaza, SW Washington, DC	1968	Potentially eligible.
3.	**Comsat Building (South Building, L'Enfant Plaza)**	950 L'Enfant Plaza, SW Washington, DC	1965	Potentially eligible.
4.	**Loew's L'Enfant Plaza Hotel (East Building, L'Enfant Plaza)**	470-490 L'Enfant Plaza SW, Washington, DC	1971 to 1973	Potentially eligible.
5.	**USPS Building (West Building, L'Enfant Plaza)**	475 L'Enfant Plaza, SW Washington, DC	1969 to 1971	Potentially eligible.
6.	**398 Long Bridge Drive**	398 Long Bridge Drive, Arlington, VA	1957	Likely not eligible.

1. 425 12th Street, SW

Location: 425 12th Street SW, Washington, DC
Date of Construction: 1959

A one-story brick substation surrounded by a solid brick fence owned by PEPCO. Although the nondescript utilitarian building appears to maintain its integrity, based on cursory research it does not appear to meet the National Register criteria for evaluation. As such, the property is likely not eligible for listing in the NRHP.

Figure 3-41 | 425 12th Street, SW (Google Maps)

2. Astral Building (North Building, L'Enfant Plaza)
Location: 955 L'Enfant Plaza SW, Washington, DC
Date of Construction: 1968

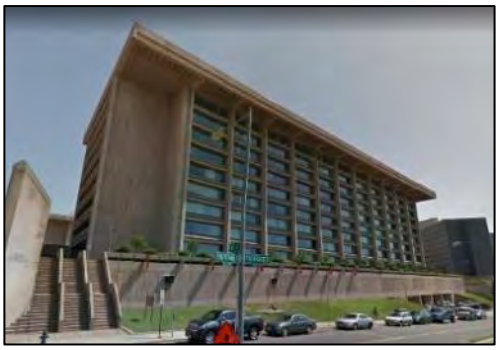
Designed by Araldo A. Cossutta, a partner with the architectural firm of I.M. Pei and Partners. Completed as part of Phase I of L'Enfant Plaza. The building is part of the larger L'Enfant Plaza complex, which includes the Comsat Building (South Building) (1965), Loew's L'Enfant Plaza Hotel (East Building) (1971 to 1973), USPS Building (West Building) (1969 to 1971) and the plaza.[13] L'Enfant Plaza was a major feature of the urban renewal of the southwest quadrant of Washington, DC, that took place during the mid-20th century, and is an interesting example of the Brutalist style in Washington, DC. The building appears to maintain sufficient integrity of location, design, setting, materials, workmanship, feeling and association to convey its significance. As such, the property is potentially eligible for listing in the NRHP.

Figure 3-42 | Astral Building (Google Maps)

3. Comsat Building (South Building, L'Enfant Plaza)
Location: 950 L'Enfant Plaza SW, Washington, DC
Date of Construction: 1965

Designed by Araldo A. Cossutta, a partner with the architectural firm of I.M. Pei and Partners. Completed as part of Phase I of L'Enfant Plaza. The building is part of the larger L'Enfant Plaza complex, which includes the Astral Building (North Building) (1968), Loew's L'Enfant Plaza Hotel (East Building) (1971 to 1973), USPS Building (West Building) (1969 to 1971) and the plaza.[14] L'Enfant Plaza was a major feature of the urban renewal of the southwest quadrant of Washington, DC, that took place during the mid-20th century, and is an interesting example of the Brutalist style in Washington, DC. The building appears to maintain sufficient integrity of location, design, setting, materials, workmanship, feeling and association to convey its significance. As such, the property is potentially eligible for listing in the NRHP.

Figure 3-43 | Comsat Building (Google Maps)



[13] Francesca Russello Ammon, *Historic American Buildings Survey, Southwest Washington Urban Renewal Area, HABS DC-856* (2004), 91.
[14] Francesca Russello Ammon, *Historic American Buildings Survey, Southwest Washington Urban Renewal Area, HABS DC-856* (2004), 91.

4. Loew's L'Enfant Plaza Hotel (East Building, L'Enfant Plaza)

Location: 470-490 L'Enfant Plaza SW, Washington, DC
Date of Construction: 1971 to 1973

Part of the second phase of the L'Enfant Plaza construction. Construction of the building began in fiscal year 1971 and was completed in 1973. The building was designed by Vlasimil Koubek, a local architect. The building is part of the larger L'Enfant Plaza complex, which includes the Astral Building (North Building) (1968), Comsat Building (South Building) (1965), USPS Building (West Building) (1969 to 1971) and the plaza.[15] L'Enfant Plaza was a major feature of the urban renewal of the southwest quadrant of Washington, DC, that took place during the mid-20th century, and is an interesting example of the Brutalist style in Washington, DC. The building appears to maintain sufficient integrity of location, design, setting, materials, workmanship, feeling and association to convey its significance. As such, the property is potentially eligible for listing in the NRHP.

Figure 3-44 | Loew's L'Enfant Plaza Hotel (Google Maps)

5. USPS Building (West Building, L'Enfant Plaza)

Location: 475 L'Enfant Plaza SW, Washington, DC
Date of Construction: 1969 to 1971

Part of the second phase of the L'Enfant Plaza construction, the building was separated from the plaza by the L'Enfant Promenade. Construction of the building began in 1969 and the building was completed in 1971. The building was purchased by the U.S. Postal service in 1972. The building was designed by Vlasimil Koubek, a local architect. The building is part of the larger L'Enfant Plaza complex, which includes the Astral Building (North Building) (1968), Comsat Building (South Building) (1965), Loew's L'Enfant Plaza Hotel (East Building) (1971 to 1973), and the plaza.[16] L'Enfant Plaza was a major feature of the urban renewal of the southwest quadrant of Washington, DC, that took place during the mid-20th

Figure 3-45 | USPS Building (Google Maps)

[15] Francesca Russello Ammon, *Historic American Buildings Survey, Southwest Washington Urban Renewal Area, HABS DC-856* (2004), 92.
[16] Francesca Russello Ammon, *Historic American Buildings Survey, Southwest Washington Urban Renewal Area, HABS DC-856* (2004), 92.

century, and is an interesting example of the Brutalist style in Washington, DC. The building appears to maintain sufficient integrity of location, design, setting, materials, workmanship, feeling and association to convey its significance. As such, the property is potentially eligible for listing in the NRHP.

6. 398 Long Bridge Drive
Location: 398 Long Bridge Drive, Arlington, VA
Date of Construction: 1957

A brick-clad commercial building. The building is composed of a two-story entrance block, and large, one-story warehouse space. The building's façade appears to have undergone several alterations, including changes to the fenestration, window replacement, main entrance alteration, and the addition of first floor awnings. The building appears to lack historic significance and integrity and is likely not eligible for listing in the NRHP.

Figure 3-46 | 398 Long Bridge Drive (Google Maps)

APPENDIX F: ACHP LETTER

Preserving America's Heritage

December 21, 2018

Ms. Amanda Murphy
Environmental Protection Specialist
Federal Railroad Administration
1200 New Jersey Avenue SE
Washington, DC 20590

Ref: *Proposed Long Bridge Project*
Arlington, Virginia and Washington, District of Columbia
ACHPConnect Log Number:13480

Dear Ms. Murphy:

The Advisory Council on Historic Preservation (ACHP) has received your notification and supporting documentation regarding the adverse effects of the referenced undertaking on a property or properties listed or eligible for listing in the National Register of Historic Places. Based upon the information provided, we have concluded that Appendix A, *Criteria for Council Involvement in Reviewing Individual Section 106 Cases*, of our regulations, "Protection of Historic Properties" (36 CFR Part 800), does not apply to this undertaking. Accordingly, we do not believe that our participation in the consultation to resolve adverse effects is needed. However, if we receive a request for participation from the State Historic Preservation Officer (SHPO), Tribal Historic Preservation Officer (THPO), affected Indian tribe, a consulting party, or other party, we may reconsider this decision. Additionally, should circumstances change, and it is determined that our participation is needed to conclude the consultation process, please notify us.

Pursuant to 36 CFR §800.6(b)(1)(iv), you will need to file the final Memorandum of Agreement (MOA), developed in consultation with the Virginia and Washington, DC State Historic Preservation Officer's (SHPO's), and any other consulting parties, and related documentation with the ACHP at the conclusion of the consultation process. The filing of the MOA, and supporting documentation with the ACHP is required in order to complete the requirements of Section 106 of the National Historic Preservation Act.

Thank you for providing us with the notification of adverse effect. If you have any questions or require further assistance, please contact Sarah Stokely at (202) 517-0224 or by email at sstokely@achp.gov.

Sincerely,

LaShavio Johnson

LaShavio Johnson
Historic Preservation Technician
Office of Federal Agency Programs

APPENDIX G: NATIVE AMERICAN TRIBE INITIATION LETTERS

U.S. Department
of Transportation

**Federal Railroad
Administration**

1200 New Jersey Avenue, SE
Washington, DC 20590

March 31, 2017

Dr. Wenonah G. Haire
Tribal Historic Preservation Officer
Catawba Indian Nation
1536 Tom Steven Road
Rock Hill, SC 29730

**Re: National Historic Preservation Act Section 106 Consulting Party Invitation
Long Bridge Project – Washington, DC and Arlington County, Virginia**

Dear Dr. Haire:

The Federal Railroad Administration (FRA) is the lead federal agency responsible for conducting consultation in accordance with Section 106 of the National Historic Preservation Act (NHPA) and its implementing regulations at 36 CFR § 800 (Section 106) for the Long Bridge Project (the Project). The Project consists of potential improvements to the Long Bridge and related railroad infrastructure between the District of Colombia and Arlington, Virginia. The purpose of this letter is to provide background information on the Project and invite your organization or agency participate in the Section 106 process as a consulting party.

Long Bridge Project Background

The existing Long Bridge was constructed in 1904, and is owned and maintained by CSX Transportation (CSXT). Currently, the two-track bridge serves CSXT freight trains, National Railroad Passenger Corporation (Amtrak) passenger rail, and Virginia Railway Express (VRE) commuter rail. Norfolk-Southern retains trackage rights to operate over the bridge but does not exercise them currently.

The purpose of the Project is to provide additional long-term rail capacity to improve the reliability of rail service through the Long Bridge corridor. Currently, there is insufficient capacity, resiliency, and redundancy to accommodate the projected demand in future rail services. The Project is needed to address these issues and to ensure the Long Bridge corridor continues to serve as a critical link connecting the local, regional, and national railroad network. Additional information is available on the Long Bridge Project website: www.longbridgeproject.com.

Long Bridge Project Section 106, EIS, and Consulting Party Role

FRA provided grant funding to the District Department of Transportation (DDOT) for preliminary engineering and environmental review for the Project. Currently, there is no funding for construction of the Project, but Section 106 consultation is being conducted because FRA may provide construction funding in the future.

The purpose of the Section 106 consultation process is to identify historic properties that could be affected by the proposed Project; assess adverse effects on those properties; and develop ways to resolve those effects through appropriate avoidance, minimization, and/or mitigation measures. By way of this letter, FRA is inviting your agency or organization to participate as a consulting party in the Section 106 process pursuant to 36 CFR § 800.3(f). If you would like more information regarding the role of a Section 106 consulting party, FRA encourages you to review the Advisory Council on Historic Preservation's *Citizen's Guide to Section 106 Review*: http://www.achp.gov/docs/CitizenGuide.pdf.

FRA is coordinating Section 106 consultation with the National Environmental Policy Act (NEPA) process. To comply with NEPA, FRA and DDOT are preparing an Environmental Impact Statement (EIS) to analyze potential impacts associated with the range of alternatives under consideration. FRA published a Notice of Intent (NOI) to prepare the EIS in the Federal Register on August 26, 2016. Following the NOI publication, a 45-day public scoping period commenced. In conjunction with the scoping period, FRA initiated the Section 106 process with the District of Columbia State Historic Preservation Officer (DC SHPO) and Virginia Department of Historic Resources (VDHR). Interagency and public scoping meetings were held on September 14, 2016.

Historic Properties

The Long Bridge is a contributing resource to the East and West Potomac Parks Historic District. FRA and DDOT conducted a preliminary identification of historic properties within or adjacent to the Long Bridge corridor, which extends approximately 3.2 miles from the VRE Crystal City Station in Arlington, VA to Control Point Virginia located near 3rd Street SW in Washington, DC. Please see the attachment to review the historic properties that have been identified to date.

Next Steps

FRA and DDOT invite you to attend the first Section 106 consulting parties meeting for the Long Bridge Project scheduled for **Tuesday, April 25, 2017 at the DDOT Office, 55 M Street, SE, Washington, DC or via teleconference from 1:00 – 3:00 PM EST** (conference line information will be provided in a separate communication). We would appreciate your participation in this meeting to provide feedback that will help guide the identification of historic properties.

If you wish to participate as a consulting party, please complete the attached form and return it to FRA by April 28, 2017. If you do not respond to this invitation, you may request consulting party status in the future; however, the Project will advance and you may not have an opportunity to comment on previous steps. If you are not the appropriate point of contact for your organization, please feel free to forward this communication.

FRA and DDOT appreciate your interest in the Long Bridge Project. If you have any questions about the Project or the Section 106 process, please contact Amanda Murphy, FRA Environmental Protection Specialist, at (202) 493-0624 or amanda.murphy2@dot.gov.

Sincerely,

Laura Shick
Federal Preservation Officer
Environmental & Corridor Planning Division
Office of Railroad Policy and Development

Attachments:
Consulting Party Invitation Response Form
Cultural Resources Preliminary Data Collection

cc: Amanda Murphy, FRA
Anna Chamberlain, DDOT
David Maloney, DC SHPO
Andrew Lewis, DC SHPO
Julie Langan, VDHR
Ethel Eaton, VDHR

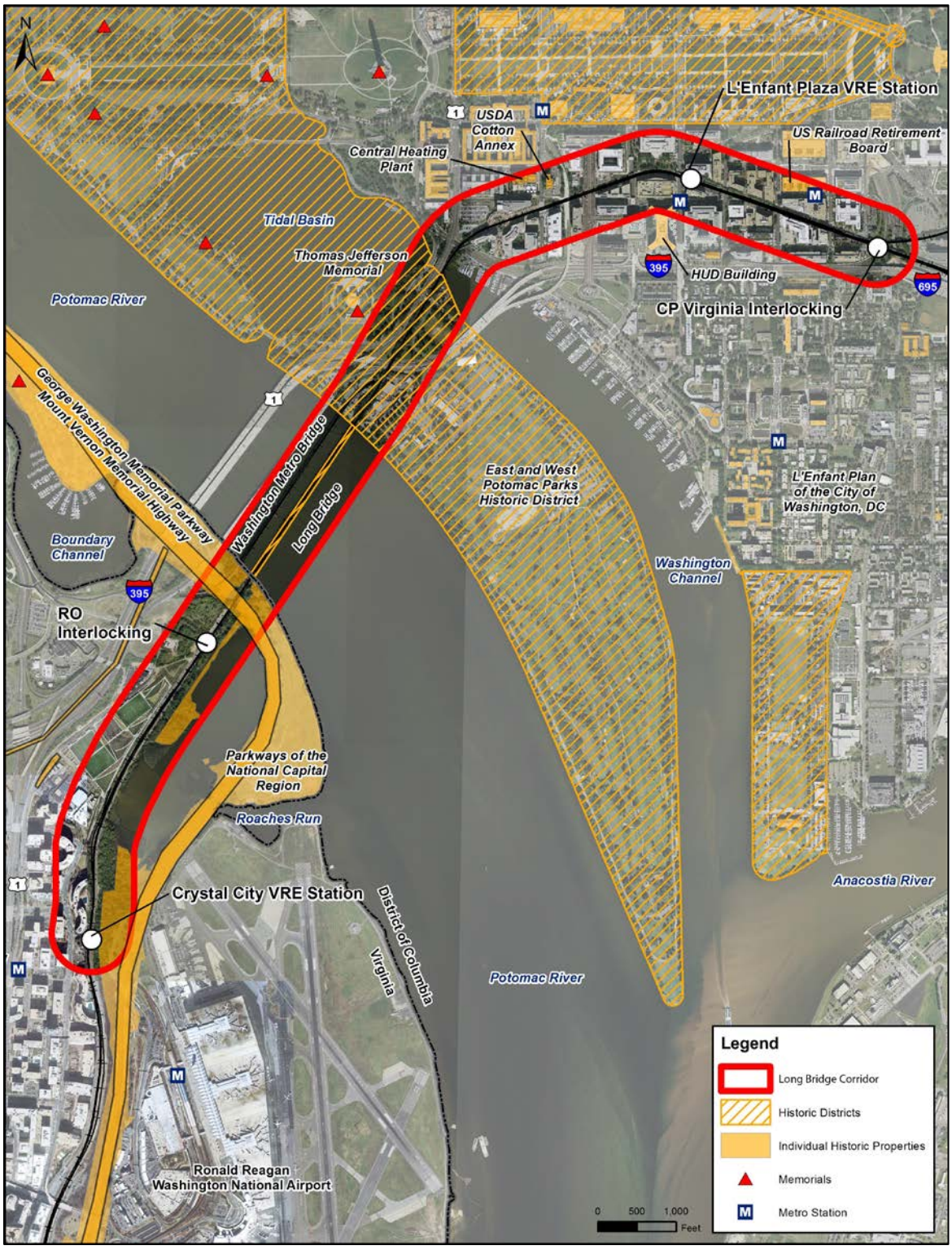
I would like to participate as a Section 106 consulting party for the Long Bridge Project:

Contact Name (Print)	Organization/Agency
Address	State Zip Code
Phone Number	Email Address
Signature	Date

Please return a response by **April 28, 2017** to:

Email: amanda.murphy2@dot.gov

| Preliminary Identification - Historic properties within and near the Long Bridge Corridor



LONG BRIDGE PROJECT
Connecting North and South Through our Nation's Capital

Preliminary Identification - Historic properties within and near the Long Bridge Corridor

Name	Owner	Location	Historic Significance	NRHP ID	State ID
Parkways of the National Capital Region	NPS	Washington Region Multi-Property Submission	Multi-property submission for scenic parkways of the Washington, DC region including George Washington Memorial Parkway and Mount Vernon Memorial Highway.	NRHP# 64500086	DHR# 029-5524
L'Enfant Plan of the City of Washington, DC	NPS-NCR	Washington Region Multi-Property Submission	Multi-property submission for the street grid, diagonal avenues, parks, vistas among monuments and sites over federal land within the L'Enfant Plan boundary, and the airspace above this matrix up to the legal height limit in the City	NRHP#97 000332	--
East and West Potomac Parks Historic District	NPS-NAMA	Washington, DC	Historic district comprising 730 acres of park land along the Potomac River. Standing memorials in the parks include the Lincoln and Jefferson Memorial. The Long Bridge (aka, the Potomac River Swing Bridge) was also identified as a contributing element to the historic district.	NRHP# 73000217	ID#D_028
Thomas Jefferson Memorial	NPS-NAMA	East Basin Drive SW, Washington, DC	National Memorial dedicated to Thomas Jefferson.	NRHP# 66000029	ID#L_0296
Central Heating Plant	GSA	325 13th Street SW, Washington, DC	A heating plant completed in 1936 to supply steam to Federal buildings. Designed under the guidance of the US Commission of Fine Arts.	NRHP# 07000637	ID#L_0289 /L_0704
USDA[1] Cotton Annex	GSA	300 12th Street SW, Washington, DC	The Bureau of Agricultural Economics (BAE) Building, now known as the Cotton Annex, was built in 1936–1937 for the US Department of Agriculture (USDA) under the auspices of Supervising Architect of the Treasury Louis A. Simon (1933–1939).	NRHP# 15000683	ID#L_1458
HUD Building (Robert C. Weaver Federal Building)	HUD	451 7th Street, SW, Washington, DC	Completed in 1968 by the architect Marcel Breuer. The modernist design and execution of the HUD building exemplifies the primary tenets of the "Guiding Principles for Federal Architecture" as set forth by President John F. Kennedy's administration in 1962.	NRHP# 08000824	ID#L_0703
US Railroad Retirement Board (Mary Switzer Building)	GSA	330 C Street SW, Washington, DC	Built during the Federal office construction program of the 1920s and 1930s for the Railroad Retirement Board (established 1934), and associated with the establishment of a nationwide pension program; illustrates sustained implementation of the McMillan Plan.	NRHP# 07000638	ID#L_0706
George Washington Memorial Parkway	NPS-GWMP[1]	Arlington County (extends beyond Study Area to City of Alexandria and Fairfax County)	38.3-mile scenic parkway commemorating the birth of George Washington.	NRHP# 95000605	DHR# 029-0218; 029-5524; DHR# 029-0228
Mount Vernon Memorial Highway	NPS-GWMP	Arlington County (extends beyond Study Area to City of Alexandria and Fairfax County)	Original 15.2-mile segment of the scenic parkway commemorating the birth of George Washington.	NRHP# 81000079	DHR# 029-0218; 029-5524

U.S. Department
of Transportation

**Federal Railroad
Administration**

1200 New Jersey Avenue, SE
Washington, DC 20590

March 31, 2017

Mr. Brice Obermeyer
Director, Delaware Tribe Historic Preservation Office
Delaware Tribe of Indians
1200 Commercial Street
Roosevelt Hall, Room 212
Emporia, KS 66801

**Re: National Historic Preservation Act Section 106 Consulting Party Invitation
Long Bridge Project – Washington, DC and Arlington County, Virginia**

Dear Mr. Obermeyer:

The Federal Railroad Administration (FRA) is the lead federal agency responsible for conducting consultation in accordance with Section 106 of the National Historic Preservation Act (NHPA) and its implementing regulations at 36 CFR § 800 (Section 106) for the Long Bridge Project (the Project). The Project consists of potential improvements to the Long Bridge and related railroad infrastructure between the District of Colombia and Arlington, Virginia. The purpose of this letter is to provide background information on the Project and invite your organization or agency participate in the Section 106 process as a consulting party.

Long Bridge Project Background

The existing Long Bridge was constructed in 1904, and is owned and maintained by CSX Transportation (CSXT). Currently, the two-track bridge serves CSXT freight trains, National Railroad Passenger Corporation (Amtrak) passenger rail, and Virginia Railway Express (VRE) commuter rail. Norfolk-Southern retains trackage rights to operate over the bridge but does not exercise them currently.

The purpose of the Project is to provide additional long-term rail capacity to improve the reliability of rail service through the Long Bridge corridor. Currently, there is insufficient capacity, resiliency, and redundancy to accommodate the projected demand in future rail services. The Project is needed to address these issues and to ensure the Long Bridge corridor continues to serve as a critical link connecting the local, regional, and national railroad network. Additional information is available on the Long Bridge Project website: www.longbridgeproject.com.

Long Bridge Project Section 106, EIS, and Consulting Party Role

FRA provided grant funding to the District Department of Transportation (DDOT) for preliminary engineering and environmental review for the Project. Currently, there is no funding for construction of the Project, but Section 106 consultation is being conducted because FRA may provide construction funding in the future.

The purpose of the Section 106 consultation process is to identify historic properties that could be affected by the proposed Project; assess adverse effects on those properties; and develop ways to resolve those effects through appropriate avoidance, minimization, and/or mitigation measures. By way of this letter, FRA is inviting your agency or organization to participate as a consulting party in the Section 106 process pursuant to 36 CFR § 800.3(f). If you would like more information regarding the role of a Section 106 consulting party, FRA encourages you to review the Advisory Council on Historic Preservation's *Citizen's Guide to Section 106 Review*: http://www.achp.gov/docs/CitizenGuide.pdf.

FRA is coordinating Section 106 consultation with the National Environmental Policy Act (NEPA) process. To comply with NEPA, FRA and DDOT are preparing an Environmental Impact Statement (EIS) to analyze potential impacts associated with the range of alternatives under consideration. FRA published a Notice of Intent (NOI) to prepare the EIS in the Federal Register on August 26, 2016. Following the NOI publication, a 45-day public scoping period commenced. In conjunction with the scoping period, FRA initiated the Section 106 process with the District of Columbia State Historic Preservation Officer (DC SHPO) and Virginia Department of Historic Resources (VDHR). Interagency and public scoping meetings were held on September 14, 2016.

Historic Properties

The Long Bridge is a contributing resource to the East and West Potomac Parks Historic District. FRA and DDOT conducted a preliminary identification of historic properties within or adjacent to the Long Bridge corridor, which extends approximately 3.2 miles from the VRE Crystal City Station in Arlington, VA to Control Point Virginia located near 3rd Street SW in Washington, DC. Please see the attachment to review the historic properties that have been identified to date.

Next Steps

FRA and DDOT invite you to attend the first Section 106 consulting parties meeting for the Long Bridge Project scheduled for **Tuesday, April 25, 2017 at the DDOT Office, 55 M Street, SE, Washington, DC or via teleconference from 1:00 – 3:00 PM EST** (conference line information will be provided in a separate communication). We would appreciate your participation in this meeting to provide feedback that will help guide the identification of historic properties.

If you wish to participate as a consulting party, please complete the attached form and return it to FRA by April 28, 2017. If you do not respond to this invitation, you may request consulting party status in the future; however, the Project will advance and you may not have an opportunity to comment on previous steps. If you are not the appropriate point of contact for your organization, please feel free to forward this communication.

FRA and DDOT appreciate your interest in the Long Bridge Project. If you have any questions about the Project or the Section 106 process, please contact Amanda Murphy, FRA Environmental Protection Specialist, at (202) 493-0624 or amanda.murphy2@dot.gov.

Sincerely,

Laura Shick
Federal Preservation Officer
Environmental & Corridor Planning Division
Office of Railroad Policy and Development

Attachments:
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Cultural Resources Preliminary Data Collection

cc: Amanda Murphy, FRA
Anna Chamberlain, DDOT
David Maloney, DC SHPO
Andrew Lewis, DC SHPO
Julie Langan, VDHR
Ethel Eaton, VDHR

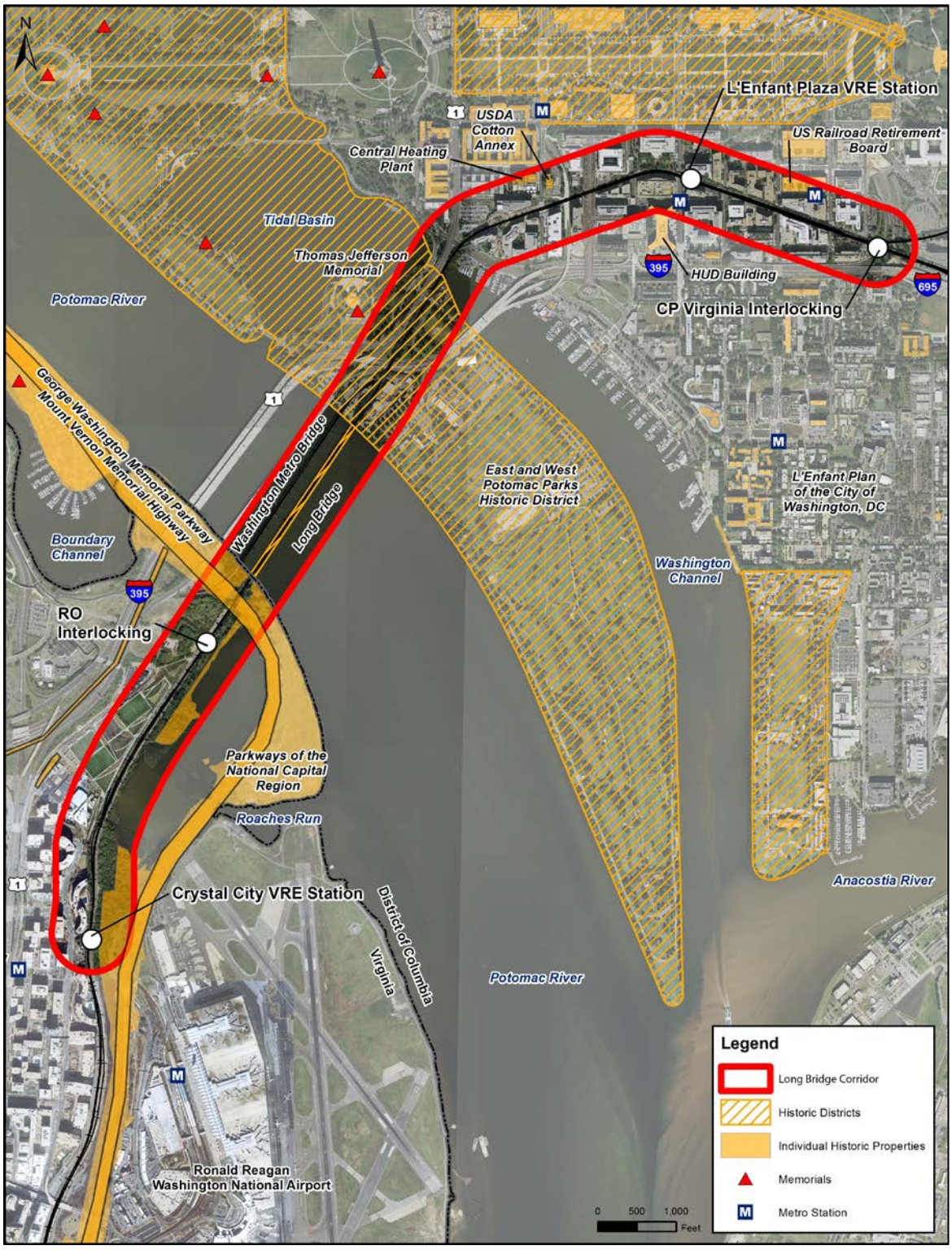
I would like to participate as a Section 106 consulting party for the Long Bridge Project:

Contact Name (Print)	Organization/Agency
Address	State Zip Code
Phone Number	Email Address
Signature	Date

Please return a response by **April 28, 2017** to:

Email: amanda.murphy2@dot.gov

| Preliminary Identification - Historic properties within and near the Long Bridge Corridor



LONG BRIDGE PROJECT
Connecting North and South Through our Nation's Capital

Preliminary Identification - Historic properties within and near the Long Bridge Corridor

Name	Owner	Location	Historic Significance	NRHP ID	State ID
Parkways of the National Capital Region	NPS	Washington Region Multi-Property Submission	Multi-property submission for scenic parkways of the Washington, DC region including George Washington Memorial Parkway and Mount Vernon Memorial Highway.	NRHP# 64500086	DHR# 029-5524
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U.S. Department
of Transportation

**Federal Railroad
Administration**

1200 New Jersey Avenue, SE
Washington, DC 20590

March 31, 2017

Mr. Jason Ross
Section 106 Manager
Delaware Nation
P.O. Box 825
Anadarko, OH 73005

**Re: National Historic Preservation Act Section 106 Consulting Party Invitation
Long Bridge Project – Washington, DC and Arlington County, Virginia**

Dear Mr. Ross:

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FRA and DDOT appreciate your interest in the Long Bridge Project. If you have any questions about the Project or the Section 106 process, please contact Amanda Murphy, FRA Environmental Protection Specialist, at (202) 493-0624 or amanda.murphy2@dot.gov.

Sincerely,

Laura Shick
Federal Preservation Officer
Environmental & Corridor Planning Division
Office of Railroad Policy and Development

Attachments:
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Cultural Resources Preliminary Data Collection

cc: Amanda Murphy, FRA
Anna Chamberlain, DDOT
David Maloney, DC SHPO
Andrew Lewis, DC SHPO
Julie Langan, VDHR
Ethel Eaton, VDHR

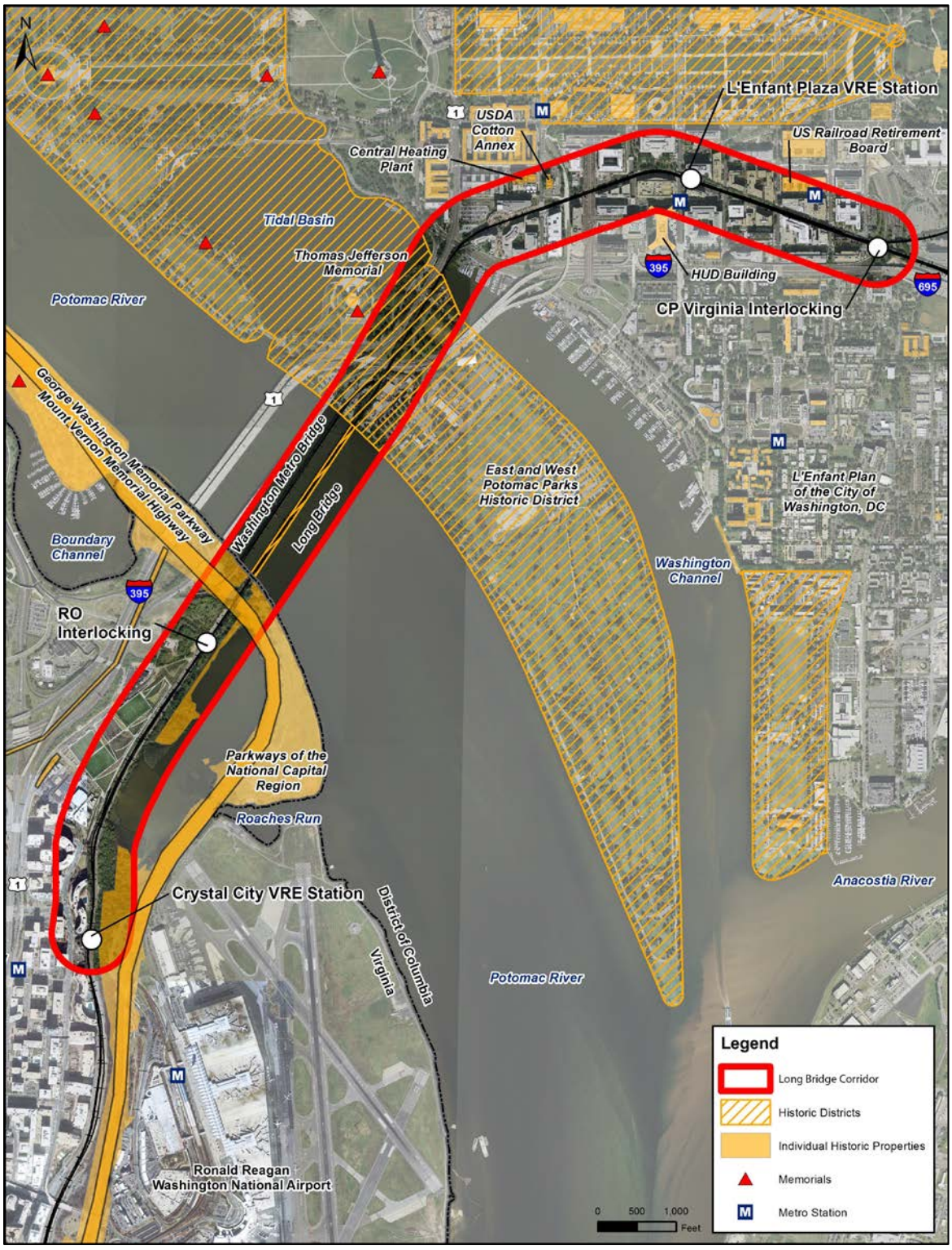
I would like to participate as a Section 106 consulting party for the Long Bridge Project:

Contact Name (Print)	Organization/Agency
Address	State Zip Code
Phone Number	Email Address
Signature	Date

Please return a response by **April 28, 2017** to:

Email: amanda.murphy2@dot.gov

| Preliminary Identification - Historic properties within and near the Long Bridge Corridor



LONG BRIDGE PROJECT
Connecting North and South Through our Nation's Capital

Preliminary Identification - Historic properties within and near the Long Bridge Corridor

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US Railroad Retirement Board (Mary Switzer Building)	GSA	330 C Street SW, Washington, DC	Built during the Federal office construction program of the 1920s and 1930s for the Railroad Retirement Board (established 1934), and associated with the establishment of a nationwide pension program; illustrates sustained implementation of the McMillan Plan.	NRHP# 07000638	ID#L_0706
George Washington Memorial Parkway	NPS-GWMP[1]	Arlington County (extends beyond Study Area to City of Alexandria and Fairfax County)	38.3-mile scenic parkway commemorating the birth of George Washington.	NRHP# 95000605	DHR# 029-0218; 029-5524; DHR# 029-0228
Mount Vernon Memorial Highway	NPS-GWMP	Arlington County (extends beyond Study Area to City of Alexandria and Fairfax County)	Original 15.2-mile segment of the scenic parkway commemorating the birth of George Washington.	NRHP# 81000079	DHR# 029-0218; 029-5524

APPENDIX H: SUMMARIES OF CONSULTING PARTY MEETINGS

SECTION 106 CONSULTING PARTY MEETING #1

Date: Tuesday, April 25, 2017
Time: 1:00 PM to 3:00 PM
Place: DDOT HQ - 55 M St SE, Washington, DC and via teleconference

FINAL 5/15/2017

Attendance:

NAME	ORGANIZATION	PHONE	EMAIL
Anna Chamberlin	DDOT	202.671.2218	anna.chamberlin@dc.gov
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- Anna Chamberlain (DDOT) opened meeting and invited attendees, including those calling in remotely, to introduce themselves.
- DDOT reviewed the meeting agenda; provided an overview of the Long Bridge existing conditions and capacity; the Long Bridge Project scope; the phased approach to alternatives development and environmental documentation; the extent of the Long Bridge Corridor; the Purpose and Need Statement; and Preliminary Concepts.
    - Various attendees asked for additional information/clarification regarding the number of bridges and other contributing structures along the Long Bridge corridors (in addition to the Long Bridge itself), and if any had been determined as historic.
        - RESPONSE: In addition to the Long Bridge itself, there are 6 component bridges (including the Long Bridge) within the Long Bridge Corridor. The Long Bridge is a contributing resource to the East and West Potomac Parks Historic District. Otherwise, none of the component bridges are listed in the NRHP.
    - DCSHPO asked if these would include the bridges and overpasses that follow the Virginia Avenue corridor.
        - RESPONSE: As a component of this phase of the project, infrastructure will be studied in greater detail.
    - Amtrak noted that it would be helpful to illustrate other ongoing studies in the vicinity of the corridor, such as the Crystal City VRE station and L'Enfant Plaza.
        - RESPONSE: An illustration of these studies will be provided to Consulting Parties.
    - DC SHPO asked if the Amtrak bridge over South Capitol Street would be affected.
        - RESPONSE: It is unlikely that the bridge over South Capitol Street would be affected.
    - FTA asked for additional information regarding the development of the Study Area.
        - RESPONSE: DDOT confirmed that the study area has not changed since NEPA was initiated. In Phase I, the study area reached Alexandria, but was adjusted to avoid overlapping with DC2RVA Project.
- DDOT presented the Preliminary Concepts. They noted that they were not associated with infrastructure at this point. Concepts 9 and 10—which consider a new corridor location—were added in response to fall 2016 scoping comments.
    - DCSHPO asked if a geographic area was defined for a potential new corridor.
        - RESPONSE: It has not.
- Amanda Murphy (FRA) presented an overview of the Section 106 consultation process, including the preliminary identification of historic properties, historic photographs of the Long Bridge, an outline of future efforts to continue the identification of historic properties, the roles of the consulting parties; and coordination of Section 106 and NEPA efforts; information on upcoming NEPA Interagency and public meetings on May 16, 2017.
    - Some attendees noted that not all historic properties had been identified
        - RESPONSE: The identification of historic properties would continue throughout the Section 106 process, and FRA welcomes additional comments. Please provide any information you have regarding additional designated or potential historic properties.

- FRA provided information for the upcoming Interagency and Section 106/NEPA Public Meetings.
  - FRA provided information for consulting parties to submit comments, requested by May 9, 2017.
  - FRA noted that the address listed could be used for formal correspondence, but preferred letters be sent by email.
- DCSHPO noted that, per the Section 106 implementing regulations, the Area of Potential Effects (APE) should be delineated before historic properties are identified.
- DCSHPO also stated that as the Long Bridge is highly visible, FRA should draft the APE to be as large as possible to consider views.
- DCSHPO asked if FRA has specific guidelines for the identification of historic properties in the APE.
  - RESPONSE: There is no FRA guidance; however, they intend to create both a direct and indirect APE.
  - DCSHPO stated that, although no engineering was associated with the alternatives at this point, APE development should assume a worst-case scenario (i.e., a taller replacement bridge structure)
  - Attendees encouraged FRA to develop one APE that addresses all alternatives, to expedite the review process
- CFA encouraged FRA to add the FAA, MWAA, and Pentagon (DOD) to the consulting parties list.
  - RESPONSE: FAA and MWAA are participating agencies for the EIS. FRA will invite DOD to be a participating agency. FRA has determined that these agencies' potential concerns/issues are more suited to be addressed during the NEPA process, rather than as a consulting party under Section 106.
- NPS NAMA asked which Tribal Historic Preservation Offices were consulted thus far.
  - RESPONSE: The Pamunkey Tribe declined to participate in consultation unless an inadvertent archaeological discovery was made. FRA added that other Tribes, identified by VDHR, were invited to participate as consulting parties.
- The Crystal City Civic Association queried if FRA and DDOT consulted with the State of Maryland to consider the ongoing project to replace the US-301 bridge and how that project may offer an alternative corridor.
  - RESPONSE: We have not.
  - CFA added that it might be a desirable to avoid hazardous materials entering the District.
- FTA questioned the project's potential to create an adverse effect.
  - RESPONSE: One potential adverse effect could be due to the potential replacement of the Long Bridge itself, which is a contributing element to the East and West Potomac Parks Historic District.
- NPS NAMA encouraged the consideration of potential indirect adverse effects to the National Mall and Plan of the City of Washington historic districts.
  - RESPONSE: Comment noted; this will be considered.

CONSULTING PARTIES MEETING #2
MEETING NOTES

Date: Wednesday, November 15, 2017
Time: 12:30 PM to 2:00 PM
Place: Phone call and in-person (DCOP Office)

FINAL 01/08/2018

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A. Purpose and Need

- Anna Chamberlin (DDOT) reviewed the Purpose and Need for the project, which is to provide additional capacity, network connectivity, and resiliency and redundancy within the Long Bridge Corridor.

B. Project Overview and Schedule

- DDOT provided an overview of the Long Bridge. The bridge is a two-track steel truss railroad bridge constructed in 1904. It is a contributing element to the East and West Potomac Parks Historic District. It is currently owned by CSXT and on average services 76 freight, intercity passenger, and commuter rail trains per day.
- DDOT described the updated Project Area Limits to the Consulting Parties.

- Concept refinement to date has established that any physical changes to existing infrastructure would not extend beyond the RO and LE interlockings.
- The official northern terminus of the DC to Richmond Southeast High-Speed Rail (DC2RVA) project as stated in the Tier II Draft EIS is Control Point Rosslyn (RO) at milepost CFP 110 in Arlington, Virginia. The RO Interlocking provides a transition point between these separate and independent projects and is therefore the appropriate place to set the limits of the Long Bridge Project.
- The planned Virginia Railway Express (VRE) L'Enfant Station and storage track project includes the eventual conversion of the existing storage tracks into a full fourth track between LE and Virginia Interlockings. The LE Interlocking provides a transition point between the separate and independent Long Bridge and VRE projects and is therefore the appropriate place to set the limits of the Long Bridge Project.
- All the projects discussed have independent utility.
- These other projects, DC2RVA and VRE projects, will be included in the Long Bridge EIS in the No Action and Cumulative Effects Chapters. All the projects will be subject to Section 106 and therefore the entire corridor will still be examined.
- DC SHPO asked whether all projects in the corridor have an FRA action. Amanda Murphy (FRA) responded that the VRE L'Enfant Station project would likely be led by FTA once it is federally assisted or funded. FRA is the lead on the DC2RVA project, and has been coordinating with VDHR. DC SHPO has not been involved with DC2RVA because the project is located entirely in Virginia.
- The Crystal City Civic Association later asked if those separate undertakings removed from the Long Bridge Project area would be addressed in a separate Section 106 consultation process. FRA confirmed that it would, but by different federal agencies in accordance with Section 106 regulations.

- DDOT reviewed the Section 106 and NEPA schedules
  - Methodology report has been sent out to the Cooperating and Participating Agencies; comments are due December 4, 2017.

C. Level 1 Concept Screening Results

- Amanda Murphy (FRA) reviewed the Level 1 Concept Screening process and results that were presented to the public and agencies in May 2017. The Level 1 Concepts were screened against the Purpose and Need.
  - DC SHPO asked why the new corridor concept was eliminated. FRA responded that the concept did not meet the project need for connectivity.
  - DC SHPO asked whether specific new corridors were considered as a part of the new corridor concept. FRA responded that while the project team is aware of the previous work related to alternate railroad corridors, the concepts reviewed as part of the Level 1 Screening did not include specific alignments.
- FRA informed participants that the Level 2 Screening process is currently underway. This process will identify alternatives to be considered in the DEIS. Once the screening is finalized, the alternatives will be presented at the next public meeting planned for December or January.
- Additional clarification was requested regarding the bike and pedestrian bridge alternatives. FRA clarified that this structure could be implemented independently of the rail bridge.

D. Draft Area of Potential Effect (APE)

- FRA described the Draft APE and the process used to develop the boundary of the APE.
  - APE boundary (delineated as a red dotted line on the map) is generous and takes into consideration seasonal tree coverage and long-distance views from high points.
  - APE considers both direct and indirect impacts.
  - Visibility of the Long Bridge determined the formation of the outer boundary of the APE.
- The APE was developed based on the concepts retained after the Level 1 Concept Screening. The Limits of Disturbance (shaded gray on the map) encompass the largest predicted limit of disturbance based on a 5-track bridge including a pedestrian and bike bridge (including the associated approach ramps) and track work that would occur in the corridor.
- Bill Marzella (Traceries) presented the field survey photographs and findings for sample areas throughout the APE. Traceries noted the following:
  - The presentation is not inclusive of all survey work completed.
  - Field survey was conducted from publicly accessible areas.
  - Viewsheds were based on the assumption that a new bridge would be equally or less visible than current Long Bridge structure.
- Traceries noted that there are several overlapping Historic Districts within the APE. This includes: portions of the National Mall, Washington Monument Grounds, and East and West Potomac Parks; and Arlington House and Arlington National Cemetery.

Questions and Discussion

- Participant asked if the APE boundaries were changed for the various concepts. FRA responded that the APE boundaries are broad in order to encompass all concepts, and the footprints of the various bridge concepts are not widely varied as they all must connect to the railroad tracks on either side of the Long Bridge.
- VDHR expressed concern that the draft APE does not include Arlington House, while the Long Bridge can be viewed from there. FRA responded that areas within the primary Draft APE (indicated with a red, dashed line) are the areas from which the Long Bridge Corridor is most visible; however, the APE is discontinuous to include several locations from which the project area is visible at a specific point but not from the surroundings.
  - DC SHPO noted that they agree with this approach.
  - **ACTION:** FRA to invite Arlington Cemetery to be a consulting party to the Project.
- DC SHPO stated the Parties will need general massing and dimensions of the design concepts to assess effects.
- One unidentified attendee asked whether effects will be assessed on several alternatives. FRA responded that yes, effects will be assessed on all alternatives. The assessment of effects will factor into the preferred alternative selection.
- VDHR asked whether the project team intends to assess archaeological sites and when that work will be conducted. FRA responded that yes, it will be conducted.
  - **ACTION:** FRA to follow up with the Parties on schedule and approach of archaeological assessment.
- DC SHPO asked what informed the canted shape of the Limits of Disturbance. Traceries replied that it reflected potential Long Bridge realignments in addition to a potential, separate bike and pedestrian bridge structure and approach ramps.
- DC SHPO asked about the scope of construction within the Long Bridge corridor aside from the Long Bridge. Would other bridges in the District be affected, including the pedestrian

bridge over Maine Avenue? DDOT responded that limits of disturbance will generally be within the existing right-of-way, noting that historically there was an additional track that has since been removed. There is the potential for impact to bridges within the corridor, including the pedestrian bridge over Maine Avenue. Because the project limits end at LE Interlocking, there would be no impacts to bridges past 10 Street SW.

- NPS will follow up with official correspondence, but mentioned additional areas to survey (see below). NPS asked if consultation with tribes is underway. FRA responded that VDHR provided a list of tribes to consult (Delaware Nation, Delaware Tribe of Indians, Catawba Indian Nation, and Pamunkey Tribe). The Delaware Nation agreed to participate as a consulting party and the Delaware Tribe of Indians declined to participate. The Catawba Indian Nation and the Pamunkey Tribe were invited to participate but did not respond.
- VDHR noted that Arlington House is located within Arlington National Cemetery, but that it is a separate property and is administered by the George Washington Memorial Parkway.
  - **ACTION:** On subsequent, revised APE maps, an asterisk will indicate the separate ownership of Arlington Cemetery and Arlington House.
- VDHR stated that Arlington National Cemetery should be invited to act as a consulting party.
- Additional suggested areas to survey include:
  - Air Force Memorial
  - East Plaza and high points at the Pentagon, including transit center
  - Inside the historic section of Ronald Reagan Washington National Airport
  - Old Post Office Tower
  - Arlington Ridge Park
  - Netherlands Carillon (NPS to coordinate access)

E. Identification of Historic Properties

1. Presentation

- Traceries described the historic properties identified within the draft APE including:
  - Properties and districts listed in the National Register of Historic Places;
  - Properties determined eligible;
  - National Historic Landmarks (NHL);
  - Properties in the DC Inventory of Historic Sites and the Virginia Landmarks Register;
  - Arlington County Local Historic Sites; and
  - Properties greater than 45 years of age that were not previously identified that may be eligible in the future.

2. Questions and Discussion

- VDHR stated Arlington House is a NHL
  - **ACTION:** Traceries to confirm NHL status of Arlington House with VDHR.
- It was asked whether the Pentagon is a Consulting Party. The Pentagon should be marked as a landmark if it is included in the APE. FRA responded that the Pentagon was invited to be a Consulting Party.
- DC SHPO requested that DDOT and FRA coordinate with DC SHPO on identification of buildings that are over 45 years old as DC SHPO is aware of buildings that fall into that category but have been deemed ineligible. DC SHPO noted that they did not consider the Roosevelt Bridge to be eligible.

- GSA stated that a determination of eligibility (DOE) on the Liberty Loan Federal Building is currently being finalized.
  - **ACTION:** GSA to provide additional information on Liberty Loan Federal Building DOE.
- Representatives from the Crystal City Civic Association asked about buildings 35 and 36 on the map, marked as structures over 45 years old. Traceries and FRA noted that these buildings have been extensively modified and are likely not eligible. General discussion followed regarding these buildings, noting that many of the buildings in this area do exceed fifty years of age, but have been retrofitted and no longer retain their original appearances.
- VDHR stated the Virginia properties over 45 years old but not previously identified should be surveyed and documented in the V-CRIS system to VDHR standards.
- DC SHPO asked if any properties within the Draft APE had been designated as NHLs. Traceries responded that only St. Elizabeths Hospital Historic District had been identified (in addition to possibly Arlington House, per discussion above). DC SHPO noted that FRA must meet the Section 106 regulations as they apply to NHLs.
- Bradley Krueger (NPS GWMP) provided several comments on the identification of historic properties, including: the Arlington Memorial Bridge and approaches have a separate historic designation from Arlington Cemetery; Mount Vernon Highway and Arlington Cemetery do not overlap; and several documented cultural landscapes in the APE, including Gravelly Point, Roaches Run, the Memorial Avenue Corridor, and Lady Bird Johnson Park.
  - Traceries responded that National Register, NPS, and V-CRIS often provide conflicting documentation on the designation and extent of historic properties. Traceries also noted that cultural landscape documentation would be critical in assessing effects.
  - FRA requested that NPS provide any documentation they may have on their historic properties, including GIS layers of boundaries, if available.
  - **ACTION:** NPS GWMP to provide documentation on historic properties and cultural landscapes in the APE.

F. **Next Steps**

- FRA and DDOT request comments on the Draft APE and identification of historic properties by December 6, 2017.
- FRA projected the following dates and topics for the next Consulting Parties meetings:
  - Spring 2018: Assess Adverse Effects
  - Summer 2018: Resolve Adverse Effects (if necessary)
- FRA/DDOT noted that the alternatives will likely be presented within a month or two, which will allow for the Assessment of Effects analysis to commence.

LONG BRIDGE PROJECT
Connecting North and South Through our Nation's Capital

CONSULTING PARTIES MEETING #3

Date: Wednesday, May 30, 2018
Time: 1:00 PM to 2:30 PM
Place: 55 M St SE (DDOT Conference Room 531)

FINAL 06/19/18

Attendance:

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A. Introduction and Overview

- Kate Youngbluth (DDOT) opened the meeting and performed introductions.

- Amanda Murphy (FRA) provided an overview of the project.
  - The Long Bridge is a two-track steel truss railroad bridge constructed in 1904. It is a contributing element to the East and West Potomac Parks Historic District. It is currently owned by CSXT. CSXT, VRE and Amtrak currently operate on the bridge. Norfolk Southern has trackage rights.
  - On average 76 freight, intercity passenger, and commuter rail trains use the bridge per day.
  - Amanda noted that the bridge is the only railroad connection between Virginia and the District, with the next closest crossing in Harpers Ferry, WV.
  - The purpose of the Project is to provide additional capacity, network connectivity, and resiliency and redundancy within the Long Bridge Corridor.

B. Section 106 Process

- Amanda provided an overview of the Section 106 process, how it relates to the National Environmental Policy Act (NEPA) process, and consultation to date.
  - This meeting is the third Section 106 Consulting Parties meeting. DDOT and FRA have also held three public meetings to date that have served as Section 106 meetings.
  - At the previous Section 106 Consulting Parties meeting in November 2017, DDOT and FRA presented the Level 1 Concept Screening results, the Draft Area of Potential Effect (APE), and preliminary identification of historic properties.
  - DC SHPO and VDHR provided concurrence on the APE in March 2018.
  - Based on VDHR's suggestion at the last meeting, FRA reached out to Arlington National Cemetery and invited them to be a Consulting Party, but they declined.

- Bill Marzella (Traceries) described the APE and identification of historic properties.
  - Bill noted that comments received from the Consulting Parties at the last meeting informed the final APE and list of historic properties.
  - DDOT and FRA conducted additional field survey in response to comments.
  - The field survey did not result in revisions to the APE, but DDOT and FRA did add several properties (viewsheds) outside the contiguous border:
    - Netherlands Carillon
    - Old Post Office Tower
    - Pentagon
  - Bill noted the limits of disturbance (LOD) within the APE and explained that this is there area within which DDOT and FRA would expect most of the direct effects to occur.
  - Lee Webb (NCPC) asked if there were any additional viewsheds had been added since the November meeting.

- Bill responded that DDOT and FRA surveyed five properties based on comments received from the Consulting Parties, but only the three mentioned above were added (Air Force Memorial and Ronald Reagan Washington National Airport were not added due to field survey results.)

- Phase 1A Archaeological Assessment
  - Bill noted that DDOT and FRA have initiated the Phase 1A Archaeological Assessment (Phase 1A) as suggested in November.
    - DDOT and FRA will present the initial findings to the Consulting Parties in Fall 2018 and will integrate the results into the Assessment of Effects Report and the cultural resources analysis in the Draft Environmental Impact Statement (DEIS).
    - Bill explained that the Phase 1A is a four-step process including:
      1. Archeological and historical background research
      2. Analysis of elevation change over time
      3. A site visit to field-verify the desktop assessment
      4. Preparation of the Phase 1A documentation, including a Management Summary and technical report.
    - Bill noted that DC SHPO and VDHR provided concurrence on the Phase 1A Work Plan in May 2018.
  - Elevation Change Analysis
    - Bill provided an overview of the elevation change (cut and fill) analysis, that tracks historic elevations against current topography. The analysis also includes bathymetric (underwater) elevations.
    - Bill showed an example heat map documenting areas of fill (red) vs. cuts (green).
    - Bill noted that this is a desktop assessment that will need to be followed up with fieldwork as the project advances.
    - Ruth Trocolli (DC SHPO) asked what year the map was prepared in. Bill responded that he believed it was from the 1880s but will clarify. Ruth noted the need to factor in some amount of variation due to the use of historic maps which were not as accurate as current maps. *(Note: Bill later clarified that the historic map used in the District to prepare the elevation change analysis is the 1880 Green Map, which Ruth Trocolli indicated was acceptable for analysis)*
      - Oscar Gonzalez (VRE) noted that the use of red and green can be challenging for color-blind individuals. Bill responded that this map is a standard map from ESRI GIS, but it can be modified or another color scheme can be picked. Ruth confirmed that there is no standard for this analysis and other colors can be used. Boll noted that the color spectrum is supplemented with counter lines at 5' intervals, allowing the map to be read independently of colors.

C. Action Alternatives

- Screening Process:
  - Kate provided an overview of the two-step concept screening process for the Project.

  - The Level 1 screening occurred from Fall 2016 to Spring 2017. This screening narrowed 18 initial concepts (plus the No Action) down to the No Action and three concepts (three, four, and five or more tracks).
  - The Level 2 screening started in Summer 2017 and resulted in two Action Alternatives, both with four tracks, and the No Action Alternative.

- Action Alternatives for the DEIS:
  - Kate presented the two Action Alternatives that will be analyzed in the DEIS and Section 106 process.
  - Alternative A would construct a new two-track bridge upstream of the existing bridge and retain the existing bridge, resulting in four tracks through the project limits.
  - Alternative B would construct a new two-track bridge upstream of the existing bridge and then replace the existing bridge with a new two-track bridge, resulting in four tracks through the project limits.

- Potential Bike-Pedestrian Crossing Opportunities
  - Kate noted that, as presented previously, the DDOT and FRA are continuing to explore the feasibility of bike-pedestrian crossing opportunities.
  - DDOT and FRA are looking at best practices related to railroad safety and operations.
  - Laurel Hammig (NPS-NCR) asked whether both attached and detached options were still being considered. Kate responded that both options are still being evaluated.

D. Methodology for Assessing Effects

- Bill presented the methodology for the assessment of effects.
  - Per the implementing regulations for Section 106 (36 CFR 800.5), an adverse effect is found when an undertaking may directly or indirectly alter any of the characteristics of a historic property that qualify it for inclusion in the National Register in a manner that would diminish the property's integrity of:
    - Location
    - Design
    - Setting
    - Materials
    - Workmanship
    - Feeling
    - Association
  - Examples of adverse effects include:
    - Physical destruction of or damage to the property
    - Alterations to a property (including restoration, rehabilitation, repair, maintenance, stabilization, etc.) that are not consistent with the *Secretary's Standards for the Treatment of Historic Properties*
    - Removal of a property from its historic location
    - Change to a property's significant use or setting

        - Introduction of visual, atmospheric or audible elements that diminish integrity
        - Neglect of a property (except in certain religious and cultural cases)
        - Transfer, lease, or sale of property out of Federal ownership or control without adequate preservation protections
    - Bill explained that the analysis will evaluate:
        - Direct physical effects
        - Indirect visual effects
        - Direct or indirect effects resulting from vibration
        - Indirect effects from noise

- Bill described the methodology for assessing direct physical effects:
    - Based on conceptual engineering information (including alignments, construction staging, and limits of disturbance), the analysis will describe and evaluate the potential for the alternatives to have direct physical effects on historic properties.
    - For each historic property, the analysis will assess the physical effect against all seven aspects of historic integrity.
    - A finding of adverse effect will be made if physical effects will diminish any aspects of a property's historic integrity.
    - Bill explained that historic properties within the LOD have the greatest potential to incur direct physical effects resulting in adverse effects. These include:
        - East and West Potomac Parks Historic District (including Long Bridge as a contributing element)
        - George Washington Memorial Parkway
        - Mount Vernon Memorial Highway
        - Any potential archaeological resources

- Bill described the methodology for assessing indirect visual effects:
    - The analysis will identify significant views or viewsheds for each property.
        - Bill noted that most properties already have this documentation
    - For the significant views, a limited number of massing diagrams will be created to superimpose the proposed alignments over existing conditions photographs.
    - For each historic property, the analysis will assess the visual effect against all seven aspects of historic integrity.
        - Bill noted that VDHR provides extensive guidance on assessing visual effects to determine whether they are adverse.
    - A finding of adverse effect will be made if visual effects would diminish any aspects of a property's historic integrity.
    - Bill noted that indirect visual effects will most likely result in adverse effects when an alternative:
        - Permanently removes or impedes views that contribute to the historic significance of a property; or
        - Diminishes a property's historic integrity. Visual effects will most likely affect a property's integrity of setting, feeling, and association.

- Bill described the methodology for assessing noise and vibration effects:
  - The analysis will overlay the noise and vibration study area with the APE to identify historic properties that may be affected.
  - The noise and vibration assessment will be conducted in accordance with Federal Transit Administration (FTA) guidelines.
  - Based on the noise and vibration assessment, the analysis will identify historic properties that may experience noise and vibration levels above FTA thresholds.
  - A finding of adverse effect will be made if noise and vibration levels above FTA thresholds would diminish any aspects of integrity that contribute to a property's historic significance.
  - Effects from noise and vibration may be permanent operational impacts or temporary impacts resulting from construction and staging.
  - Vibration and noise have the potential to effect historic properties indirectly. Indirect effects resulting from noise or vibration will likely affect historic properties' integrity of setting, feeling, and association.
  - Additionally, vibration has the potential to affect historic properties directly. Direct, physical effects resulting from excessive vibration has the potential to affect integrity of design, materials, and workmanship.
  - Lee Webb asked whether the analysis would distinguish between temporary and long-term impacts.
    - Bill responded that yes, construction & staging (temporary impacts) will be distinguished from the long-term operational impacts.
  - Laurel Hammig asked whether a benchmark year is being used.
    - Amanda responded that 2040 has been used throughout the project as the planning year.
  - Chuck Gullakson (CSXT) asked for clarification on the width of the noise and vibration study area on either side of the railroad corridor.
    - Bill responded that he believed the distance is 1,000 feet.
    - Following the meeting, DDOT and FRA confirmed that the study area for noise is 750 feet from the track alignment without intervening buildings and 375 feet with intervening buildings. The vibration screening distance depends on the type of sensitive land use and the type of railroad project. For commuter railroad operations, the vibration screening distance is 200 feet for residential uses, 120 feet for institutional uses, and up to 600 feet for particularly sensitive receptors such as research facilities with vibration-sensitive equipment, theaters, and recording studios.

E. Next Steps

- Amanda stated that the project team is accepting comments on this meeting through June 13th. The preferred method for submitting comments is through the website or via email to info@longbridgeproject.com.

- DDOT and FRA will provide the draft Assessment of Effects Report for review in late summer. At the next Consulting Parties meeting in the Fall, DDOT and FRA will solicit input on avoidance, minimization, and mitigation strategies.
  - Amanda asked that participants review the report in advance of the meeting and come prepared to discuss specific issues. Given the large number of properties in the APE, this will enable a more focused meeting.
  - Amanda noted that the next meeting will focus on major properties with anticipated effects.

- Bill noted that the project team may be reaching out to owners of historic properties for additional detail to help with assessing effects.

F. Questions and Comments

- Lee Webb asked how many listed historic properties are in the APE.
  - Amanda responded that the number is around 30.
    - Following the meeting, FRA and DDOT confirmed that the number of designated historic properties within the APE is 29, including the viewshed sites. This includes both individual properties and historic districts designated at the state and federal levels. Additionally, 9 properties in the APE have been determined eligible for NRHP listing. Four additional properties within the APE have been identified as potentially eligible for NRHP listing.

- Randy Selleck (DRPT) asked whether DDOT and FRA are asking for comments on the report as well as the slides presented at this meeting.
  - Amanda clarified that DDOT and FRA are not soliciting comments on the report as it won't be prepared until this summer, just the methodology as presented at this meeting.

- Carol Fuller (Crystal City Civic Association) asked about the timeline for a decision about including a bike-pedestrian connection.
  - Anna Chamberlin (DDOT) responded that the bike-pedestrian analysis is happening concurrently with the assessment of effects. DDOT and FRA will present options for a bike-pedestrian connection with the selection of the Preferred Alternative in the Fall.
  - Carol stressed that she didn't feel the bike-pedestrian bridge would ever get built if it becomes separated from the Long Bridge Project. She noted that she strongly encourages selecting a bike-pedestrian crossing option that crosses the GWMP and connects to the trail in Long Bridge Park.
    - Carol noted that various entities with which she is involved (Crystal City Civic Association, Friends of Long Bridge Park, the Crystal City BID) want to make sure they have the opportunity to be further engaged with this decision. Anna noted that the team is currently evaluating various connectivity options and DDOT and FRA are considering the impacts of the bike/ped connections on historic properties.

CONSULTING PARTIES MEETING #4

Date: Wednesday, October 24, 2018
Time: 10:30 AM to 12:00 PM
Place: 55 M St SE (DDOT Conference Room 639)

FINAL 11/30/18

Attendance:

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A. Introduction and Overview

- Amanda Murphy (FRA) opened the meeting and completed introductions.
- Amanda provided an overview of the meeting purpose and agenda:
    - The primary purpose of this meeting is to present a high-level overview of the Long Bridge Project Section 106 Assessment of Effects Report.
    - The Meeting also includes a Section 106 process update, Action Alternatives for DEIS, conceptual engineering, potential mitigation for a bike-pedestrian crossing, assessment of effects, and resolution of effects before discussing next steps.

B. Section 106 Process and NEPA Coordination Update

- Amanda provided an overview of the Section 106 Process and consultation to date and briefly addressed what was covered at the previous three meetings.
    - This meeting is the fourth of the Section 106 Consulting Party meetings for the Long Bridge Project. At the previous meeting, FRA and DDOT presented a methodology for assessing effects on historic properties.
    - Public and interagency meetings would be held on November 29, 2018.
    - FRA provided an overview of the Area of Potential Effect (APE). Since the last meeting, the Limits of Disturbance (LOD) have been updated to remove the downstream bike-pedestrian crossing that was dismissed from consideration.

C. Action Alternatives

- Kate Youngbluth, DDOT, presented an update on the Action Alternatives to be evaluated in the DEIS.
    - Action Alternative A involves a new two-track bridge upstream of the existing bridge. This option preserves the historic Long Bridge and component railroad bridge over the George Washington Memorial Parkway (GWMP).
    - Action Alternative B involves a new two-track bridge upstream of the existing bridge and the replacement of the existing bridge.
    - Two types of common railroad bridges are being considered for the new two-track bridge: a steel deck girder bridge and a steel through girder bridge. Depth of the structure is the primary difference between the two structure types. They are representative of common railroad bridge types throughout the U.S. The existing Long Bridge is primarily a through girder bridge with a central through trestle span. The new bridge would be formally and aesthetically compatible with the existing.
    - Amanda stated that a signature bridge was considered early on, but that is no longer being considered as an option based on comments that have been received thus far.
    - Andrew Lewis (DC SHPO) asked if a decision has been made about which bridge option would be used. Amanda responded that no decision has been made yet. Both are currently being considered and a selection would be made during the final design phase.
- Kate presented the proposed treatments of the new GWMP railroad bridge:

- Action Alternative A would preserve the existing bridge and construct a new bridge upstream while Action Alternative B would replace the existing bridge and construct a new bridge upstream. For both options, the aesthetic of the new bridge would be compatible with the existing bridge and with the GWMP.

- Kate presented the proposed alignments for the bike-pedestrian crossing option:
  - The bike-pedestrian crossing is being considered as potential mitigation for Section 4(f) impacts. Four potential options were originally being considered, but that has been narrowed down to two options under consideration:
    - Option 1 would be attached to the new upstream railroad bridge. This option would share the same substructure as the railroad bridge but a separate superstructure. This option would require substantial security measures in addition to extending the large railroad bridge piers further upstream to support the superstructure.
    - Option 2 would be separate from the new railroad bridge. This bridge would utilize single column piers and have a much smaller substructure footprint than Option 1. Option 2 would also be less difficult to inspect and maintain and would cost approximately 20 percent less than Option 1.
  - Amrita Hill (Amtrak) noted that Amtrak prefers Option 2. Amanda stated that VRE, Amtrak, and CSXT have all expressed a preference for Option 2 as well, and that only one of the options would be carried forward in the DEIS. Additional comments from the Consulting Parties are welcome.
  - Andrew Lewis noted that visual impacts could be minimized by choosing Option 2 since the bridges would have smaller footprints, and that this option makes sense from a historic preservation standpoint.

D. Identification of Historic Properties

- Bill Marzella (EHT Traceries) presented the APE and noted that the assessment of effects included all those historic properties located within the APE boundaries, in addition to the viewshed properties outside of the contiguous APE boundaries.
  - Catherine Dewey (NPS-NAMA) pointed out that the U.S. Engineers' Storehouse is missing from the APE map, and that NPS is very concerned about effects to that property. Bill responded that this property has been identified that as a contributing resource to East and West Potomac Parks Historic District.
  - Bill stated that a large number of historic properties are located within the APE, but only those for which there are adverse effects would be addressed in the presentation.
- Phase IA Archaeological Assessment
  - Paul Kreisa (Stantec) discussed the Phase IA process which was coordinated with DC SHPO and VDHR. The Phase IA assessed the potential for archaeological resources within the LOD and archaeological projects completed within or near the LOD.
  - Paul gave an overview of the process:
    - A desktop analysis was conducted; historic maps were assessed to identify historic resources that are no longer extant.

        - A 150-meter corridor with high potential for Native American archaeological resources was identified in the process.
        - Bathymetric (underwater) analysis along the Potomac River to identify change in the depth of the river, particularly due to dredging.
        - A site visit was conducted to determine if desktop analysis missed anything and to look at things like utilities and any type of infrastructure that couldn't be identified at the desktop level.
    - Paul then presented the results of the analysis. Areas were divided into levels of no/low, moderate, and high potential for existence of archaeological resources.
        - Area a: This area extends into an existing staging area and has no/low potential.
        - Area 1: Historically located along the shore of the Potomac River, Area 1 has a high potential for Native American archaeological resources.
        - Area 2: Former location of Jackson City. Archaeological investigations have located structural remains, so this area has potential for future discovery.
        - Area b: Historically located in the Potomac River, so there is no archaeological potential.
        - Area II: Within the Potomac River – west side. This area has no/low potential due to extensive dredging.
        - Area I: Within the Potomac River – east side. This area has moderate potential due to a lower impact from dredging. DC SHPO indicated that someone found a Paleoindian point in the area. However, geoarchaeology for the Potomac River Tunnel indicated that the historic shoreline has eroded away, so there is diminished potential.
        - East Potomac Park: As made land, this area has very limited potential for archaeological resources.
        - East of Maine Avenue: The historic shoreline of the Potomac ran through the area so there is potential for Native American sites.
        - At the northeast corner of the LOD excavation and tunneling for laying the railroad in the nineteenth century corresponds to a very low potential for archaeological resources.
    - The Phase IA draft technical report has been submitted to DC SHPO and VDHR for review and comment. After the identification of the Preferred Alternative in the DEIS, Section 106 would continue, and recommended investigations would be conducted based on consultation with the appropriate SHPO.

E. Assessment of Effects

- Bill Marzella presented a brief update to the assessment of effects methodology:
    - Visual Effects: FRA and DDOT developed photo simulations for selected properties within the APE to support the evaluation of visual effects. The views were identified based on properties that had documented significant views and where adverse effects were most likely. Analysis was also used to support the analysis of visual resources in the DEIS.

    - Noise and Vibration Effects: Bill discussed the assessment for the Noise and Vibration Study Area. All historic properties located within the study area were evaluated. It was determined that, for all historic properties located outside this area, there would be no effects.
- Bill presented a table summary for a determination of effects for Action Alternatives A and B, including temporary and cumulative effects associated with the bike-pedestrian crossing options. Bill noted that Action Alternatives A and B would have different lengths of construction, 60 months (A) and 99-100 months (B).
    - Andrew Lewis asked if the proposed project would increase the number of trains moving through the corridor. Amanda responded that the Project would enable planned increases in train volumes by the railroad operators, although the Project itself would not run additional trains. The increase in train volumes was factored into the noise and vibration analysis.
- Bill presented effects determinations for the following properties:
    - National Mall Historic District
        - Temporary construction staging and access would create an indirect adverse effect on the National Mall. The staging areas would be located on existing parking lots within the National Mall and East Potomac Park and a staging area off Ohio Drive SW on the Washington Channel side. Andrew Lewis noted that DC SHPO wants to ensure any potential effects to the Jefferson Memorial have been taken into account.
        - No direct adverse effects were identified for either Action Alternative or bike-pedestrian crossing option.
    - GWMP Historic District:
        - Under both Action Alternatives, removal of contributing vegetation would be a direct adverse effect. The original 1930s planting near the bridge was intended to screen the railroad bridge from viewers using the GWMP.
        - Under Action Alternative B, removal of the existing railroad bridge over the GWMP and Long Bridge would create direct and indirect adverse effects.
        - Cumulative effects from bike-pedestrian crossing options would be similarly direct and adverse due to the removal of contributing vegetation.
        - Temporary effects would be adverse in both Action Alternatives due to necessary construction staging, access, and trail relocation.
        - The GWMP has a sequence of several bridges near the Long Bridge Corridor, most of which do not contribute to the historic district. Due to the diminished integrity of the GWMP in this location, it was determined that the addition of one or more new bridge(s) would have no potential to diminish the integrity of the district and there would be no adverse effect.
        - For Action Alternative B, there would be an indirect adverse effect due to the removal of Long Bridge and the loss of the central trestle, which forms a visual landmark for users of the Mount Vernon Trail.
        - Simone Monteleone (NPS-GWMP) stated that GWMP doesn't necessarily agree with no adverse visual effect from Action Alternative A. She also

asked why the noise thresholds for GWMP are higher compared to the National Mall. In response, Bill stated that, per the noise and vibration analysis prepared for the DEIS, the GWMP is classified as an active recreation area, and therefore has a higher perceived noise (dBA) threshold than areas of passive recreation. He also noted that there is a high degree of ambient noise caused by plane and car traffic in this area.

- Mount Vernon Memorial Highway (MVMH) Historic District:
  - Effects on the MVMH would be similar and additive to those described above for the GWMP.
- Viewshed Analysis for GWMP and MVMH:
  - Bill presented the sequence of existing conditions photographs and photo simulations for Action Alternatives A and B along the GWMP.
  - Simone Monteleone commented that canopy trees between the Metrorail bridge and the existing railroad bridge would likely not have room in the future to mature with the addition of a new secondary railroad bridge. She requested that the photo simulations be updated to reflect that with the Action Alternatives.
- East and West Potomac Parks Historic District:
  - Both Action Alternatives would necessitate the removal of contributing vegetation, namely Japanese cherry trees along the perimeter of Hains Point, constituting a direct adverse effect. The removal of the contributing Long Bridge in Action Alternative B would represent the total loss of a contributing feature, intensifying the direct adverse effect.
  - Under Action Alternative B, the removal of the existing bridge and trestle was not determined to be an indirect adverse effect.
  - Under both Action Alternatives, construction noise has the potential to temporarily diminish the integrity of the contributing U.S. Engineers' Storehouse (located adjacent to the Washington Channel).
  - Andrew Lewis asked if the removal of the truss is an effect. Bill responded by stating that it was determined to be a direct physical effect but not an indirect visual effect. Andrew stated that he would argue that removal of the truss, since it is a direct adverse effect from the Virginia side, it should also be a direct adverse effect from the District (Potomac Park) side.
- Viewshed Analysis for East and West Potomac Parks:
  - Bill presented the photo simulations prepared for East and West Potomac Parks.
  - Tammy Stidham (NPS-NCR), asked if the number of contributing Japanese cherry trees identified for removal had been quantified. Lee Farmer (VHB) responded that the number is approximately four in Action Alternative A and seven in Action Alternative B. Tammy also stated that, as part of DEIS, the number of trees to be removed would need to be quantified (not just cherry trees).

F. Additional Questions and Comments

- Andrew Lewis asked if photo simulations of the bike-pedestrian crossing options had been developed. Amanda stated that they had not been but may be once a preferred crossing option has been identified. Amanda also stated that there would be continued coordination during the design process.
- Adrienne Birge-Wilson (VDHR) asked if any renderings had been prepared to show the new railroad bridge options and how they would be affected by the proposed bike-pedestrian crossing options. Amanda responded that there were not, as no final design for them had been developed as of yet, only conceptual engineering to this point.
- Tammy Stidham asked for clarification of potential temporary effects on Hancock Park. Amanda responded that FRA and DDOT are still considering whether it would be necessary to use that reservation for construction staging and access and would notify NPS when the issue was resolved.

G. Resolution of Effects

- Amanda stated that FRA and DDOT welcome additional ideas on potential avoidance, minimization, and mitigation options from DC SHPO, VDHR, and the Consulting Parties. Amanda noted what measures had been identified and integrated into the Action Alternatives to date.
- Tammy Stidham noted that, in addition to the replacement of lost vegetation, NPS would be offering a number of comments for proposed mitigation.
    - Catherine Dewey added that this may include interpretation, possible rehabilitation of the U.S. Engineers' Storehouse, or rehabilitation of the seawalls in East Potomac Park.
    - NPS also requested additional information about the effects on the U.S. Engineers' Storehouse and the distance between that building and the new bridge that would be constructed above the Washington Channel.
- Andrew Lewis stated that the Secretary of the Interior's Standards require compatibility with the existing historic bridge and other historic properties, not necessarily the non-historic bridges, and for that reason DC SHPO prefers the through-girder structural option.
- Frederick Lindstrom (CFA) suggested that improving the visual appearance of other railroad bridges in the District (through painting, etc.) could be a potential mitigation option.
- Oscar Gonzalez (VRE) asked if it would be possible to transplant (rather than remove) historic vegetation. NPS responded that it would be difficult in a constrained space and would vary based on species. It is not likely something that NPS would require.

H. Continued Consultation

- FRA and DDOT request comments by November 9, 2018 on the Consulting Party meeting materials and assessment of effects report, including proposed resolution strategies. These comments would be incorporated into the report and utilized to select a Preferred Alternative.

- Once these comments had been incorporated, FRA and DDOT would prepare a final assessment of effects report for DC SHPO and VDHR. The Advisory Council on Historic Preservation would also be notified of the determination of effect.
- FRA and DDOT would conduct a fifth Consulting Parties meeting, to present resolution strategies, in late Winter or Early Spring 2019.
- Although a project proponent for construction has not yet been determined, an MOA or PA would be drafted at a minimum amongst FRA, DC SHPO, and VDHR and would include a stipulation for how it can be amended in future to identify a project proponent and any parties responsible for implementing the project, including proposed mitigation.
    - Amanda noted that FRA intends to execute an MOA or PA by Winter 2020 in advance of the completion of the EIS Record of Decision in Summer 2020.

LONG BRIDGE PROJECT
Connecting North and South Through our Nation's Capital

CONSULTING PARTIES MEETING #4

Date: Thursday, August 1, 2019
Time: 1:00 PM – 2:30 PM
Place: 55 M St SE (DDOT Conference Room 639)

FINAL 08/21/2019

Attendance:

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David Valenstein	202.493.6368	David.valenstein@dot.gov	**X**
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A. Introductions

- Kate Youngbluth (DDOT) welcomed everyone and noted that this is the fifth Consulting Party (CP) meeting for the Long Bridge Project.
- She explained that the plan for the meeting is to walk through the presentation and discuss with the group. We will take comments for next thirty (30) days. Please feel free submit comments to the Project email address (info@longbridgeproject.com).
- The Programmatic Agreement (PA) will be available for Consulting Party and public review with the DEIS in September. There will be a forty-five (45) day comment period with a public hearing in October.

B. Section 106 Process Update

- Katherine Zeringue (FRA) provided an overview of coordination between the National Environmental Policy Act (NEPA) and National Historic Preservation Act (NHPA) Section 106 processes. She noted that the Project is getting close to its public review milestone for the draft Environmental Impact Statement (EIS) and the draft PA.
- She noted that the PA will be discussed at this meeting. The document will outline future steps in terms of Section 106 processes and obligations. The primary purpose of this meeting is to discuss proposed Section 106 mitigations with the consulting parties.

C. DEIS Update

- Katherine reviewed the selection of the Preferred Alternative. She noted that Action Alternative A (the Preferred Alternative) would avoid adversely affected more historic properties than Action Alternative B, and this consideration of avoidance to historic properties was part of the decision-making process. The Preferred Alternative has fewer impacts to historic resources, shorter construction time, and is less expensive to build.

D. Review of Area of Potential Effects (APE) and Historic Properties

- Katherine reviewed the identification of historic properties and Area of Potential Effects (APE).
- Phase 1A Archaeological Assessment
    - Katherine noted that the PA states identification of archaeological impacts will be done later in the design phase and commits the Project to future Identification and evaluation. This is one of the reasons the resolution document is a PA and not a Memorandum of Agreement.
    - The Phase IA determined areas of no, low, and high probability of resources and whether those resources might be prehistoric or historic. This will need to be ground-truthed later in the process. If adverse effects are identified, the project team will consult on resolution.

E. Review of Determination of Effects

- Katherine summarized the determination of effects. Action Alternative A (the Preferred Alternatives) would have:
  - Temporary indirect adverse effect to the National Mall Historic District
  - Permanent direct adverse effect, cumulative direct adverse effect, and temporary direct and indirect adverse effect to the George Washington Memorial Parkway (GWMP) and Mount Vernon Memorial Highway (MVMH) historic districts.
  - Permanent direct and indirect adverse effect, cumulative direct and indirect adverse effect, and temporary direct and indirect adverse effect to the East and West Potomac Parks Historic District.
- Katherine reviewed the avoidance measures for the project, which include:
  - Retaining Long Bridge and the railroad bridge over the GWMP in Action Alternative A.
  - Dismissing alternatives outside the Long Bridge Corridor because they did not meet Purpose and Need.

F. Potential Resolution of Adverse Effects

- Katherine noted that the regulations require considering avoidance measures first. Selection of Action Alternative A means the two historic bridges will remain in place. Placement of the new bridge between existing bridges also minimizes some adverse visual effects.
- Katherine explained that to date the project team has had extensive discussion with NPS regarding mitigation measures, as all affected resources are under their jurisdiction. The project team has also had some conversations with DC SHPO and VDHR. The purpose of this meeting is to also gather input from the Consulting Parties.
- She explained that NPS has agreed to take responsibility for implementation of many of the mitigation measures outlined in the draft PA. The Virginia Department of Rail and Public Transportation (DRPT) will be providing the funding, as they will be the Project Sponsor for final design and construction.
- Tammy Stidham (NPS) asked for clarification regarding adverse effects to the National Mall. Katherine replied that there would be temporary indirect adverse effects to the National Mall, as shown on Slide 7.
- Andrew Lewis (DC SHPO) asked if other federal agencies would be providing federal funding. He suggested that the PA should be revised to provide flexibility if another agency besides FRA provides funding.
  - Katherine will confirm that the PA contains an adoptability clause to address this concern.

- Design Review
  - Katherine noted that this pretty standard minimization and mitigation. As design advances, the SHPOs and NPS will have opportunity to review and provide input on designs and their concerns.
  - Frederick Lindstrom (CFA) noted that FRA has not included Commission of Fine Arts (CFA) or National Capital Planning Commission (NCPC) in this design review. They should be included in design review, since they have approvals. The Project Sponsor will have to present this project to both agencies, so better to engage them sooner rather than later.
  - David Valenstein (FRA) noted that the project team will follow up with CFA and NCPC on their processes to determine when the Project should be presented.

- Tree Protection Plan
  - Katherine explained that some vegetation will need to be removed for construction of the Project that is considered contributing to the historic properties.
  - A tree protection plan would try to minimize impacts to those contributing resources. The plan would be in place before construction begins.

- Tree Restoration Plan
  - Katherine explained that for vegetation that must be removed, DRPT will give NPS money to develop and implement a restoration plan. NPS will have the discretion to determine what is best in terms of replacement species and the locations.
  - David Gadsby (GWMP) noted that staff had question about the wording. It should be clear that NPS is responsible for carrying out work, not for paying for it.
    - Katherine responded that FRA will make sure the language is clear in the PA.

- Interpretation Plan
  - Katherine explained that DRPT would provide funding to NPS to prepare and implement the interpretation plan.
  - The interpretation will include a website as well as physical wayside signage. Both SHPOs have expressed that physical signage is important.
  - She noted that the PA currently has language about SHPOs and NPS being involved in the development of the interpretive materials. FRA is open to including others if they would like to be involved in this.

- Viewshed Protection Plan
  - Katherine noted that DRPT would provide funding to NPS to prepare an implement an MVMH *Viewshed Protection Plan and Inventory and Assessment* from Alexandria to Columbia Island. The plan would be developed prior to completion of the preliminary engineering phase.

- Cultural Landscape Inventories
  - Katherine noted that DRPT would provide funding to NPS to prepare and implement cultural landscape inventories for MVMH from Alexandria to Columbia Island and for East and West Potomac Parks from the golf course to the railroad corridor.

- Construction Management Plan
  - Katherine explained that DRPT would develop and implement a construction management plan that would include a noise and vibration control plan, construction management requirements, location of construction staging areas away from sensitive views and viewsheds, and sizing and screening to minimize the visual impact of staging areas.

- Archaeology
  - Katherine noted that FRA has not yet identified any adverse effects to archaeological resources. However, if adverse effects are determined through identification and evaluation, DRPT would develop mitigation in coordination with stakeholders and Consulting Parties.
  - David Gadsby asked about the archaeological overview and assessment the NPS has suggested as mitigation.
    - Katherine responded that the project team has been trying to gain clarity on whether that is a mitigation measure for an adverse effect to an archaeological resource or whether it would be part of the Section 106 identification and evaluation phase. She suggested continuing to work with NPS to come up with appropriate language and put it in the appropriate document.
    - David Gadsby responded this is a different process for NPS than identification and evaluation. It is a decision-making document that they use to inform interpretive measures, so it's not the same as identification.
    - Andrew asked what is the resource/effect being mitigated.
    - David Gadsby explained that the resource is the maritime cultural landscape for the Potomac River and its shoreline. The archaeological overview and assessment is a baseline document NPS uses to understand archaeological resources.
    - Andrew suggested reaching out to Dr. Ruth Trocolli, with DC SHPO, if she can be of assistance.
    - Tammy responded she would be curious to hear Ruth's thoughts on the matter.
    - Katherine responded FRA will continue to work through this issue with NPS and the DC SHPO.

- Bike-Pedestrian Crossing
  - Andrew asked whether there has been any word from Virginia on the bike-pedestrian connection.

- David Valenstein responded that FRA has identified the bike-pedestrian bridge as mitigation for impacts to Section 4(f) parkland.
- Katherine explained that it is a Section 4(f) mitigation measure with Section 106 implications, so FRA is recognizing it as part of the project and has accounted for its adverse effect in the PA.
- Andrew stated that DC SHPO supports the bike-pedestrian bridge even though it will have adverse cumulative effects.
- Katherine noted that it was considered under cumulative effects under Section 106
- Andrew stated that DC SHPO is comfortable with what is proposed in the PA and is not suggesting any additional mitigation for the bike-pedestrian bridge, but wanted to ensure language within the PA was clear on the relationship between this 4(f) measure and Section 106.
- Andrew asked whether there any other Section 4(f) mitigation measures that need to be addressed through Section 106 and the PA as well.

G. Resolution Document and Next Steps

- Katherine stated that the Draft PA review for consulting parties will be concurrent with the DEIS and the public review period. However, it will still be directly distributed to the Consulting Parties.
- Lee Webb (NCPC) noted that NCPC hasn't been included as a signatory. They are typically a signatory for anything they have approval for.
  - Andrew suggested double-checking correspondence from NCPC about their action (review vs approval).
  - Lee Webb will check if NCPC has approval. If they do, he will send the boilerplate Whereas clauses and language.
- Andrew asked whether USACE has weighed in.
  - Lee Farmer (VHB) responded that they designated FRA as the lead.
- Tammy noted that NPS has permits for the bed of the river, for some of the construction, a land exchange in Virginia and a land transfer in the District.
  - Andrew asked whether NPS is doing their Section 106 separately.
  - Tammy responded that if there is Section 106 consultation required in implementation of mitigation measures, NPS would do the consultation required. But for NPS actions, this Section 106 process should cover them.
  - Andrew suggested that NPS maybe be able to satisfy the Section 106 process in this PA for all of the mitigations through the design review process.
  - Katherine requested that the signatories provide specific language during their backcheck of the PA, if they have it to address these types of concerns and issues.

- Katherine noted that FRA will review and make sure federal actions required by USACE and USCG are accurately represented.

Appendix G – Project Commitments (Record of Decision) & Tracker

Long Bridge PE Phase

Mitigation, Monitoring and Reporting Program (MMRP)

ROD ID	Resource	Task Category	Responsibility	PE Activity Responsibility	FEIS/ROD Commitment	Activities During PE	Post PE Activities	Timing: PE (30% Design)	Timing: Final Design (60% or 90%)	Timing: Construction	Status of Action during PE Phase	Status of Action through Construction	Coordination (AHJ)	Documentation Needed	Notes	Link to Documentation	Link to Documentation	Link to Documentation
A01	Aquatic Biota Rare, Threatened, and Endangered Species	Coordination with NMFS	VPRA	VHB Permitting & Approvals team	Continue coordination with National Marine Fisheries Service to determine whether time-of-year restrictions are required on in-stream construction work during specific periods when migratory fish species are most likely to be present in the Project Area or whether other avoidance and minimization measures may preclude the need for time-of-year restrictions.	- Include NMFS in meeting(s) with permitting agencies focused on water resources - By end of PE, confirm with NMFS whether time-of-year restrictions are necessary - Include time-of-year restrictions in procurement documents as necessary	- confirm time-of-year restrictions and necessary permitting for construction with final design team	X	X		In Progress		NMFS	- Meeting notes - Correspondence	- Permit terms for in-water borings during PE have required time-of-year restrictions. - Requirement handled as part of Sec 404 join permit application; Permit application process not started for project construction phase. Pre-application meeting was held on 9/30/22 that included NMFS. Permitting Strategy document to outline time of year restrictions for contractor.			
A02	Water Resources	Coordination with DC Water	DRPT/VPRA	VHB Utilities team	Continue coordination with DC Water during final design to ensure the Project avoids or minimizes impacts to existing and planned water infrastructure. Should utility relocation be necessary, DRPT would be responsible for the cost and would coordinate with DC Water to determine the appropriate entity to manage the work.	- Identify locations of DC Water infrastructure - Document whether relocations necessary - Meet with DC Water as necessary - incorporate any DC Water relocation criteria into procurement documents as applicable	-coordinate with DC water to confirm impacts and relocations with final design	X	X	X	In Progress		DC Water	- Utility plans - Meeting notes - Correspondence	- Coordination ongoing with DC Water - coordination meeting with DC Water held 4/13/22, DC Clean Rivers on 4/26/22, DC Water Structures on 5/04/22, DC Clean Rivers on 11/22/22. - Various utility records and DC Water counter maps received throughout PE - DC Clean Rivers tunnel coordinated and located on 15% plans	Utility Meetings Folder	15% PE Plans	
A03	Water Resources	Coordination with DC Water	DRPT/VPRA	VHB Utilities team	Coordinate with DC Water during final design and construction to ensure they have access to DC Water assets during and after construction.	- Document whether relocations necessary - Meet with DC Water as necessary - Coordinate with DC Water to document access impacts	-coordinate with DC water to confirm access during Final design/construction	X	X	X	In Progress		DC Water	- Utility plans - Meeting notes - Correspondence	See notes for ID A02	Utility Meetings Folder	15% PE Plans	
A04	Railroad Infrastructure and Operations	Coordination with CSXT	DRPT/VPRA	VHB, PST & VPRA	Continue coordination with CSXT to develop construction staging and phasing to minimize impacts to railroad operations. To the extent that impacts are unavoidable, DRPT would work with CSXT to determine appropriate mitigation.	- Meet with CSXT to review construction staging and phasing and determine mitigation for unavoidable impacts - Incorporate decisions into plans as appropriate - incorporate design criteria decisions into basis of design as appropriate	- Confirm PE construction staging and phasing within Final Design	X	X	X	In Progress		CSXT	- Meeting notes - Correspondence	-16 meetings held to date -(4/27/21 - kickoff; 6/3/21 - coordination on Mandarin noise issues; 9/22/21 - design development workshop, 5/11/22 coordination for design comments review, signal communication design, construction phasing, 5/7/22 - workshop, 7/18/22 - test pits, 7/21/22 - BOD comment resolution, 8/1/22- design criteria changes, revised design review, 8/15/22- BOD comment responses, geotechnical/ground improvements, 9/12/22- Bridge and walls updates, 9/26/22- design criteria coordination memo, railroad signal design, 10/10/22- design criteria, geotech, signals, utilities, 10/24/22- constructability/phasing, 11/07/22- geotechnical memo, 11/21/22- walls phasing, Maine Ave. substructure, 12/05/22- Maine Ave, wall J, general updates)	CSX Meeting Folder		
A05	Railroad Infrastructure and Operations	Coordination with CSXT	DRPT/VPRA	VHB, PST & VPRA	Continue coordination with CSXT to develop agreements related to operation and maintenance of the new tracks, and to resolve any additional issues that may arise, including appropriate compensation for use of the railroad right-of-way.	- Meet with CSXT as necessary - develop agreements - determine design criteria and incorporate into plans and basis of design as applicable	- Confirm agreements and design criteria against Final Design	X	X		In Progress		CSXT	- Meeting notes - Correspondence - Agreements with CSXT	See A04	CSX Meeting Folder		
A06	Railroad Infrastructure and Operations	Coordination with Railroad Operators	DRPT/VPRA	VHB Rail team	Continue coordination with operators including CSXT, Amtrak, and VRE to optimize design from the perspective of railroad operations to the extent practicable.	- Meet with operators to review plans - Incorporate comments into plans as appropriate	- Confirm design within Final Design	X	X		In Progress		CSXT Amtrak VRE	- Meeting notes - Correspondence	Railroad operators are part of the technical advisory committee (TAC). Coordination handled through TAC.	TAC Meeting Folder		
A07	Washington Metropolitan Area Transit Authority (WMATA) Metrorail Service	Coordination with WMATA	DRPT/VPRA	VHB & PST	Continue coordination with WMATA to align activities requiring interruptions in service with any planned Metrorail Yellow Line work also requiring interruptions, to the extent practicable.	- Meet with WMATA to review construction staging and phasing - meet with WMATA to review preliminary design plans and schedule - incorporate any WMATA service criteria into procurement documents	- Confirm design, staging and phasing during final design	X	X	X	In Progress		WMATA	- Meeting notes - Correspondence - Letter of Agreement	- Kickoff meeting held with WMATA on 11/03/21 - Yellow Line bridge rehabilitation work planned for 2022; coordination ongoing (Long Bridge in-water work also happening for borings) - Coordination meetings with WMATA Yellowline bridge rehab project team and LBPE Borings team on 5/11/22, 6/15/22, 7/13/22, and 10/26/22. - WMATA and VPRA Letter of Agreement signed 3/17/22 - Current Yellow Line work will be complete prior to start of construction.	WMATA Meeting Folder		

Long Bridge PE Phase

Mitigation, Monitoring and Reporting Program (MMRP)

ROD ID	Resource	Task Category	Responsibility	PE Activity Responsibility	FEIS/ROD Commitment	Activities During PE	Post PE Activities	Timing: PE (30% Design)	Timing: Final Design (60% or 90%)	Timing: Construction	Status of Action during PE Phase	Status of Action through Construction	Coordination (AHJ)	Documentation Needed	Notes	Link to Documentation	Link to Documentation	Link to Documentation
A08	Local and Commuter Bus Service	Coordination with WMATA and Commuter Bus Operators	DRPT/VPRA	VHB MOT Team	Coordinate with transit operators to enable adjustments as necessary to minimize impacts to bus routes.	- Have MOT plans identify operators and routes.	- confirm operator schedules with final design	X	X		Not Started		WMATA DC Circulator Arlington Transit Omniride Loudoun County Transit Martz	-Meeting notes - MOT plans	This coordination should occur close to the start of construction and be ongoing during construction as dates for roadway impacts firm up. Impacts to existing bus stops or routes require formal public notice as well as a comment period for those affected riders to voice their concerns.			
A09	Roadway Network Land Use	Traffic Management Plan	DRPT/VPRA	VHB MOT Team	Continue coordination with Virginia Department of Transportation (VDOT), Arlington County, DDOT, and NPS on development of a Project-wide Traffic Management Plan (see **Measure B32**).	- Meet with VDOT, Arlington County, DDOT, and NPS to discuss MOT - AHJs to review and comment on Draft 30% MOT plans - Incorporate requirements into procurement documents	- develop Project Traffic Management Plan (TMP)	X	X	X	In Progress		VDOT Arlington County DDOT NPS	- Meeting notes - Correspondence - MOT plans	MOT development underway. Review with AHJ during development of draft 30% plans.			
A10	Parking Property Social and Economic Resources	Washington Marina	DRPT/VPRA	VHB Stakeholder team & VPRA	Coordinate with the District of Columbia (lessor of Washington Marina occupied land) and the Washington Marina company owner (lessee of the Washington Marina occupied land) to determine appropriate mitigation for Washington Marina leased acreage where parking lot is located to determine temporary and permanent impact mitigation, in accordance with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970.	- Meet with District and Washington Marina to discuss impacts and mitigation - Incorporate any requirements into procurement documents	- Confirm temporary and permanent impacts with final design	X	X		In Progress		District of Columbia Washington Marina	- Meeting notes - Correspondence	-Coordination meetings held with Washington Marina on 2/23/22, 8/12/22, 10/7/22, 12/15/22. - Need to determine appropriate contact within DC government - Received email from Richard Scarth from the Asset Mmgmt section of the Office of Deputy Mayor for Planning & Economic Development on 5/23/22 requesting coordination	Washington Marina Meeting Folder		
A11	Navigation	Coordination with USCG	VPRA	VHB Permitting & Approvals team	Coordinate with USCG to minimize disruptions to maritime traffic during construction.	- Meet with USCG to review plans for construction - incorporate any requirements into procurement documents	- Coordinate Final Design with USCG	X	X	X	In Progress		USCG	- Meeting notes - Correspondence	This coordination should occur close to the start of construction and be ongoing during construction as dates for in-water work and transport of materials firm up. Pre-application meeting was held on 9/30. USCG did not attend. Permitting Strategy document to detail course of action for contractor.			
A12	Property	NPS Property	DRPT/VPRA with NPS support	VPRA & VHB ROW team	Coordinate with NPS to identify appropriate mechanism through which to obtain sufficient rights in or jurisdiction over NPS-administered properties. If a land exchange is required, identify appropriate properties for the exchange.	- determine land exchange requirements and agreements - confirm EIS land impacts against preliminary engineering - incorporate any requirements into procurement documents	- Confirm land impacts with final design and alter agreements accordingly	X	X		In Progress		NPS	n/a	Long Bridge Act of 2020 authorized transfer of property. Need to determine property limits with 30% design	The Long Bridge Act of 2020 (congress.gov)		
A13	Property	NPS Permits	VPRA	VHB Permitting & Geotechnical Teams	Coordinate with NPS regarding issuance of any permits that may be necessary, including for geotechnical work, research, construction access, and use of the bed of the Potomac River	- Complete permit applications - Meet with NPS staff as needed - Incorporate permitting requirements into procurement documents	- complete permit applications for final design and construction - meet with NPS staff as needed	X	X	X	In Progress		NPS	- Approved permits	Permit applications for geotech work. For construction, a riverbed permit will be required. Pre-application meeting was held on 9/30/22. NPS did attend. Permitting Strategy document to detail course of action for contractor.	NPS Meeting Folder	NPS Permit Applications'!Print_Area	
A14	Property	Construction Access Agreements	DRPT/VPRA	VPRA & VHB Stakeholder team	Establish agreements with private property owners and building tenants to provide construction access in a manner that minimizes adverse impacts to business activities and other land uses. Coordinate with property owners to address specific access requirements and minimize disruptions, wherever possible.	- Meet with property owners - Draft agreement based on discussion - Incorporate requirements into procurement documents	- Ensure final design & construction adheres to agreements and requirements	X	X	X	In Progress		Property owners/building tenants - Mandarin, Marina, Portals/Republic Properties	- Signed agreements	Several meetings held to date with Mandarin Oriental Hotel (3/17/21, 7/13/21), Washington Marina (2/23/22, 8/12/22, 10/07/22), and Republic Properties, Lincoln Properties, and the Mandarin (12/8/21, 5/18/22, 6/8/22, 7/8/22, 7/22/22, 8/12/22, 9/13/22, 10/11/22). Meeting held with new hotel owners- Salamander Hotel & Resorts (9/13/22, 10/11/22, 11/01/22, 12/13/22.)	Mandarin Meeting Folder	Republic Properties Meeting Folder	Washington Marina Meeting Folder
A15	Consistency with Local and Federal Plans	Coordination with Planning Agencies	DRPT/VPRA	VPRA & VHB Permitting & Approvals Team	Where the Project may be inconsistent, or potentially in conflict with, local plans, coordinate with the Arlington Department of Community Planning, Housing and Development; District of Columbia Office of Planning; NCPC; and NPS on strategies to minimize adverse impacts on these plans and to avoid or minimize potential conflicts with the implementation of local plans.	- Meet with planning agencies to present project design/impacts and discuss minimization and mitigation - incorporate any requirements into procurement documents	- Ensure final design & construction adheres to requirements determined during preliminary engineering	X	X	X	In Progress		Arlington County DCOP NCPC NPS	- Meeting notes - Correspondence	No inconsistencies with local plans identified to date. Meetings held and coordination ongoing with NPS, NCPC, and Arlington County to ensure resolution if any inconsistencies are identified as design progresses.	NPS Meeting Folder	NCPC Meeting Folder	Arlington County Meeting Folder
A16	Noise	Coordination with Railroad Operators	DRPT/VPRA	VPRA, PST, & VHB Rail Team	Coordinate with CSXT, Amtrak, and VRE, as well as any potential future users (such as MARC or Norfolk Southern) to identify risk allocations due to any increased noise that may occur to nearby structures.	- Meet with railroad operators to identify/discuss risk allocations - incorporate any risk mitigation requirements into procurement documents	- Ensure final design & construction adheres to requirements determined during preliminary engineering	X	X	X	In Progress		CSXT Amtrak VRE	- Meeting notes - Correspondence	VRE, Amtrak, and CSX are part of the technical advisory committee (TAC). Coordination handled through TAC.	TAC Meeting Folder		

Long Bridge PE Phase

Mitigation, Monitoring and Reporting Program (MMRP)

ROD ID	Resource	Task Category	Responsibility	PE Activity Responsibility	FEIS/ROD Commitment	Activities During PE	Post PE Activities	Timing: PE (30% Design)	Timing: Final Design (60% or 90%)	Timing: Construction	Status of Action during PE Phase	Status of Action through Construction	Coordination (AHJ)	Documentation Needed	Notes	Link to Documentation	Link to Documentation	Link to Documentation
A17	Aesthetics and Visual Resources	Design Review	DRPT/VPRA with FRRA, DC SHPO, DHR, NPS, NCPC and CFA support	VPRA & VHB Permitting & Approvals team	Provide for design review by DC SHPO, VDHR, NPS, NCPC and CFA as stipulated in Programmatic Agreement Stipulation III(B)(1), Design Review and Measures C01 and C02).	- Follow document review process for design review per Programmatic Agreement Stipulation III(A)	- Ensure final design & construction does not substantially alter design - completed design reviews as necessary for items not completed within Preliminary Engineering	X	X	X	In Progress		DC SHPO DHR NPS NCPC CFA	- Plans and renderings - Meeting notes - Correspondence	-Meetings held with Signatories, NCPC, and CFA on 11/09/21, 12/09/21, 2/24/21, 5/4/22, and 5/26/22, 6/2/22, 11/14/22. -Meetings held with CFA on 2/15/22 and 4/28/22. CFA concept approval 7/21/22 -Meeting held with NCPC on 3/29/22. Signatory submittal 3/23/22 and comments received 4/25/22. NCPC concept approval 7/7/22.	Signatory Design Review Folder	NCPC-CFA-Signatories	
A18	Aesthetics and Visual Resources	Construction Signage	DRPT/VPRA	VHB Stakeholder team & VPRA	Coordinate with NPS on design of signage on NPS property for construction, traffic control, and relocation of the Mount Vernon Trail.	- Meet with NPS to discuss design of signage - incorporate any requirements determined within preliminary engineering coordination into the procurement documents	- coordinate with NPS during final design and implement signage during construction	X	X	X	In Progress		NPS	- Meeting notes - Correspondence - Plans and renderings	Initial NPS coordination meetings held; regular monthly meetings ongoing.	NPS Meeting Folder	Signatory Design Review Folder	
A19	Recreation and Parks	Traffic Management Plan	DRPT/VPRA	VHB MOT Team	Coordinate with park owners, including Arlington County and NPS, on traffic control strategies to minimize traffic disruptions and maintain vehicular, pedestrian, and bicycle mobility on roadways during construction.	- Meet with Arlington County and NPS to discuss MOT -Review our draft 30% plans - incorporate any traffic control requirements determined into the procurement documents	- Ensure final design & construction adheres to requirements determined within preliminary engineering - final TMP and MOT plan review with AHJs	X	X	X	In Progress		Arlington County NPS	- Meeting notes - Correspondence	MOT development underway. Review with park owners during development of draft 30% plans.			
A20	Recreation and Parks	Access to Parks During Construction	DRPT/VPRA	VHB Stakeholder team & VPRA	Coordinate with park owners, including Arlington County and NPS, to develop details to be included in construction contract regarding access and use of parkland during construction.	- Meet with Arlington County and NPS to discuss construction impacts and phasing - incorporate details within the construction contract and procurement documents	- Ensure final design & construction adhere to details regarding access and use of parkland during construction	X	X	X	In Progress		Arlington County NPS	- Language for construction contract - Meeting notes - Correspondence	Kickoff meeting held with Arlington County 9/15/21, coordination meeting held on 12/14/22 with Arlington County; regular meetings being held monthly with NPS	NPS Meeting Folder	Arlington County Meeting Folder	
A21	Railroad Safety Public Safety	Traffic Management Plan	DRPT/VPRA	VHB MOT Team	Coordinate with Federal, state, and local law enforcement and safety agencies to ensure access and minimize delays for emergency response during construction.	- Meet with law enforcement and safety agencies to discuss MOT - incorporate any requirements into procurement documents	- Ensure final design & construction adheres to any requirements determined during preliminary engineering - continue coordination for additional requirements & restrictions during final design	X	X	X	In Progress		Federal, state, local law enforcement	- Meeting notes - Correspondence	MOT development underway. Review with law enforcement and safety agencies during development of draft 30% plans.			
A22	Railroad Safety	Maine Avenue	DRPT/VPRA	VHB Rail Team	Coordinate with CSXT, Amtrak, and VRE to identify and mitigate operational impacts of the reduced track spacing and lateral clearance between Maine Avenue SW and LE Interlocking.	- Meet with CSXT, Amtrak, and VRE to discuss engineering plans - incorporate any requirements into the procurement documents	- ensure final design and construction adhere to requirements determined within preliminary engineering - continue coordination with operators through final design and construction	X	X	X	In Progress		CSXT Amtrak VRE	- Meeting notes - Correspondence	VRE, Amtrak, and CSXT are part of the technical advisory committee (TAC). Coordination handled through TAC.	TAC Meeting Folder		
A23	Security	Security Measures	DRPT/VPRA	VHB Rail team & PST	Coordinate with CSXT and Federal, state, and local law enforcement to implement measures to inhibit trespassing, incursions, and potential terrorist acts on railroad infrastructure.	- Meet with CSXT and safety agencies to discuss design and safety/security measures - PST to perform a hazard analysis and develop a report - incorporate requirements into procurement documents	- continue coordination with CSXT and safety agencies through final design and construction - ensure final design and construction adhere to requirements determined within preliminary engineering	X	X	X	In Progress		CSXT Federal, state, local law enforcement	- Meeting notes - Correspondence	Review elements of plans with CSXT and safety agencies during development of draft 30% plans.			
B01	Terrestrial Vegetation	Access and Staging	DRPT/VPRA	VHB Landscaping team and constructability team	Adjust temporary access and staging areas to avoid trees and vegetation during refinement of the disturbance limits to ensure that vehicles and materials are only stored on vegetated surfaces when absolutely necessary.	- Develop Draft Vegetation Protection Plan - Incorporate requirements into procurement documents - Submit the Draft Vegetation Protection Plan to Signatories to the Programattic Agreement and follow the Design Review process as stipulated within the PA	- ensure final design and construction adhere to requirements determined within preliminary engineering - develop final vegetation protection plan - develop final vegetation restoration plan - continue coordination with NPS	X	X	X	In Progress		NPS Arlington County Department of Environmental Services DDOT DCRA DOEE DC SHPO DHR NCPC CFA	- Vegetation Protection Plan - Erosion and Sediment Control Plan - Construction Management Plan	- Review by AHJs as part of permitting processes - Coordination with AHJs ongoing - Vegetation Protection Plan incorporated into 15% plans - Erosion and Sediment Control Plan and Construction Management Plan to be completed during Final Design	15% PE Plans		
B02	Terrestrial Vegetation Aesthetics and Visual Resources Cultural Resources (see C03) Recreation and Parks	Access and Staging	DRPT/VPRA	VHB Landscaping team & Permitting and approvals team	Develop a vegetation protection plan for areas within the limits of disturbance prior to construction.	- Develop Draft Vegetation Protection Plan - Incorporate requirements into procurement package - submit the draft vegetation protection plan to signatories to the programmatic agreement and follow the design review process as stipulated within the PA	- develop Final Vegetation Protection Plan - ensure final design and construction adhere to requirements - continue coordination with NPS	X	X	X	In Progress		NPS Arlington County DES DDOT DCRA DOEE DC SHPO DHR NCPC CFA	- Vegetation Protection Plan	See B01	Signatory Design Review Folder		

Long Bridge PE Phase

Mitigation, Monitoring and Reporting Program (MMRP)

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B03	Terrestrial Vegetation Aesthetics and Visual Resources Cultural Resources (see C03) Recreation and Parks	Access and Staging	DRPT/VPRA	VHB Landscaping team & Permitting and approvals team	Require contractor to employ tree and vegetation protection measures and measures to prevent or limit equipment access to adjacent forested areas through protective fencing. Protect both forest areas and individual trees within construction staging and access areas prior to construction under the supervision of a licensed arborist or other qualified professional. Arborist to also perform any necessary pruning in ways that maximize tree survival both during and following bridge construction.	- Develop Draft Vegetation Protection Plan - Incorporate requirements into procurment package - submit the draft vegetation protection plan to Signatries to the Programmatic Agreement and follow the design review process as stipulated within the PA	- ensure final design and construction adhere to requirements - develop final vegetation protection plan - continue coordination with NPS	X	X	X	In Progress		NPS Arlington County Department of Environmental Services DDOT DCRA DOEE DC SHPO DHR NCPC CFA	- Vegetation Protection Plan -Language for construction contract - Erosion and Sediment Control Plan - Construction Management Plan	See B01	15% PE Plans	Signatory Design Review Folder	
B04	Terrestrial Vegetation	Construction Contract Requirements	VPRA	VHB Permitting & Approvals team	Require contractor to wash all equipment prior to entering NPS lands to be free of all and any debris, to minimize the spread or introduction of invasive species.	- Incorporate requirement into procurement package	- ensure construction adheres to this requirement	X	X	X	In Progress		NPS	- Contract Documents - Erosion and Sediment Control Plan	- Requirement for NPS Special Use Permit -Coordination with NPS ongoing			
B05	Terrestrial Vegetation	Construction Contract Requirements	VPRA	VHB Permitting & Approvals team	Require that all introduced organic material such as soil, mulch, and seed be certified weed seed free, to minimize the spread or introduction of invasive species.	- Incorporate requirement into procurement package	- ensure construction adheres to this requirement	X	X	X	In Progress		NPS	- Contract Documents - Erosion and Sediment Control Plan	- Requirement for NPS Special Use Permit -Coordination with NPS ongoing			
B06	Terrestrial Vegetation	Construction Contract Requirements	VPRA	VHB Permitting & Approvals team	Require contractor to install fencing, mulch, and planking to reduce injury and compaction when vegetated surfaces are the only option for staging near the Project.	- Incorporate requirement into procurement package - Develop draft vegetation protection plan - Submit Draft Vegetation protection Plan to Signatories of the PA for Design Review		X	X	X	In Progress		NPS	- Contract Documents - Erosion and Sediment Control Plan	- Requirement for NPS Special Use Permit - Submitted Draft Vegetation Protection Plan to the Signatories and completed Design Review per the PA -Coordination with NPS ongoing			
B07	Terrestrial Vegetation Aesthetics and Visual Resources Cultural Resources (see C04, C05, C07, and C08) Recreation and Parks	Landscape Design	DRPT/VPRA	VHB Landscaping team & Permitting and approvals team	Reestablish terrestrial vegetation removed for both permanent and temporary construction activities where possible and in coordination with any reforestation requirements. Maintain trees and vegetation for 3-5 years following planting. See Commitments C07 and C08 for specific requirements related to NPS-administered historic properties.	- Develop Draft Vegetation Restoration Plan - Incorporate requirements into procurement package - Submit the Draft Vegetation Restoration Plan to Signatories to the Programmatic Agreement and follow the Design Review process as stipulated within the PA	- develop final Vegetation Restoration plan - ensure final design and construction adheres to requirements determined within preliminary engineering - restore vegetation and maintain for 3-5 years	X	X	X	In Progress		NPS Arlington County Department of Environmental Services DDOT DCRA DOEE	- Vegetation Restoration Plan - Contract Documents - Erosion and Sediment Control Plan	Vegetation Restoration Plan incorporated into 15% plans; requirements to be included in contract documents	15% PE Plans		
B08	Terrestrial Vegetation Aesthetics and Visual Resources Cultural Resources (see C04, C05, C07, and C08) Recreation and Parks	Landscape Design	DRPT/VPRA	VHB Landscaping team & Permitting and approvals team	Restore areas to their pre-construction function and appearance, either through reseeding or replanting of woody vegetation using native species. Maintain trees and vegetation for 3-5 years following planting. See Commitments C07 and C08 for specific requirements related to NPS-administered historic properties.	- Develop Draft Vegetation Restoration Plan - Incorporate requirements into procurement package - Submit the Draft Vegetation Restoration Plan to Signatories to the Programmatic Agreement and follow the Design Review process as stipulated within the PA	- develop final Vegetation Restoration plan - ensure final design and construction adheres to requirements determined within preliminary engineering - restore vegetation and maintain for 3-5 years	X	X	X	In Progress		NPS Arlington County Department of Environmental Services DDOT DCRA DOEE	- Vegetation Restoration Plan - Contract Documents	Vegetation Restoration Plan incorporated into 15% plans; requirements to be included in contract documents	15% PE Plans		
B09	Wetland Vegetation Submerged Aquatic Vegetation Wildlife	Construction Contract Requirements	DRPT/VPRA	VHB Stormwater Team	Employ erosion control and stormwater management measures during construction to reduce disturbance from erosive forces and sedimentation.	- Incorporate requirement into procurement package	- ensure requirements are adhere to within construction	X	X	X	In Progress		NPS USACE DOEE NMFS	- Contract Documents - Erosion and Sediment Control Plan - Stormwater Management Plan - Construction Management Plan				
B10	Submerged Aquatic Vegetation	Construction Contract Requirements	DRPT/VPRA	VHB Site Civil Team	Require contractor to use silt curtains to keep suspended sediments from leaving construction area.	- Incorporate requirement into procurement package	- ensure requirements are adhere to within construction	X	X	X	In Progress		NPS USACE DOEE NMFS	- Contract Documents - Erosion and Sediment Control Plan				
B11	Submerged Aquatic Vegetation	Construction Contract Requirements	VPRA	VHB Permitting & Approvals team	Require contractor to avoid boat traffic within shallow water areas where SAV could be damaged by motor board propellers.	- Incorporate requirement into procurement package	- ensure requirements are adhered to within construction	X	X	X	In Progress		NPS USACE DOEE NMFS	- Contract Documents				
B12	Submerged Aquatic Vegetation Aquatic Biota	SAV & Habitat Mitigation	VPRA	VHB Permitting & Approvals team	For permanent impacts to SAV and open water habitat, implement appropriate mitigation strategies in coordination with NPS and other regulatory agencies. Potential strategies include transplanting, re-establishment of vegetation in the impact zone, in-kind mitigation at an agreed-upon ratio, or credits.	- Meet with NPS and other regulatory agencies to determine strategies for mitigation - incorporate requirements into procurement documents	- continue coordination to confirm requirements during final design - ensure requirements are adhered to during construction	X	X	X	In Progress		NPS USACE DOEE NMFS	- Meeting notes - Correspondence - Permit applications	SAV mitigation included in USACE and DOEE joint permitting. Pre-application meeting was held on 9/30/22. USACE and DOEE attended. Permitting Strategy document to detail course of action for contractor.			
B13	Wildlife	Construction Contract Requirements	VPRA	VHB Permitting & Approvals team	Require contractor to plan construction activities to minimize unnecessary disturbance of wildlife habitat.	- Incorporate requirement into procurement package	- ensure requirements are adhere to within construction	X	X		In Progress		NPS DOEE Arlington County DES	- Construction Management Plan - Contract Documents				

Long Bridge PE Phase

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B14	Wildlife	Construction Contract Requirements	VPRA	VHB Permitting & Approvals team	Conduct a survey for nesting birds prior to starting construction of any part of the Project.	- Incorporate requirement into procurement package	- perform survey - ensure requirements are adhered to within constrcution	X	X		In Progress		NPS DOEE Arlington County DES	- Contract Documents	-Virginia Migratory Bird Treaty Act -Potential Incident Take Permit if nests are found in the impact area			
B15	Aquatic Biota	Construction Contract Requirements	VPRA	VHB Permitting & Approvals team	Conduct a survey to gather additional data on benthic macroinvertebrates.	- Incorporate requirement into procurement package	- perform survey - ensure requirements are adhered to within constrcution	X	X		In Progress		NPS USACE DOEE	- Contract Documents				
B16	Aquatic Biota	Construction Contract Requirements	VPRA	VHB Permitting & Approvals team	Require contractor to avoid dredging to extent practicable.	- Incorporate requirement into procurement package	- ensure requirements are adhere to within construction	X	X	X	In Progress		NPS USACE DOEE	- Contract Documents				
B17	Aquatic Biota Rare, Threatened, and Endangered Species Wetlands and Waters of the U.S.	Construction Contract Requirements	VPRA	VHB Permitting & Approvals team	Require contractor to perform work behind cofferdams to reduce turbidity.	- Incorporate requirement into procurement package	- ensure requirements are adhere to within construction	X	X	X	In Progress		NPS USACE DOEE USFWS	- Contract Documents - Construction Management Plan	Requirement to include monitoring to ensure compliance			
B18	Aquatic Biota Rare, Threatened, and Endangered Species Wetlands and Waters of the U.S.	Construction Contract Requirements	VPRA	VHB Permitting & Approvals team	Require contractor to make use of turbidity curtains around all in-water pile driving operations and potentially during installation of the cofferdam sheet piles if sediment releases appear to be more than minimal.	- Incorporate requirement into procurement package	- ensure requirements are adhere to within construction	X	X	X	In Progress		NPS USACE DOEE USFWS	- Contract Documents - Construction Management Plan	Requirement to include monitoring to ensure compliance			
B19	Aquatic Biota Rare, Threatened, and Endangered Species	Construction Contract Requirements	VPRA	VHB Permitting & Approvals team	Require contractor to use noise attenuating tools to reduce noise below injury or behavioral modification thresholds for fish if installation of piles requires an impact hammer.	- Incorporate requirement into procurement package	- ensure requirements are adhere to within construction	X	X	X	In Progress		NPS USACE DOEE USFWS	- Contract Documents - Construction Management Plan	Requirement to include monitoring to ensure compliance			
B20	Aquatic Biota	Construction Contract Requirements	VPRA	VHB Permitting & Approvals team	Require contractor to make several light taps at the start of pile driving to warn fish to leave the area before heavier pile driving begins.	- Incorporate requirement into procurement package	- ensure requirements are adhere to within construction	X	X	X	In Progress		NPS USACE DOEE USFWS	- Contract Documents - Construction Management Plan	Requirement to include monitoring to ensure compliance			
B21	Aquatic Biota	Construction Contract Requirements	VPRA	VHB Permitting & Approvals team	During installation of cofferdams, require contractor to net and relocate fish as the space within the cofferdam gets down to the last 3 to 4 feet of water.	- Incorporate requirement into procurement package	- ensure requirements are adhere to within construction	X	X	X	In Progress		NPS USACE DOEE USFWS	- Contract Documents - Construction Management Plan	Requirement to include monitoring to ensure compliance			
B22	Rare, Threatened, and Endangered Species Wetlands and Waters of the U.S.	Construction Contract Requirements	VPRA	VHB Permitting & Approvals team	Require contractor to use vibratory hammer to extent practicable to install sheet piles for cofferdams to minimize disturbance to bottom sediments.	- Incorporate requirement into procurement package	- ensure requirements are adhere to within construction	X	X	X	In Progress		NPS USACE DOEE USFWS	- Contract Documents - Construction Management Plan	Requirement to include monitoring to ensure compliance			
B23	Water Quality	Stormwater	DRPT/VPRA	VHB Stormwater Team	Implement stormwater best management practices (BMPs) to decrease runoff volume and peak flow rate and provide prescribed treatment volume and recharge volume.	- Develop stormwater management plan - coordinate with DOEE and other regulation agencies	- continue coordination with stormwater regulation agencies - develop final design stormwater management plan - ensure plan is adhered to during construction	X	X	X	In Progress		VDEQ Arlington County DES NPS DCRA DOEE	- Erosion and Sediment Control Plan - Stormwater Management Plan	Coordination with DOEE ongoing; plans under development	DOEE Meetings Folder		
B24	Water Quality Wetlands and Waters of the U.S. Chesapeake Bay Preservation Areas Soils	Construction Contract Requirements	DRPT/VPRA	VHB Site Civil Team	Require contractor to implement erosion and sediment controls in accordance with EPA's 2017 National Pollution Discharge Elimination System (NPDES) Construction General Permit, 2018 Virginia Pollution Discharge Elimination System (VPDES) Storm Water General Permit, District Department of Energy and Environment (DOEE), NPS, and Arlington County requirements.	- Incorporate requirement into procurement package - coordinate with regulation agencies	- continue coordination with regulation agencies - ensure requirements are adhere to within final design and construction	X	X	X	In Progress		DOEE NPS Arlington County DES	- Contract Documents - Erosion and Sediment Control Plan - Stormwater Management Plan - Construction Management Plan	Water Quality monitoring conditions are expected from joint USACE/DOEE application process. Pre-application meeting was held on 9/30/22. USACE and DOEE attended. Permitting Strategy document to detail course of action for contractor.			
B25	Water Quality	Construction Contract Requirements	VPRA	VHB Permitting & Approvals team	Require contractor to store, handle, and dispose of materials in a manner that prevents exposure of the products to precipitation and/or stormwater.	- Incorporate requirement into procurement package	- ensure final design and construction adheres to the requirements	X	X	X	In Progress		VDEQ Arlington County DES NPS DCRA DOEE	- Contract Documents - Spill Prevention Control and Countermeasure Plan - Stormwater				

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VIRGINIA PASSENGER RAIL AUTHORITY

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B26	Water Quality	Construction Contract Requirements	VPRA	VHB Permitting & Approvals team	Require contractor to perform on-site treatment of pumped groundwater in accordance with DOEE, DC Water, and Virginia Department of Environmental Quality (VDEQ) requirements for treatment and metering of pumped groundwater.	- Incorporate requirement into procurement package - coordinate with DOEE, DC Water and VDEQ	- ensure final design and construction adheres to the requirements - continue coordination with DOEE, DC Water and VDEQ	X	X	X	In Progress		VDEQ Arlington County DES NPS DCRA DOEE	- Contract Documents - Stormwater Management Plan - Erosion and Sediment Control Plan - Construction Management Plan	Will be covered as part of the Stormwater Management and Erosion/Sediment Control Plans that will be required at final design by each jurisdiction.			
B27	Water Quality	Construction Contract Requirements	DRPT/VPRA	VHB Stormwater Team	Require contractor to discharge treated pumped groundwater directly to surface waters to minimize temporary Municipal Separate Stormwater Sewer System (MS4) infrastructure capacity and sedimentation impacts during construction.	- Incorporate requirement into procurement package	- ensure construction adheres to this requirement	X	X	X	In Progress		VDEQ Arlington County DES NPS DCRA DOEE	- Contract Documents - Stormwater Management Plan - Erosion and Sediment Control Plan - Construction Management Plan	In DC, both DOEE and DC Water have stringent guidelines for the treatment of groundwater generated by dewatering construction excavations. Typically, a groundwater characterization study is required to analyze what contaminants are in the groundwater before a treatment methodology can be determined.			
B28	Wetlands	Compensatory Mitigation	VPRA	VHB Permitting & Approvals team	Provide funds based on an agreed upon amount for the compensatory mitigation for impacts to riverine wetlands in the Potomac River at a 10:1 mitigation ratio aimed at improving the overall functionality and values of nearby wetlands through removal of invasive species. Invasive species management to be conducted annually by NPS for the duration of construction. The 1.1 acres of total temporary and permanent impact will be compensated at Kenilworth Park & Aquatic Gardens.	- Coordinate with NPS to determine process and terms for treatment and removal - Coordinate with NPS to determine appropriate permit in which to include process and terms	- continue coordination with NPS - obtain permits - ensure construction adheres to requirements and permits	X	X		Not Started		NPS	- Correspondence - NPS Permit (specific permit TBD)	The specific process and terms for this treatment and removal mitigation project will be set forth in the applicable NPS, DOEE, and USACE permit authorization. Pre-application meeting was held on 9/30/22. NPS, USACE, and DOEE attended. Permitting Strategy document to detail course of action for VPRA and contractor.			
B29	Flood Hazards and Floodplain Management	Construction Contract Requirements	VPRA	VHB Permitting & Approvals team	Require contractor to establish staging yards landward of the 100-year floodplain to the extent practicable.	- Incorporate requirement into procurement package	- ensure construction adheres to this requirement	X	X	X	In Progress		DOEE VDEQ	- Contract Documents - Construction Management Plan	Note DOEE floodplain regulations are in the process of being revised. The regulatory floodplain is the 500-year event with many other changes as well.			
B30	Flood Hazards and Floodplain Management	Construction Contract Requirements	DRPT/VPRA	VHB Stormwater Team	Require contractor to adhere to a plan of action in the event of an oncoming flood event.	- Incorporate requirement into procurement package	- ensure construction adheres to this requirement	X	X	X	In Progress		DOEE VDEQ	- Contract Documents - Construction Management Plan				
B31	Flood Hazards and Floodplain Management	Construction Contract Requirements	VPRA	VHB Permitting & Approvals team	Restore temporarily disturbed areas within the floodplain to pre-existing or better conditions.	- Develop Draft Vegetation Restoration Plan - Incorporate requirement into procurement package	- develop final vegetation restoration plan - ensure construction adheres to the plan and requirements	X	X	X	In Progress		DOEE VDEQ	- Vegetation Restoration Plan - Contract Documents	Vegetation Restoration Plan incorporated into 15% plans; requirements to be included in contract documents	15% PE Plans		
B32	Soils	Construction Contract Requirements	DRPT/VPRA	VHB Site Civil Team	Require contractor to employ soil stabilization blankets, silt fences, rock check dams, and other best management practices designed to control soil loss during and following construction to minimize erosion of soil resources.	- Incorporate requirement into procurement package	- ensure requirements are adhered to within final design and construction	X	X	X	In Progress		DCRA DOEE VDEQ	- Contract Documents - Erosion and Sediment Control Plan - Stormwater Management Plan - Construction Management Plan				
B33	Soils Hazardous Materials	Construction Contract Requirements	DRPT/VPRA	VHB Geotechnical team	Require contractor to develop a Soil Management Plan based on results of subsurface investigations dictating appropriate soil handling procedures and identifying appropriate receiving facilities.	- Incorporate requirement into procurement package	- ensure requirements are adhered to within final design and construction	X	X	X	In Progress		DCRA DOEE VDEQ	- Contract Documents - Erosion and Sediment Control Plan - Soil Management Plan - Construction Management Plan	If contaminated soils are present in the District, then a separate Voluntary Cleanup Program (VCP) will need to be drafted and submitted to DOEE for the handling of these materials.			

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Mitigation, Monitoring and Reporting Program (MMRP)

VIRGINIA PASSENGER RAIL AUTHORITY

ROD ID	Resource	Task Category	Responsibility	PE Activity Responsibility	FEIS/ROD Commitment	Activities During PE	Post PE Activities	Timing: PE (30% Design)	Timing: Final Design (60% or 90%)	Timing: Construction	Status of Action during PE Phase	Status of Action through Construction	Coordination (AHJ)	Documentation Needed	Notes	Link to Documentation	Link to Documentation	Link to Documentation
B34	Hazardous Materials	Construction Contract Requirements	DRPT/VPRA	PST	Require contractor to develop a Health and Safety Plan that provides the minimum health and safety specifications contractors must meet during construction, including requirements for environmental monitoring, Personal Protective Equipment (PPE), site control and security, and training. PPE should be selected based on the contaminants of concern and known or suspected hazards.	- Incorporate requirement into procurement package	- ensure requirements are adhered to within final design and construction	X	X	X	In Progress		OSHA	- Contract Documents -Health and safety plan (HSP)				
B35	Hazardous Materials	Construction Contract Requirements	DRPT/VPRA	PST	Require contractor to implement spill response programs that specify procedures for emergency response in the event a spill or leak occurs.	- Incorporate requirement into procurement package	- ensure requirements are adhered to within final design and construction	X	X	X	In Progress		DCRA DOEE VDEQ	- Contract Documents - Spill Prevention Control and Countermeasure Plan - Stormwater Pollution Prevention Plan - Construction Management Plan				
B36	Pedestrian and Bicycle Network	Construction Contract Requirements	DRPT/VPRA	VHB Bike-Ped Team & MOT Team	Require contractor to construct temporary Mount Vernon Trail and install wayfinding signage, as appropriate, to redirect pedestrian and bicycle traffic during temporary closures due to construction.	- Develop standards for signage in coordination with NPS - Incorporate requirement into procurement package	- ensure requirements are adhered to within final design and construction	X	X	X	In Progress		NPS	- Contract Documents - Construction Management Plan				
B37	Pedestrian and Bicycle Network	Construction Contract Requirements	DRPT/VPRA	VHB Bike-Ped Team & MOT Team	Require contractor to schedule temporary crossings of the Mount Vernon Trail for materials delivery during evening hours, to the extent practicable, to minimize impacts to trail users. All intermittent closures and traffic control plans would be submitted to NPS for review and approval prior to implementation.	- Incorporate requirement into procurement package	- ensure requirements are adhered to within final design and construction	X	X	X	In Progress		NPS	- Contract Documents - Construction Management Plan				
B38	Pedestrian and Bicycle Network	Construction Contract Requirements	DRPT/VPRA	VHB Bike-Ped Team & MOT Team	Require contractor to install wayfinding signage to direct pedestrians traveling from Maryland Avenue SW to Maine Avenue SW to use alternate routes.	- Incorporate requirement into procurement package	- ensure requirements are adhered to within final design and construction	X	X	X	In Progress		DDOT	- Contract Documents - Construction Management Plan				
B39	Pedestrian and Bicycle Network	Bike-Pedestrian Bridge Design	DRPT/VPRA	VHB Bike-Ped Team	Explore opportunities to refine the design of the bike-pedestrian bridge to accommodate a range of trail users.	- Meet with DDOT, and NPS to discuss bike-pedestrian bridge concepts - obtain NCPC Concept Approval - develop design criteria for final design	- continue coordination with DDOT and NPS - Obtain NCPC Final Approval - ensure design criteria is adhered to within final design	X	X	X	In Progress		DDOT NPS	- PE Plans - Meeting notes - Correspondence	Design of bike-pedestrian bridge has been refined during PE in coordination with DDOT and NPS	15% PE Plans	NPS Meeting Folder	DDOT Meeting Folder
B40	Pedestrian and Bicycle Network	Construction Contract Requirements	DRPT/VPRA	VHB Bike-Ped Team	Following construction, restore Mount Vernon Trail to existing or better condition.	- Develop plans for trail restoration - Incorporate requirement into procurement package	- ensure requirements are adhered to within final design and construction	X	X	X	In Progress		NPS	- Contract Documents - Construction Management Plan				
B41	Roadway Network	Traffic Management Plan	DRPT/VPRA	VHB MOT Team	Require final designer or contractor to develop, with approval from agencies that have jurisdiction over applicable roadways, a project-wide Traffic Management Plan (TMP) that includes temporary traffic control plans, analysis of traffic operations, and a public outreach campaign.	- Meet with Arlington County, NPS, and DDOT to discuss MOT - Confirm MOT requirements - Incorporate requirement into procurement package	- ensure requirements are adhered to within final design and construction - develop TMP	X	X	X	In Progress		VDOT Arlington County DDOT NPS	- Traffic Management Plan - Contract Documents	MOT development underway.			
B42	Roadway Network	Traffic Management Plan	DRPT/VPRA	VHB MOT Team	Require contractor to develop maintenance of traffic plans for approval by NPS to ensure continued through and ramp access along the GWMP as the bridges, embankments, and retaining walls are constructed.	- Meet with NPS to discuss MOT - Confirm MOT requirements - Incorporate requirement into procurement package	- ensure requirements are adhered to within final design and construction - develop TMP	X	X	X	In Progress		NPS	- Traffic Management Plan - Contract Documents	MOT development underway.			
B43	Roadway Network	Traffic Management Plan	DRPT/VPRA	VHB MOT Team	Require contractor to limit GWMP lane closures to off-peak hours to extent practicable to reduce impact to motorists.	- Incorporate requirement into procurement package	- ensure requirements are adhered to within final design and construction - develop TMP	X	X	X	In Progress		NPS	- Traffic Management Plan - Contract Documents	MOT development underway.			
B44	Roadway Network	Traffic Management Plan	DRPT/VPRA	VHB MOT Team	Require contractor to limit crossing of GWMP by construction vehicles to hours to be stipulated in the special use permit.	- Incorporate requirement into procurement package	- ensure requirements are adhered to within final design and construction - develop TMP	X	X	X	In Progress		NPS	- Traffic Management Plan - Contract Documents	MOT development underway.			
B45	Roadway Network	Traffic Management Plan	DRPT/VPRA	VHB MOT Team	Require contractor to maintain two lanes of traffic on GWMP at all times during peak daytime hours.	- Incorporate requirement into procurement package	- ensure requirements are adhered to within final design and construction - develop TMP	X	X	X	In Progress		NPS	- Traffic Management Plan - Contract Documents	MOT development underway.			

Long Bridge PE Phase

Mitigation, Monitoring and Reporting Program (MMRP)

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B46	Roadway Network	Traffic Management Plan	DRPT/VPRA	VHB MOT Team	Require contractor to develop maintenance of traffic plan for I-395 that includes strategies for driver diversion and strategies to encourage use of non-motorized modes; identifies and clearly signs potential detour routes; and develops driver-awareness campaigns regarding probable severe congestions for the duration of the construction period.	- Incorporate requirement into procurement package	- ensure requirements are adhered to within final design and construction - develop TMP	X	X	X	In Progress		VDOT DDOT	- Traffic Management Plan - Contract Documents	MOT development underway.			
B47	Roadway Network	Traffic Management Plan	DRPT/VPRA	VHB MOT Team	Require contractor to develop maintenance of traffic plan for Maine Avenue SW that includes strategies for driver diversion and strategies to encourage use of non-motorized modes; identifies and provides clear signs for potential detour routes; and develops driver-awareness campaigns regarding probable severe congestions for the duration of the construction period.	- Incorporate requirement into procurement package	- ensure requirements are adhered to within final design and construction - develop TMP	X	X	X	In Progress		DDOT	- Traffic Management Plan - Contract Documents	MOT development underway.			
B48	Air Quality	Construction Contract Requirements	DRPT/VPRA	PST	Require contractor to employ best practices to reduce pollutant emissions from construction activity.	- Incorporate requirement into procurement package	- ensure requirements are adhered to within final design and construction	X	X	X	In Progress		DCRA DOEE VDEQ	- Contract Documents - Construction Management Plan	Requirement to include monitoring to ensure compliance			
B49	Air Quality	Construction Contract Requirements	DRPT/VPRA	PST	Prohibit excessive idling of construction equipment engines and enforce District and Virginia anti-idling laws.	- Incorporate requirement into procurement package	- ensure requirements are adhered to within final design and construction	X	X	X	In Progress		DCRA DOEE VDEQ	- Contract Documents - Construction Management Plan				
B50	Air Quality	Construction Contract Requirements	DRPT/VPRA	PST	Require contractor to implement protective measures around the construction site and demolition work to prevent dust and debris from leaving the site.	- Incorporate requirement into procurement package	- ensure requirements are adhered to within final design and construction	X	X	X	In Progress		DCRA DOEE VDEQ	- Contract Documents - Construction Management Plan				
B51	Air Quality	Construction Contract Requirements	DRPT/VPRA	PST	Require contractor to use ultra-low sulfur diesel for all off-road construction vehicles.	- Incorporate requirement into procurement package	- ensure requirements are adhered to within final design and construction	X	X	X	In Progress		DCRA DOEE VDEQ	- Contract Documents - Construction Management Plan				
B52	Air Quality	Construction Contract Requirements	DRPT/VPRA	PST	Require that any non-road diesel equipment rated 50 horsepower or greater meets EPA's Tier 4 emission limits or that the contractor retrofits the equipment with appropriate emission reduction measures.	- Incorporate requirement into procurement package	- ensure requirements are adhered to within final design and construction	X	X	X	In Progress		DCRA DOEE VDEQ	- Contract Documents - Construction Management Plan				
B53	Energy	Construction Contract Requirements	DRPT/VPRA	PST	Use energy-efficient technologies wherever feasible in the operations of Long Bridge and construction activities to minimize adverse effects to energy resources	- Incorporate requirement into procurement package	- ensure requirements are adhered to within final design and construction	X	X	X	In Progress		DCRA DOEE VDEQ	- Contract Documents - Construction Management Plan				
B54	Energy	Construction Contract Requirements	DRPT/VPRA	PST	Encourage contractor to use fuel efficient or alternative fuel vehicles to the greatest extent feasible.	- Incorporate requirement into procurement package	- ensure requirements are adhered to within final design and construction	X	X	X	In Progress		DCRA DOEE VDEQ	- Contract Documents - Construction Management Plan				
B55	Energy	Construction Contract Requirements	DRPT/VPRA	PST	Require contractor to consider solar-powered generators as an alternative to diesel generators wherever feasible.	- Incorporate requirement into procurement package	- ensure requirements are adhered to within final design and construction	X	X	X	In Progress		DCRA DOEE VDEQ	- Contract Documents - Construction Management Plan				
B56	Land Use	Access and Staging	DRPT/VPRA	VHB Constructability Team	Require contractor to use areas already disturbed for construction of other projects, such as the cloverleafs at I-395 and Boundary Channel Drive, to minimize the impacts of construction staging.	- Incorporate requirement into procurement package	- ensure requirements are adhered to within final design and construction	X	X	X	In Progress		DCRA DOEE VDEQ NPS	- Contract Documents - Construction Management Plan				
B57	Land Use	Construction Contract Requirements	VPRA	VHB Permitting & Approvals team	Require contractor to screen construction staging areas as practicable to minimize impacts to adjacent land uses.	- Incorporate requirement into procurement package	- Ensure requirements are adhered to within final design and construction - Develop Construction Management Plan and submit to Signatories to the Programmatic Agreement and follow the Design Review process as stipulated within the PA	X	X	X	In Progress		DDOT NPS	- Contract Documents - Construction Management Plan				

Long Bridge PE Phase

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B58	Land Use	Construction Contract Requirements	VPRA	VHB Permitting & Approvals team	Require contractor to restore property adversely impacted by construction activities, to the extent practicable following construction.	- Incorporate requirement into procurement package	- ensure requirements are adhered to within final design and construction	X	X	X	In Progress		DCRA DOEE VDEQ NPS	- Contract Documents				
B59	Land Use	Construction Contract Requirements	DRPT/VPRA	VHB Landscaping Team & Permitting & Approvals team	Require contractor to incorporate vegetative buffers and screening as practicable between new transportation infrastructure and potentially sensitive land uses to minimize adverse impacts on business activities and building tenants.	- Incorporate into landscape design - develop draft vegetation restoration plan - submit draft vegetation plan to Signatories of the Programmatic Agreement and follow the Design Review process as stipulated within the PA - Obtain NCPC Concept Approval - Obtain CFA Concept Approval - coordinate with private property owners, affected businesses, NPS, Signatories to the PA, and CFA - Incorporate requirement into procurement package	- continue coordination with private property owners, NPS, Signatories to the PA, and CFA - develop final vegetation restoration plans - Obtain NCPC Final Approval - Obtain CFA Final Approval - ensure requirements are adhered to within final design and construction	X	X	X	In Progress		DCRA NPS CFA DHR DC SHPO NCPC Arlington County Portals Properties District of Columbia Washington Marina DDOT	- Landscape design - Contract documents	- Coordination meetings with Signatories to the PA - Design Review of Draft Vegegation Protection Plan complete - Coordination meetings with Portals Properties - Coordination meetings with DMOI - NCPC NPS land area Concept Approval received - NCPC Maine Ave Area Concept Review prep in progress - CFA Concept Approval received			
B60	Land Use Recreation and Parks Section 4(f)	Bike-Pedestrian Bridge	DRPT/VPRA	VHB Bike-Ped Team	Construct a new bike-pedestrian bridge connecting Long Bridge Park, GWMP, and West Potomac Park.	- Design new bike-pedestrian bridge - coordinate with DDOT, NPS & Arlington County - submit design to the Signatories of the Programmatic Agreement and follow the Design Review process per the PA - Obtain NCPC Concept Approval - Obtain CFA Concept Approval	- Continue coordination with DDOT, NPS, & Arlington County - Obtain NCPC Final Approval - Obtain CFA Final Approval - ensure requirements determined in PE and FD are adhered to within Construction	X	X	X	In Progress		DDOT NPS Arlington County	- PE Plans	Design of bike-pedestrian bridge and coordination meetings ongoing	15% PE Plans		
B61	Land Use Recreation and Parks	Traffic Management Plan	DRPT/VPRA	VHB MOT Team	Require contractor to maintain visitor access to parkland and trails during construction; all intermittent closures and traffic control plans would be included in the TMP submitted to NPS for review and approval prior to implementation. (See Commitment B41)	- Meet with Arlington County and NPS to discuss MOT - Incorporate requirement into procurement package	- Continue coordination with NPS and Arlington County - Develop TMPS - ensure requirements are adhered to within final design and construction	X	X	X	In Progress		NPS Arlington County	- Traffic Management Plan - Contract Documents				
B62	Property	Property Acquisition or Displacement	DRPT/VPRA	VHB ROW team	For privately-owned properties, comply with the Federal Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended, and applicable District, Commonwealth of Virginia, and Arlington County laws in any instances where property acquisition or displacement would be necessary to implement the Project. If full property acquisition is required, fairly compensate property owners for the land acquired and, if necessary, provide relocation assistance.	- Identify property acquisitions, and whether any relocations will be required - Incorporate any requirements determined within the procurement documents - Confirm PE limits of disturbance against EIS phase - Coordinate with private property owners - coordinate with DMOI - coordinate with DMPED	- Continue coordination with private property owners - Continue coordinatino with DMOI and DMPED - Obtain private property acquisition - Ensure property acquisition lines and limits of distrubance are conformed to within Construction	X	X	X	In Progress		FRA DMOI Portals DMPED	- Real Estate Acquisition Management Plan	*VPRA to provide status*			
B63	Property	Title Search & Survey	DRPT/VPRA	PST VHB Survey Team	Conduct title search and survey to establish definitive property ownership and any other existing easements or agreements. Carry out additional transactional due diligence activities as may be required, e.g. environmental site assessments, appraisals, etc.	- Conduct title search and survey	- Confirm title search within final design	X	X		In Progress		n/a	- Title search Documents - Survey Documents	*VPRA to provide status; title survey completed, need to finalize land ownership jurisdiction*			
B64	Noise	Track Design	DRPT/VPRA	VHB Rail Team	Evaluate and potentially implement turnout design that uses a spring-rail frog or moveable-point frog to reduce noise near Long Bridge Park.	- Evaluate and determine whether it will be implemented during PE	- Confirm against Final Design	X	X		Not Started		n/a	- PE Plans (if implemented)	RO Interlocking will be the responsibility of the Alexandria Fourth Track Project.			
B65	Noise	Track Design	DRPT/VPRA	PST	Evaluate and potentially implement a wayside top-of-rail friction modifier system and use of gauge-face lubrication to reduce wheel squeal near the Portals V Residences and at the Mandarin Oriental Hotel.	- Evaluate and determine whether it will be implemented during PE - Coordinate with FRA and CSXT - Coordinate with Portals V Residences and the Mandarin Oriental Hotel	- Confirm against Final Design - Continue coordination with FRA & CSXT - Continue coordination with Portals V Residences and the Mandarin Oriental Hotel	X	X		In Progress		FRA CSXT	- PE Plans (if implemented)				

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B66	Noise	Construction Contract Requirements	DRPT/VPRA	PST	Require contractor to prepare a Construction Noise and Vibration Control Plan prior to beginning construction. Plan should include detailed predictions of construction noise, requirements for conducting construction noise monitoring and, if necessary, detailed approaches that would mitigate potential construction-period noise impact.	- Incorporate requirement into procurement package	- Submit Construction Noise and vibration control plan as part of the construction management plan to the Signatories to the Programmatic Agreement and follow the Design review process as stipulated within the PA - ensure the Construction noise and vibration control plan is adhered to within Construction	X	X	X	In Progress		DCRA NPS	- Contract Documents - Construction Management Plan				
B67	Vibration	Construction Contract Requirements	DRPT/VPRA	PST	Require contractor to prepare a Construction Noise and Vibration Control Plan before beginning construction. This plan should include detailed predictions of vibration levels from the proposed construction equipment and detail specific methods to minimize potential vibration effects. The plan should set acceptable vibration limits and address the need to conduct pre-construction crack surveys, install crack detection monitors, and conduct vibration monitoring. It should define a process to alert the contractor of any limit exceedances and take corrective actions.	- Incorporate requirement into procurement package	- Submit Construction Noise and vibration control plan as part of the construction management plan to the Signatories to the Programmatic Agreement and follow the Design review process as stipulated within the PA - ensure the Construction noise and vibration control plan is adhered to within Construction	X	X	X	In Progress		DCRA NPS	- Contract Documents - Construction Management Plan				
B68	Vibration	Construction Contract Requirements	DRPT/VPRA	PST	Include all vibration-sensitive structures and seawalls within 125 feet of construction in the Noise and Vibration Control Plan.	- Incorporate requirement into procurement package	- Submit Construction Noise and vibration control plan as part of the construction management plan to the Signatories to the Programmatic Agreement and follow the Design review process as stipulated within the PA - ensure the Construction noise and vibration control plan is adhered to within Construction	X	X	X	In Progress		DCRA NPS	- Contract Documents - Construction Management Plan				
B69	Aesthetics and Visual Resources	Landscape Design	DRPT/VPRA with NPS support	VHB Landscaping Team & Permitting & Approvals team	Design final landscaping, including planting, plant selection, and berms, in a manner that mitigates visual impacts on the GWMP, MVT, East Potomac Park, and West Potomac Park, and includes NPS as a participant in the design process. NPS and NCPC would approve any plans prior to implementation. This mitigation may take place outside of the limits of disturbance, as identified by NPS.	- Develop Draft Vegetation Restoration Plan - Follow PA document review process - incorporate any requirements into the procurement package - coordinate with NPS and Signatories to the PA	- develop final vegetation restoration plan - continue coordination with NPS and Signatories to the PA - ensure requirements determined during the PE phase are adhered to in final design and construction	X	X	X	In Progress		DC SHPO DHR NPS NCPC CFA	- Vegetation Restoration Plan	See B02	15% PE Plans		
B70	Aesthetics and Visual Resources	Construction Contract Requirements	VPRA	VHB Permitting & Approvals team	Require contractor to use aesthetically pleasing construction fencing and barriers to block potentially unattractive views into construction areas. Require contractor to consider use of screening vegetation to minimize visual impacts of construction activities on viewers. Visual screening of construction areas within NPS-administered properties will meet NPS standards.	- Develop standards for signage in coordination with NPS - Incorporate requirement into procurement package	- Ensure requirements are adhered to in final design and construction - Confirm requirements within final design - Continue coordination with NPS and signatories to the PA - Develop Construction Management plan and submit to Signatories to the Programmatic Agreement and follow the Design Review process as stipulated within the PA	X	X	X	In Progress		NPS DC SHPO DHR NCPC	- Meeting notes - Correspondence - Contract Documents - Construction Management Plan				
B71	Aesthetics and Visual Resources	Access and Staging	DRPT/VPRA	VHB Constructability Team	Avoid the use of the GWMP to transport construction equipment to the extent described in the DEIS. Final construction staging and access plans, including the timing and frequency of activities on the GWMP, will be presented to NPS for review and approval prior to proceeding with the work.	- Incorporate requirement into procurement package	- ensure requirements are adhered to within final design and construction - coordinate with NPS	X	X	X	In Progress		NPS	- Correspondence - Contract Documents - Construction Management Plan				
B72	Recreation and Parks	Construction Contract Requirements	DRPT/VPRA	PST	Restore affected ballfields following construction.	- Incorporate requirement into procurement package	- ensure requirements are adhered to within final design and construction - coordinate with NPS	X	X	X	In Progress		NPS	- Contract Documents				
B73	Recreation and Parks	Compensatory Mitigation	DRPT/VPRA		Compensate NPS at the rate of $8,860 per ballfield per year for recreation revenue lost during construction due to use of the ballfield for staging. To be included as a requirement in the NPS special use permit.	n/a			X		Not Started		NPS	- Documentation of payments -Special Use Permit				

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B74	Recreation and Parks	Compensatory Mitigation	VPRA	VHB Permitting & Approvals team & Geotechnical team	Compensate NPS based on the calculated monthly average of revenue for Parking Lot B as $1,301 and Parking Lot C as $1,391 for parking revenue lost during construction due to use of the parking lots for staging. To be included as a requirement in the NPS special use permit.	- incorporate requirement into PE phase geotechnical exploration NPS special use permits - obtain NPS special use permits for PE geotechnical exploration - compensate NPS for use of parking lots during PE geotechnical exploration following the conclusion of the activities	- Compensate NPS for final design and construction parking lot use	X	X	X	Not Started		NPS	- Documentation of payments -Special Use Permit				
B75	Recreation and Parks	Construction Contract Requirements	DRPT/VPRA	VHB Roadway team	Repave and reconstruct pavement and related infrastructure temporarily impacted by construction within the GWMP, West Potomac Park, and East Potomac Park (including Parking Lots B and C and Ohio Drive SW). To be included as a requirement in the NPS special use permit.	- Incorporate requirement into procurement package - coordinate with NPS to review Preliminary design roadway plans	- ensure requirement is adhered to within final design and construction	X	X	X	In Progress		NPS	- Contract Documents -Special Use Permit				
B76	Recreation and Parks	Access and Staging	DRPT/VPRA	PST	Channelize construction access within Hancock Park and surround area with fencing with gate access. Require contractor to minimize frequency of access during periods of the day when the park is heavily used, such as at lunchtime.	- Incorporate requirement into procurement package	- ensure requirement is adhered to within final design and construction - develop Construction Management plan - submit construction management plan to the Signatories of the PA and follow the Design Review process as stipulated within the PA	X	X	X	In Progress		NPS	- Contract Documents - Construction Management Plan				
B77	Railroad Safety	Construction Contract Requirements	DRPT/VPRA	PST	Require contractors to ensure railroad safety training has been completed by all workers that would be in the vicinity of the active tracks during construction.	- Incorporate requirement into procurement package	- ensure requirement is adhered to within final design and construction - develop Construction Management plan - submit construction management plan to the Signatories of the PA and follow the Design Review process as stipulated within the PA	X	X	X	In Progress		CSXT	- Contract Documents - Construction Management Plan				
B78	Railroad Safety	Construction Contract Requirements	DRPT/VPRA	PST	Require contractors to develop a Safety and Security Plan for review and approval.	- Incorporate requirement into procurement package	- ensure requirement is adhered to within final design and construction - develop Construction Management plan - submit construction management plan to the Signatories of the PA and follow the Design Review process as stipulated within the PA	X	X	X	In Progress		CSXT	- Contract Documents - Construction Management Plan				
B79	Railroad Safety	Maine Avenue	DRPT/VPRA	VHB Rail team	Between Maine Avenue SW and LE Interlocking, implement infrastructure upgrades to the crash walls, as well as provide clearance detectors, security lighting, enhanced security fencing, and track friction modifiers.	- Incorporate into PE plans - coordinate with CSXT - coordinate with DDOT - coordinate with Portals property owners	- confirm against final design - continue coordination with CSXT, DDOT, and Portals property owners	X	X	X	In Progress		CSXT	- Engineering Plans		15% PE Plans		
B80	Railroad Safety	Maine Avenue	DRPT/VPRA	VHB Structures team	Between Maine Avenue SW and LE Interlocking, modify crash walls in the reduced clearance areas to meet the design criteria.	- Incorporate into PE plans and basis of design document - coordinate with CSXT, DDOT and portals property owners	- confirm against final design - continue coordination with CSXT, DDOT and Portals property owners	X	X	X	In Progress		CSXT	- Engineering Plans		15% PE Plans		
B81	Railroad Safety	Maine Avenue	DRPT/VPRA	CSXT	Between Maine Avenue SW and LE Interlocking, add electrical and communication connections to enable the addition of security measures.	- Incorporate into PE plans	- confirm against final design	X	X		In Progress		CSXT	- Engineering Plans		15% PE Plans		
B82	Railroad Safety	Maine Avenue	DRPT/VPRA	PST	Between Maine Avenue SW and LE Interlocking, continue to evaluate opportunities for further structural improvements in the overbuild area during final design to potentially increase lateral clearance.	- Evaluate opportunities and implement improvements found to be practicable - coordinate with portals property owners, DDOT and CSXT	- confirm against final design - continue coordination with portals property owners, DDOT and CSXT	X	X		In Progress		CSXT	- Engineering Plans (if implemented)		15% PE Plans		
B83	Public Safety	Construction Contract Requirements	DRPT/VPRA	PST	Require contractor to follow standard Occupational Safety and Health Administration construction safety procedures and industry best practices.	- Incorporate requirement into procurement package	- develop construction management plan - submit construction management plan to the Signatories to the PA and follow the design review protocols as stipulated within the PA	X	X	X	In Progress		OSHA	- Contract Documents - Construction Management Plan				

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B84	Public Safety Security	Construction Contract Requirements	DRPT/VPRA	PST	Require contractor to employ standard measures to prohibit trespassing in construction areas, such as barriers, fences, or barricades. Entrances and exits to construction sites should be locked and areas should be well lit and equipped with automatic protective lighting systems. Inspect materials as needed.	- Incorporate requirement into procurement package	- develop construction management plan - submit construction management plan to the Signatories to the PA and follow the design review protocols as stipulated within the PA	X	X	X	In Progress		VPRA	- Contract Documents - Construction Management Plan				
B85	Construction Impacts	Bike-Pedestrian Bridge	DRPT/VPRA	VHB Constructability Team	Explore opportunities to minimize impacts from construction of the bike-pedestrian crossing, including options for constructing elements of the bike-pedestrian crossing concurrently with the railroad bridge.	- Evaluate opportunities and implement improvements found to be practicable - Incorporate any relevant items into procurement package	- confirm against final design	X	X		In Progress		VPRA	- Memo or correspondence describing evaluation				
C01	Cultural Resources	Design Review	VPRA	VHB Permitting & Approvals team & Architecture team	Design aesthetic treatments of any elements of the Project introduced into NPS-administered properties to be compatible with the character of existing resources and appropriate for the context of Washington, DC's Monumental Core.	- submit aesthetic treatments as applicable to the Signatories of the PA and follow the Design Review protocols as stipulated within the PA	- confirm PE aesthetics during final design	X	X		In Progress		DC SHPO DHR NPS NCPC CFA	- Plans and renderings - Meeting notes - Correspondence	Meetings held with Signatories, NCPC, and CFA. Signatory submittal completed and comments under review. CFA concept approval received 7/21/22 NCPC concept approval within NPS purview received on 7/7/22. NCPC concept approval at Maine Ave SW area expected in early 2023.	Signatory Design Review Folder		
C02	Cultural Resources	Design Review	VPRA with FRRA, DC SHPO, DHR, NPS, NCPC and CFA support	VHB Permitting & Approvals team	Provide for design review by DC SHPO, VDHR, NPS, NCPC and CFA during Preliminary Engineering to address design elements as stipulated in the Programmatic Agreement Stipulation III(B)(1) and Commitment Measure A17.	- Follow document review process for design review	- confirm PE aesthetics during final design	X	X		In Progress		DC SHPO DHR NPS NCPC CFA	- Plans and renderings - Meeting notes - Correspondence	Meetings held with Signatories, NCPC, and CFA. Signatory submittal completed and comments under review. CFA concept approval received 7/21/22 NCPC concept approval within NPS purview received on 7/7/22. NCPC concept approval at Maine Ave SW area expected in early 2023	Signatory Design Review Folder		
C03	Cultural Resources	Landscape Design	DRPT/VPRA with NPS support	VHB Permitting & Approvals team & landscaping team	Develop and implement a Vegetation Protection Plan in coordination with NPS, within the limits of disturbance, to determine which vegetation is anticipated to be removed, impacted, or protected by the Project, as stipulated in the Programmatic Agreement Stipulation III(B)(4).	- Develop Draft Vegetation Protection Plan - Follow document review process	- Develop Final Vegetation Protection Plan	X	X		In Progress		NPS	- Vegetation Protection Plan - Plans and renderings - Meeting notes - Correspondence	Vegetation Protection Plan incorporated into 15% plans	15% PE Plans		
C04	Cultural Resources	Compensatory Mitigation	DRPT/VPRA	VHB Landscaping team & VPRA	Contribute a monetary value, agreed upon with NPS, for NPS's implementation of its portion of the Vegetation Restoration Plan, as stipulated in the Programmatic Agreement Stipulation III(B)(5).	- Determine trees/vegetation that will not be replaced within the LOD - Determine in consultation with NPS the amount of the monetary contribution based on information above - develop draft vegetation restoration plan	- develop Final Vegetation restoration plan	X			Completed		NPS	- Vegetation Protection Plan - Vegetation Restoration Plan - Meeting notes - Correspondence - Documentation of payment	- Monetary value provided to NPS on September 16, 2020 - Signatory design review of Draft Vegetation Restoration plan completed in March/April 2022			
C05	Cultural Resources	Landscape Design	DRPT/VPRA	VHB Landscaping team	Develop a Vegetation Restoration Plan in collaboration with the NPS, to the extent feasible under DRPT's Project schedule, as stipulated in the Programmatic Agreement Stipulation III(B)(5).	- Develop Draft Vegetation Restoration Plan - Follow document review process	- develop final vegetation restoration plan	X	X		In Progress		NPS	- Vegetation Restoration Plan - Plans and renderings - Meeting notes - Correspondence	Vegetation Restoration Plan incorporated into 15% plans	15% PE Plans		
C06	Cultural Resources	Landscape Design	NPS	NPS	Collaborate with DRPT to provide agency expert knowledge and any other available, relevant information for the development of the Vegetation Restoration Plan, including baseline documentation and other material to assist in the development of the restoration plan, as stipulated in the Programmatic Agreement Stipulation III(B)(5).	- Review the Draft Vegetation Restoration plans per the PA stipulations	- Review the Final Vegetation Restoration plans	X	X		In Progress		NPS	- Meeting notes - Correspondence	NPS responsibility; VPRA coordination with NPS ongoing			
C07	Cultural Resources	Landscape Design	DRPT/VPRA	VHB Landscaping team	Implement the portion of the Vegetation Restoration Plan within the limits of disturbance, as stipulated in the Programmatic Agreement Stipulation III(B)(5). Perform vegetation monitoring and invasive plant removal within the LOD for five years after the date of construction completion, to ensure and support vegetation restoration within the limits of disturbance.	- develop draft vegetation restoration plan	- develop final vegetation restoration plans & implement	X	X		In Progress		NPS	- Correspondence	NPS Responsibility Vegetation Restoration Plan incorporated into 15% plans.			

Long Bridge PE Phase

Mitigation, Monitoring and Reporting Program (MMRP)

ROD ID	Resource	Task Category	Responsibility	PE Activity Responsibility	FEIS/ROD Commitment	Activities During PE	Post PE Activities	Timing: PE (30% Design)	Timing: Final Design (60% or 90%)	Timing: Construction	Status of Action during PE Phase	Status of Action through Construction	Coordination (AHJ)	Documentation Needed	Notes	Link to Documentation	Link to Documentation	Link to Documentation
C08	Cultural Resources	Landscape Design	NPS	VHB Landscaping Team	Implement the portion of the Vegetation Restoration Plan outside the limits of disturbance, as stipulated in the Programmatic Agreement Stipulation III(B)(5).	- provide amount of vegetation mitigation to be planted outside of the limits of disturbance	- confirm vegetation mitigation during final design	X	X		In Progress		NPS	- Correspondence	NPS Responsibility Vegetation Restoration Plan incorporated into 15% plans.			
C09	Cultural Resources	Interpretation Plan	VPRA	VHB Permitting & Approvals team	Prepare and implement an interpretation plan as stipulated in the Programmatic Agreement Stipulation III(B)(7).	- As appropriate, consider opportunities for interpretation as part of design -Develop Interpretation Plan	- confirm interpretation plan with final design and implement	X	X		In Progress		DC SHPO DHR NPS NCPC CFA	-Interpretation Plan	Development of Interpretation Plan kickoff meeting held on 8/26/22			
C10	Cultural Resources	Compensatory Mitigation	DRPT/VPRA	N/A	Contribute a monetary value, agreed upon with NPS, for NPS to use to prepare and implement a GWMP Viewshed Protection Plan and Inventory/Assessment, as stipulated in the Programmatic Agreement Stipulation III(B)(2).	n/a	N/A		X		Completed		NPS	- Documentation of payment				
C11	Cultural Resources	Landscape Design	NPS	NPS	Produce a GWMP Viewshed Protection Plan and Inventory/Assessment within two years of receipt of funding.	- produce plan and inventory/assessment		X	X		In Progress		NPS	- GWMP Viewshed Protection Plan	NPS Responsibility			
C12	Cultural Resources	Compensatory Mitigation	DRPT/VPRA	N/A	Contribute a monetary value to NPS, agreed upon with NPS, to prepare Cultural Landscape Inventories as stipulated in the Programmatic Agreement Stipulation III(B)(3).	n/a		X			Completed		NPS	- Documentation of payment				
C13	Cultural Resources	Landscape Design	NPS	NPS	Develop and execute Cultural Landscape Inventories for MVMH – north of Alexandria to Columbia Island and East and West Potomac Parks Historic District for the portion from the Golf Course to the railroad corridor to include the NPS National Capital Region Headquarters Campus as stipulated in the Programmatic Agreement Stipulation III(B)(3).	- develop CLIs		X			Completed		NPS					
C14	Cultural Resources	Construction Management Plan	DRPT/VPRA	PST	Develop Construction Management Control Plan as stipulated in the Programmatic Agreement Stipulation III(B)(6) to minimize temporary construction effects to historic properties from noise and vibration and visual effects. Elements to include are a Noise and Vibration Control Plan (see B66 and B67) and plan for visual screening of construction areas (see B70).	- Incorporate requirement into procurement documents	- develop Construction management plan and implement	X	X	X	In Progress		DC SHPO DHR NPS NCPC CFA	- Construction Management Plan				
C15	Cultural Resources	Archaeology	DRPT/VPRA	VHB Archaeology team	Locate construction access and staging activities away from areas of high archaeological potential or within sites that are paved or have been previously disturbed.	- Identify areas of high archaeological potential and ensure construction access and staging activities located away from these areas	- confirm access and staging areas within final design	X	X		In Progress		DC SHPO DHR NPS	- Map of areas of high archaeological potential and construction access/staging areas	VPRA to begin Phase IB Archaeological Survey during PE			
C16	Cultural Resources	Archaeology	DRPT/VPRA	VHB Archaeology team	Continue identification and evaluation of archaeological historic properties in accordance with 36 CFR § 800.4 and 800.5 and following the findings and recommendations of the Long Bridge Project Phase IA Archaeological Assessment Report.	- Identify whether additional archaeological studies are required		X			In Progress		DC SHPO DHR NPS	- Memo	VPRA began Phase IB Archaeological Survey during PE in September, 2022. Archaeology memo in progress.			
D01	Submerged Aquatic Vegetation Wetlands and Waters of the U.S.	Pier Design	DRPT/VPRA	VHB Structures team	Align new piers with existing piers.	- Develop PE Plans	- ensure final design adheres to this requirement	X	X		In Progress		NPS USACE DOEE NMFS	- PE Plans - Final Plans	Piers aligned in 15% plans	15% PE Plans		
D02	Flood Hazards and Floodplain Management	Pier Design	DRPT/VPRA	VHB Structures team	Design piers with an elliptical shape to allow smoother flood flow conveyance underneath the bridge with minimal turbulence and hydraulic force against the pier walls.	- Develop PE Plans	- ensure final design adheres to this requirement	X	X		In Progress		NPS USACE DOEE NMFS	- PE Plans - Final Plans	Elliptical shape shown in 15% plans	15% PE Plans		
D03	Geology Soils	Retaining Walls	DRPT/VPRA	VHB Structures team	Make use of retaining walls to reduce footprint and preserve existing floodplain features and minimize disturbance to soil resources to extent practicable.	- Develop PE Plans	- ensure final design adheres to this requirement	X	X		In Progress		DOEE NPS VDEQ	- PE Plans - Final Plans	Retaining walls shown in 15% plans; use of viaducts currently being evaluated in some instance, which would increase flood storage	15% PE Plans		

Long Bridge PE Phase

Mitigation, Monitoring and Reporting Program (MMRP)

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D04	Aesthetics and Visual Resources	Bridge Design	DRPT/VPRA	VHB Structures team & Architecture team	Refine bridge structure design and materials to mitigate impacts on visual resources and ensure aesthetic compatibility with built, natural, and cultural resources in the surrounding visual environment.	- Develop PE Plans - submit design to the Signatories of the PA and follow the Design review process stipulated within the PA - obtain NCPC Concept approval - obtain CFA concept approval	- confirm against final design - Obtain NCPC final approval - Obtain CFA final approval	X	X		In Progress		DC SHPO DHR NPS NCPC CFA	- PE Plans - Final Plans	Meetings held with Signatories, NCPC, and CFA. Signatory design review submittal completed and responses to comments in progress.	Signatory Design Review Folder		