



Potomac Yard Metrorail Station

Joint Permit Application

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Prepared for:
The City of Alexandria, Virginia

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Executive Summary

The City of Alexandria (City), with the Washington Metropolitan Area Transit Authority (WMATA), proposes to build the Potomac Yard Metrorail Station (PYMS) and associated infrastructure at Potomac Yard in the northern portion of Alexandria, Virginia. On behalf of the City, Stantec Consulting Services Inc. (Stantec) is submitting this Joint Permit Application (JPA) for authorization to take impacts required for the construction of the new PYMS under a United States Army Corps of Engineers (USACE) Individual Permit and a Department of Environmental Quality (VDEQ) Virginia Water Protection Individual Permit. No impacts to tidal wetlands or other state-owned bottomlands are proposed; therefore, a permit from the Virginia Marine Resources Commission is not anticipated.

The proposed PYMS is located in the City east of the existing Metrorail tracks, approximately midway between the Ronald Reagan Washington National Airport and Braddock Road Stations. The area proposed for the station is bordered by the George Washington Memorial Parkway (GWMP) and Potomac River to the east and active CSX tracks and Potomac Avenue to the west. The site is located north of the Potomac Greens neighborhood and east of the Potomac Yard Shopping Center. The project area drains to the Potomac River within the Middle Potomac-Anacostia-Occoquan sub-basin in hydrologic unit code (HUC) 02070010.

Unavoidable impacts to jurisdictional resources resulting from the construction of the PYMS have been avoided and minimized to the greatest extent practicable. The City is requesting the authorization to permanently impact 0.64 acres of palustrine emergent (PEM) and 0.92 acres of palustrine forested (PFO) wetlands. The construction of the PYMS will also result in the temporary impact to 0.91 acres of PEM and 1.10 acres of PFO.

Compensatory mitigation will be provided for permanent wetland impacts by the purchase of 2.48 credits from Buena Vista Wetland Mitigation Bank that is approved by the USACE and VDEQ. Temporarily impacted wetlands will be restored to their existing conditions and contours and revegetated based on the wetland restoration plan. PFO areas (1.10 acres) will be planted at 400 stem per acre, and PEM areas (.91 acre) will be seeded with the appropriate seed mixture. Virginia native species will be used in the restoration and an invasive species control plan will be included. A monitoring and reporting plan will ensure the success of the restoration plan.

The design of the proposed project includes the construction of the following features:

Metrorail Station will be constructed at-grade with a side platform layout. Design elements for the station include mezzanines, side platform, below platform service rooms, interior station lighting, mechanical and electrical services and equipment, restrooms, WMATA systems equipment, and signage and graphics. The station will be approximately 50-feet tall, and approximately 23-feet tall in the middle along the platform area. The station mezzanine is open-air (non-conditioned space) but requires solid, transparent enclosure of walls and roof overhangs to provide protection from the weather.

Entrance Pavilion – One entrance pavilion will be provided on the west side of the tracks for passenger access from neighborhood streets, planned development, and parks to the station. The pavilion will be located at the base of the pedestrian/bicycle bridge. The pavilion will include escalators, elevators, and stairs for access to the bridge.

Pedestrian/Bicycle Facilities – The Metrorail station has been designed for pedestrian/bicycle access. There are two entry points on the west side of the tracks including a north pavilion and a southern entry ramp, as well as an access walkway that provides access on the east side of the tracks. The east side walkway will provide access from the Potomac Greens neighborhood and



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connect directly into the mezzanine level of the station. A single pedestrian/bicycle bridge over the CSX rail tracks will connect the entry points on the west of the tracks directly into the mezzanine level of the station. The bridge crossing the CSX tracks will be open-air but weather-protected and enclosed in a mesh or fence that precludes jumping or throwing of objects. The northern pavilion on the west side of the tracks will provide access to the station from North Potomac Yard. The southern entry ramp on the west side of the tracks is located at the terminus of East Glebe Road at the intersection with Potomac Avenue and adjacent to the Landbay G Town Center in Potomac Yard.

AC Switchgear Room – A separate building will be constructed west of the existing Metrorail lines, and adjacent to the existing Traction Power Substation. This building is sized and equipped to fully accommodate the electric power functions of a WMATA Metrorail station and the electrically-powered third rail and track.

Stormwater Management – Stormwater quantity and quality will be addressed through a combination of proprietary and non-proprietary Best Management Practices. These measures include Bioretention (Level 1), Hydrodynamic Devices, and Underground Sand Filters or similar facilities.

New and Re-aligned Track – Approximately 3,750 feet of new or re-aligned track will be constructed to provide a straight section of track for the proposed station location per WMATA design standards. This new, realigned track will be constructed east of, and adjacent to, the existing Metrorail tracks. The new tracks will include several unique design characteristics such as a double crossover (special track work) approximately 100 feet north of the station that allows for trains to move from one track to the other for single-tracking operations and maintenance. An earthen berm will be constructed to support the realigned track and screen the lower part of the eastern station wall. The existing tracks and ties not needed for the proposed project will be left in place.

Access/Emergency Road – A 22-foot wide access road will be constructed extending from Potomac Yard Drive to provide maintenance, employee, and emergency access. The road is sized to allow fire trucks and emergency equipment access and based on City code.

Parking – There is no parking associated with this facility. There will be no Kiss & Ride area, short-term parking, parking lot, or parking structure. This facility is designed based on pedestrian and bicycle traffic.



Abbreviations

APE	Areas of Potential Effect
BMP	Best Management Practice
CCB	Center for Conservation Biology
CDD	Coordinated Development District
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
City	City of Alexandria
CBPA	Chesapeake Bay Preservation Areas boundary
DEIS	Draft Environmental Impact Statement
DNH	Department of Natural Heritage
EIS	Environmental Impact Statement
ESA	Environmental Site Assessment
FEIS	Final Environmental Impact Statement
FEMA	Federal Emergency Management Agency
FIRM	Flood Insurance Rate Maps
FTA	Federal Transit Administration
GSAE	Greens Scenic Area Easement
GWMP	George Washington Memorial Parkway
HUC	Hydrologic Unit Code
IPaC	Information for Planning and Conservation
JPA	Joint Permit Application
LEDPA	Least Environmentally Damaging Practicable Alternative
Mg/kg	Milligram per Kilogram
MOA	Memorandum of Agreement
MOU	Memorandum of Understanding
MPH	Miles per Hour
MVMH	Mount Vernon Memorial Highway
NEPA	National Environmental Policy Act
NHDE	Natural Heritage Data Explorer
NPS	National Park Service
NPYSAP	North Potomac Yard Small Area Plan
NRHP	National Register of Historic Places
PEM	Palustrine Emergent
PFO	Palustrine Forested
PNCR	Parkways of the National Capital Region
PYC	Potomac Yard Contractors
PYGSAP	Potomac Yard/Potomac Greens Small Area Plan
PYCA	Potomac Yard Civic Association
PYMIG	Potomac Yard Metrorail Implementation Work Group
PYMS	Potomac Yard Metro Station
RECs	Recognized Environmental Concerns



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RF&P	Richmond, Fredericksburg, and Potomac Railroad
ROD	Record of Decision
RPA	Resource Protection Areas
SAP	Small Area Plan
SJV	Sensitive Joint-Vetch
Stantec	Stantec Consulting Services Inc.
SUP	Special Use Permit
SWPPP	Stormwater Pollution Prevention Plan
TPH	Total Petroleum Hydrocarbon
TPS	Traction Power Substation
USACE	United States Army Corps of Engineers
USDOT	United States Department of Transportation
USEPA	United States Environmental Protection Agency
USFWS	United States Fish and Wildlife Services
VaFWIS	Virginia Fish and Wildlife Information Service
VCRIS	Virginia Cultural Resource Information System
VDCR	Virginia Department of Conservation and Recreation
VDEQ	Virginia Department of Environmental Quality
VDGIF	Virginia Department of Game and Inland Fisheries
VDHR	Virginia Department of Historic Resources
VDOT	Virginia Department of Transportation
VDRPT	Virginia Department of Railways and Public Transportation
VMRC	Virginia Marine Resources Commission
VPDES	Virginia Pollution Discharge Elimination System
VRE	Virginia Railway Express
VRRM	Virginia Runoff Reduction Method
WMATA	Washington Metropolitan Area Transit Authority
WOUS	Waters of the United States
WZO	Wetland Zoning Ordinance



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Project Information

1. PROJECT INFORMATION

The City of Alexandria (City) proposes to build the Potomac Yard Metro Station (PYMS) and associated infrastructure at Potomac Yard in the northern portion of Alexandria, Virginia. On behalf of the City, Stantec Consulting Services Inc. (Stantec) is submitting this Joint Permit Application (JPA) (Appendix A) for authorization to take non-tidal wetland impacts required for the construction of the new PYMS under a U.S. Army Corps of Engineers (USACE) Individual Permit and a Virginia Department of Environmental Quality (VDEQ) Virginia Water Protection Individual Permit. There are no impacts to tidal wetlands or other state-owned bottomlands; therefore, a permit from the Virginia Marine Resources Commission (VMRC) is not anticipated.

Impacts to jurisdictional resources resulting from the construction of the PYMS have been avoided and minimized to the greatest extent practicable, as outlined in Section 4 – Avoidance and Minimization. The City is requesting the authorization to permanently impact 0.64 acres of palustrine emergent (PEM) and 0.92 acres of palustrine forested (PFO) wetlands. The construction of the PYMS will also result in the temporary impact to 0.91 acres of PEM wetland and 1.10 acres of PFO wetland.

1.1. PHYSICAL LOCATION

The currently proposed PYMS, identified as Alternative B through the National Environmental Policy Act (NEPA) process, is located in the City of Alexandria east of the existing Metrorail tracks between the Ronald Reagan Washington National Airport and Braddock Road Stations. The area proposed for the station is bordered by the George Washington Memorial Parkway (GWMP) to the east and active CSX tracks and Potomac Avenue to the west. The site is located north of the Potomac Greens neighborhood and east of the Potomac Yard Shopping Center. The project is also bordered by Four Mile Run to the north (Figures 1 and 2). The project area drains to the Potomac River, located east of the project, within the Middle Potomac-Anacostia-Occoquan sub-basin in hydrologic unit code (HUC) 02070010.

1.2. PRIOR USE

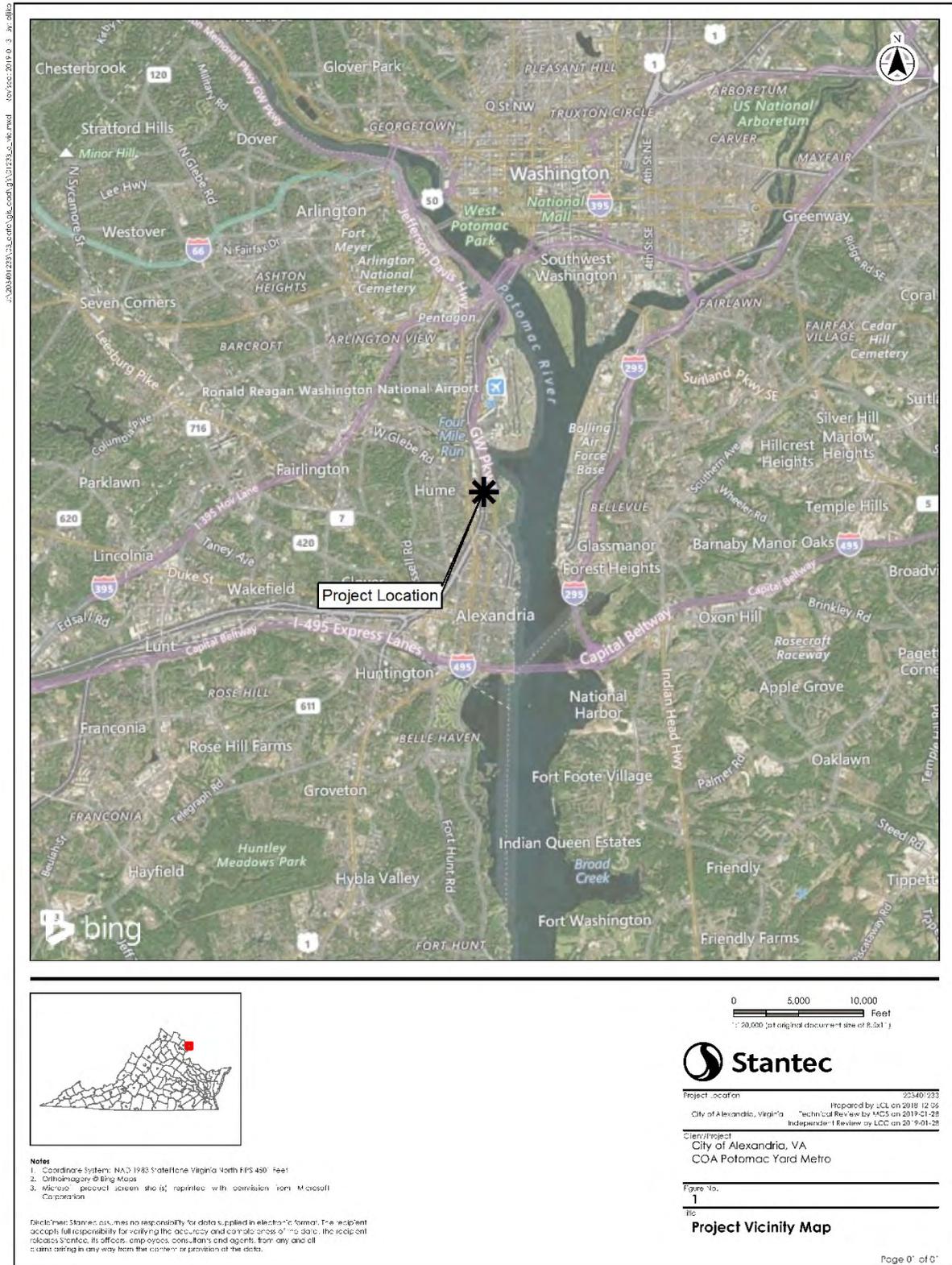
The railroads in this area were originally constructed in the mid-1800s with the first rail line built in 1857, and Potomac Yard opening in 1906, hitting its peak during World War II. The Potomac Yard, once known as the “Gateway to the South”, handled 6,000 freight cars a day on roughly 50 tracks and was one of the largest rail yards in the East. This switching yard provided a hub for hundreds of trains in the north-south corridor. Various reasons, including the growth of the interstate highway system, mergers of railroad companies, increased land prices, and the decline of industry, led to the downsizing of the yard. The use of the yard diminished in the 1980s and portions were decommissioned in 1989.

Decades of heavy industrial use at Potomac Yard resulted in soils contaminated with heavy metals and hydrocarbons, including diesel fuel. In 1995, the United States Environmental Protection Agency (USEPA) approved Richmond, Fredericksburg, and Potomac (RF&P) Railroad’s remediation plan and deemed the site cleanup complete in 1998. The City updated the Master Plan for the Potomac Yard/Potomac Greens while the RF&P Railroad assessed other uses for the land. The total area of the Potomac Yard/Potomac Greens site is 295-acres located in the northeast area of the City, bordered by Four Mile Run and the GWMP.



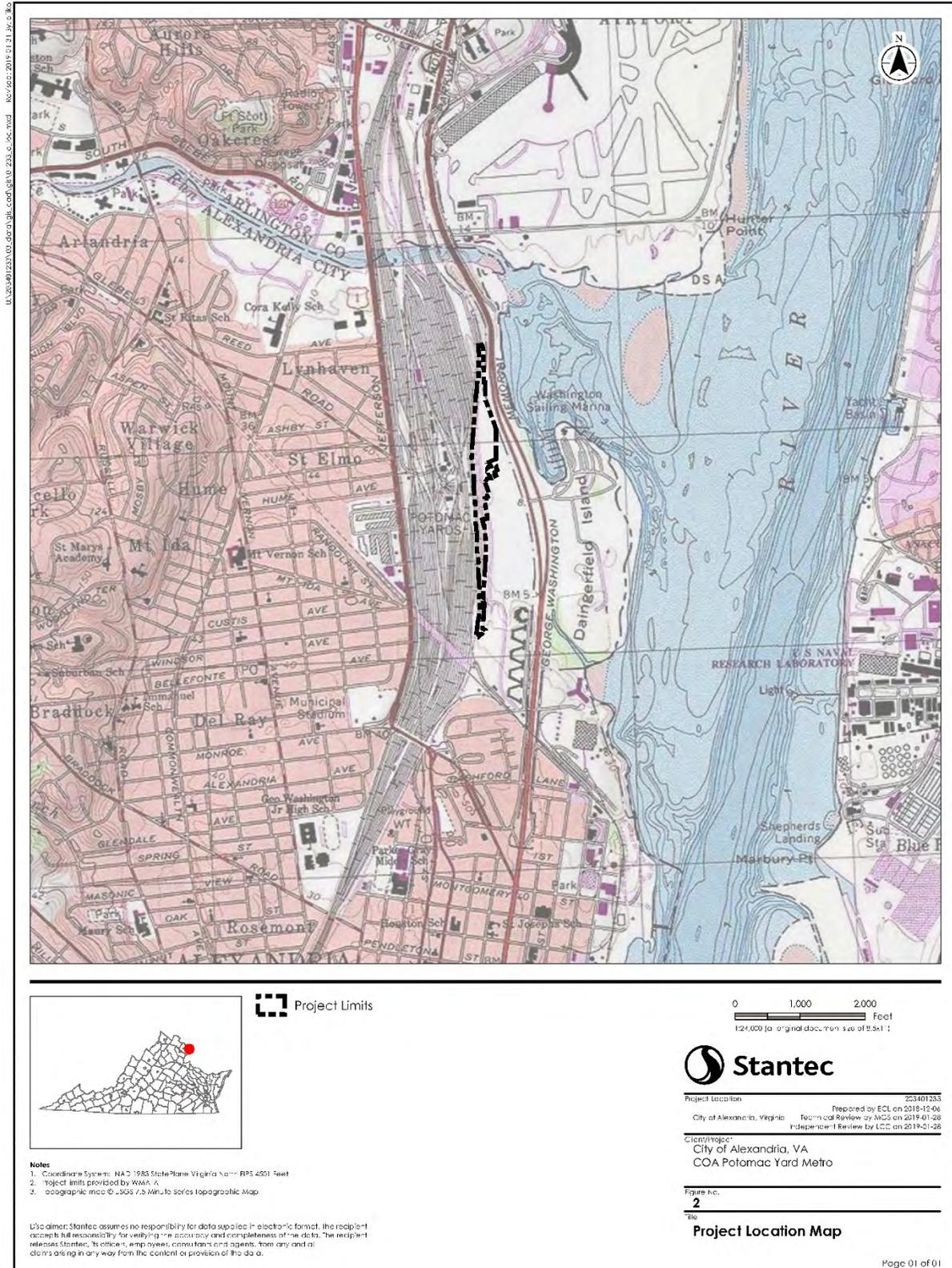
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1.2.1. Aerial Photographs

The following historic aerial photographs (Photos 1-10) of the overall area and project area document the change from railyard to urban landscape. Interim pictures show the project area containing oil separator ponds and temporary pavement during remediation activities. The area has been severely altered since the 1990's by the rail activity, remediation in the 1990's, and urban redevelopment. Photos 1 and 5 show the Potomac Yard railyard, complete with the oil separator pond, in 1988, prior to any redevelopment. Photo 6 (1999) shows the change in landscape, fill in the oil separator ponds, and a road/equipment pad in place during remedial activities. Photos 2 and 7 (2005) show the construction of Potomac Greens south of the proposed PYMS site. The road/equipment pad has been removed and the location of the oil separator ponds is still visible. Photos 3 and 9 (2015) and Photos 9 and 10 (2018) show the current condition with the park and walking loop in Potomac Greens and the walking trail in the proposed project area. The walking trail is constructed in the vicinity of one of the oil separator ponds.



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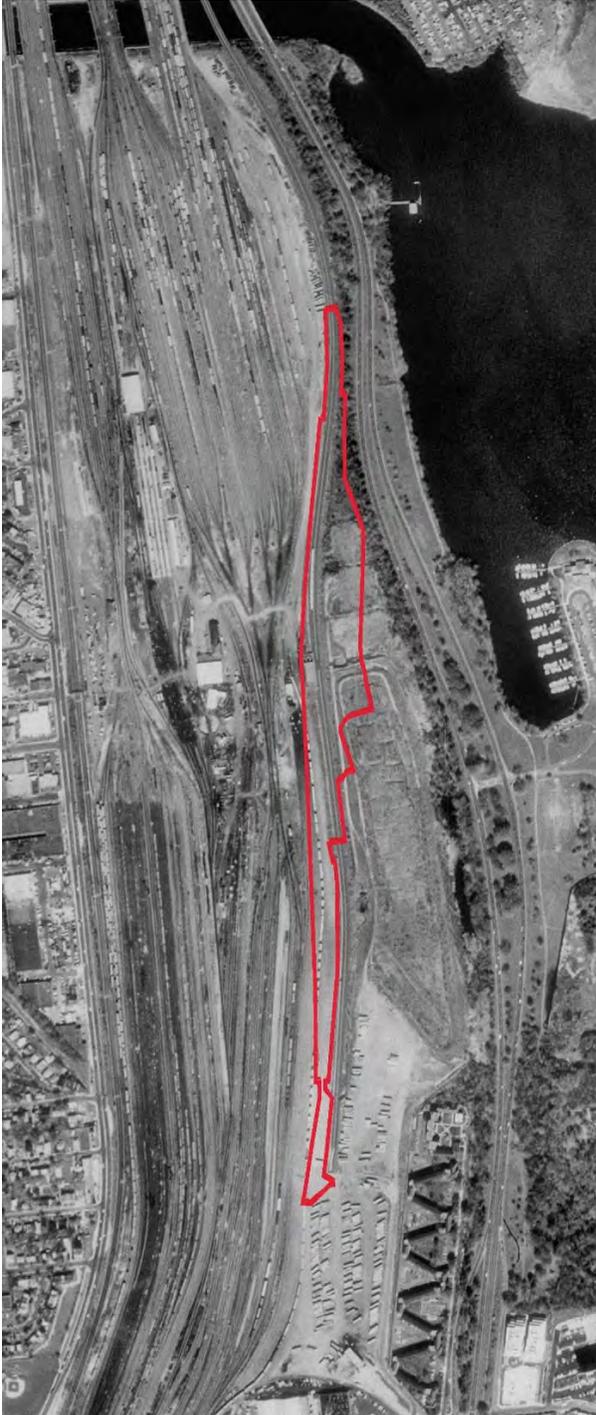


Photo 1: Aerial Imagery from 1988 Imagery © Google, U.S. Geological Survey



Photo 2: Aerial Imagery from 2005 Imagery © Google, U.S. Geological Survey, and © 2018 Digital Globe



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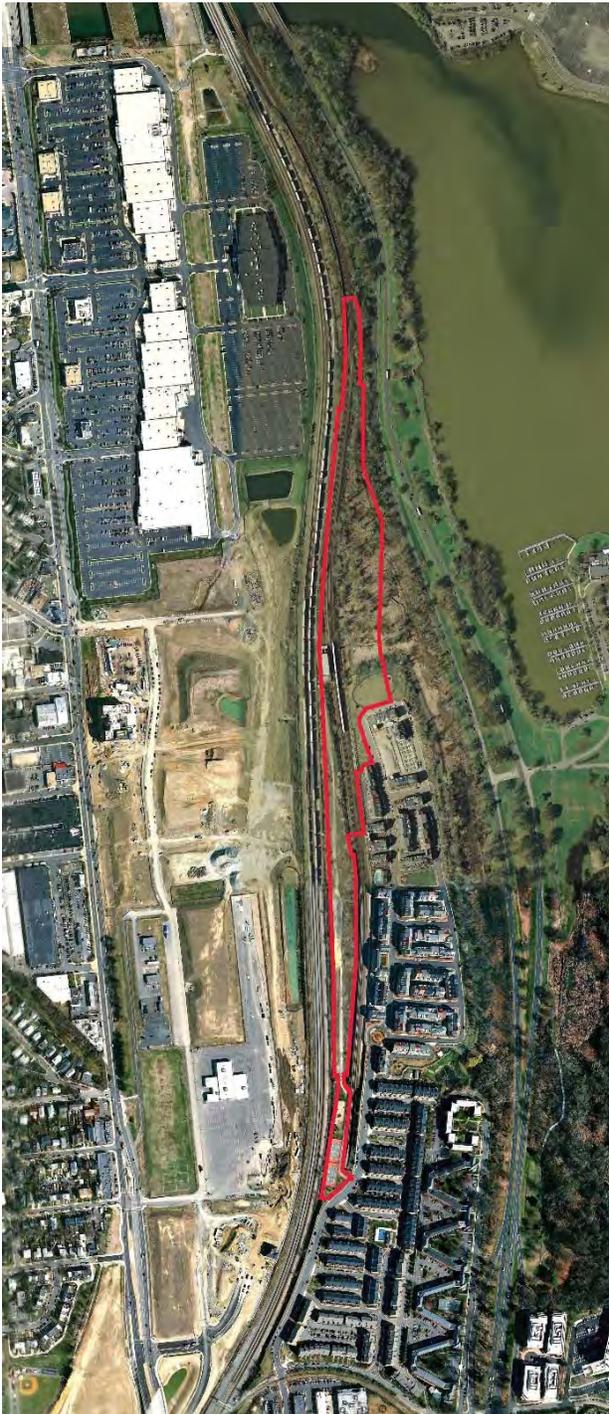


Photo 3: Aerial Imagery from 2010 Imagery © Google, District of Columbia GIS, © 2018 Commonwealth of Virginia, and USDA Farm Service Agency



Photo 4: Aerial Imagery from 2018 Imagery © Google, U.S. Geological Survey, and © Digital Globe



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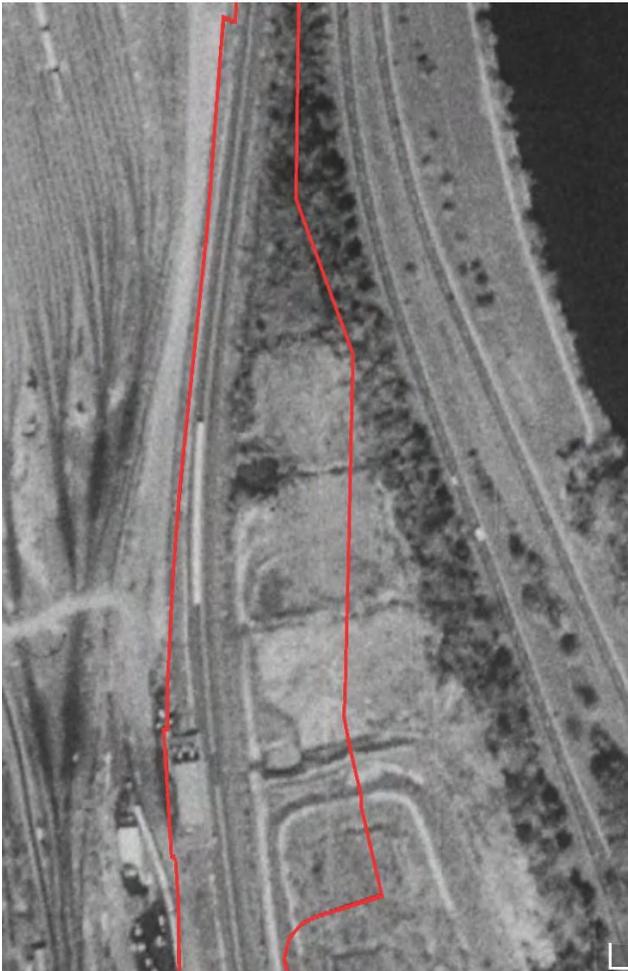


Photo 5: Aerial Imagery from 1988 Imagery © Google and U.S. Geological Survey



Photo 6: Aerial Imagery from 1999 Imagery © Google, U.S. Geological Survey, and District of Columbia



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Photo 7: Aerial Imagery from 2005 Imagery © Google, U.S. Geological Survey, and © 2018 Digital Globe



Photo 8: Aerial Imagery from 2008 Imagery © Google, USDA Farm Service Agency & District of Columbia



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Photo 9: Aerial Imagery from 2015 Imagery © Google



Photo 10: Aerial Imagery from 2018 Imagery © Google, © 2018 Digital Globe



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1.3. SITE DESCRIPTION

Potomac Yard is now a mix of existing rail facilities, commercial development, public areas, residential housing, and undeveloped areas. The approximately 17-acre area proposed for the PYMS has been altered extensively over the years as shown in the aerial photographs. The undeveloped area east of Metrorail tracks is a mix of uplands, non-tidal and tidal wetlands, interspersed with spoil piles from previous activities, and a walking trail. A discussion of the non-tidal wetlands and habitat, along with mapping of the offsite tidal wetlands, can be found in Section 5 – Environmental Resources.

1.4 PROJECT DESCRIPTION

The PYMS is located near the juncture of Potomac Yard Landbay G (Town Center) and North Potomac Yard detailed in small area plans (North Potomac Yard Small Area Plan [NPYSAP], Potomac Yard/Potomac Greens Small Area Plan [PYPGSAP]). The proposed project currently includes a 46,922-square foot Metrorail station with two platforms with access from both the east and west, two points of entry along Potomac Avenue on the west side, a pedestrian/bicycle bridge spanning the CSX rail tracks, a pedestrian/bicycle path connecting to the Potomac Greens neighborhood, an AC switchgear room, and re-alignment of the Metrorail tracks through the new station (Figure 3). While the overall station design has remained as described in the Final Environmental Impact Statement (FEIS), the southern mezzanine with its associated east and west entrances has been removed.

The design of the proposed project includes the construction of the following features:

Metrorail Station – A 46,922 square foot Metrorail station (also referred to as the mezzanine) will be constructed at-grade with a side platform layout. Design elements for the station include mezzanines, side platform, below platform service rooms, interior station lighting, mechanical and electrical services and equipment, restrooms, Washington Metropolitan Area Transit Authority (WMATA) systems equipment, and signage and graphics. The highest point of the station will be a maximum of 50-feet tall, and approximately 23-feet tall in the middle along the platform area. The station mezzanine is open-air (non-conditioned space) but uses solid, transparent enclosure of walls and roof overhangs to provide protection from the weather. The track geometry in this section of the Blue/Yellow Line is such that a side-platform configuration was chosen.

Entrance Pavilion – One entrance pavilion will be provided on the west side of the tracks for passenger access from neighborhood streets, planned development, and parks. The pavilion will be located at the base of the pedestrian/bicycle bridge. The pavilion will include escalators, elevators, and stairs for access to the bridge.

Pedestrian/Bicycle Facilities – The Metrorail station has been designed for pedestrian/bicycle access on both the east and west side of the rail tracks. There are two entry points on the west side of the tracks including a north pavilion and a southern entry ramp, as well as an access walkway on the east side of the tracks. The east side walkway will provide access from the Potomac Greens neighborhood and connect directly into the mezzanine level of the station. A single pedestrian/bicycle bridge over the CSX rail tracks will connect the entry points on the west of the tracks directly into the mezzanine level of the station. The slopes on the bridges and ramps have been set to make the facilities easily traversable by all including those in wheel chairs or pushing strollers. The bridge crossing the CSX tracks will be open-air but weather-protected and enclosed in a mesh or fence that precludes jumping or throwing of objects.

The northern pavilion on the west side of the tracks will provide access to the station from North Potomac Yard. This pavilion will be located within what is currently the Regal Theater parking lot. The pedestrian environment around this pavilion will ultimately tie into the future street grid and



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development program proposed for that area. It is expected that the pavilion will open prior to the completion of the surrounding street grid and future building development which will be completed by a private developer. Thus, temporary access will need to be provided for safe pedestrian passage to the station from Potomac Avenue, and will be coordinated with the property owner of the theater parking lot during the final site plan review.

The new southern entry ramp on the west side of the tracks is strategically located at the terminus of East Glebe Road at the intersection with Potomac Avenue and adjacent to the Landbay G Town Center in Potomac Yard. This location has a greater visibility from adjacent roadways and provides access to the station within walking distance of much of the commercial and residential development in south Potomac Yard. The ramp will permit pedestrians to walk over the CSX tracks and through the mezzanine to the Potomac Greens without having to go through any fare controls.

AC Switchgear Room – A separate building (\pm 2,750 square feet) will be constructed west of the existing Metrorail lines, and adjacent to the existing Traction Power Substation (TPS). This building is sized and equipped to fully accommodate the electric power functions of a WMATA Metrorail station and the electrically-powered third rail and track.

Stormwater Management – Stormwater quantity and quality will be addressed through a combination of proprietary and non-proprietary Best Management Practices (BMPs). These measures include Bioretention (Level 1), Hydrodynamic Devices and Underground Sand Filters.

New and Re-aligned Track – Approximately 3,750 feet of new or re-aligned track will be constructed to provide a straight section of track for the proposed station location per WMATA design standards. This new, realigned track will be constructed east of, and adjacent to, the existing Metrorail tracks. The new tracks will include several unique design characteristics such as a double crossover (special track work) approximately 100 feet north of the station that allows for trains to move from one track to the other for single-tracking operations and maintenance. An earthen berm will be constructed to support the realigned track and screen the lower part of the eastern station wall. The existing tracks and ties not needed for the proposed project will be left in place.

Access/Emergency Road – A 22-foot wide access road will be constructed extending from Potomac Yard Drive to provide maintenance, employee, and emergency access. The road is sized to allow fire trucks and emergency equipment access and based on City code.

Parking – There is no new parking associated with this facility. There will be no Kiss & Ride area, short-term parking, parking lot, or parking structure. This facility is designed based on pedestrian and bicycle traffic.



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1.5 SCHEDULE

The design/build contractor was selected on September 10, 2018. The tentative schedule for design and construction is below.

General Construction Schedule - Tentative				
Start		End		Description
Quarter	Year	Quarter	Year	
3 rd	2018	2 nd	2019	Permitting
3 rd	2018	3 rd	2019	Design
2 nd	2019	3 rd	2019	Fill and Surcharge
3 rd	2019	3 rd	2020	Concrete
3 rd	2020	1 st	2021	Steel Erection
1 st	2021	4 th	2021	Finishes
3 rd	2021	1 st	2022	Environmental Restoration
1 st	2022	1 st	2022	Complete Work



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Purpose and Need

2. PURPOSE AND NEED

2.1 PROJECT PURPOSE

A project purpose and need were developed by WMATA for the Draft EIS (DEIS) and FEIS during the NEPA process. The FEIS states the project purpose as:

“to improve local and regional transit accessibility to and from the Potomac Yard area adjacent to U.S. Route 1 corridor for current and future residents, employees and businesses.”

For purposes of Section 404 permitting, Section 230.10(a)(2) states that “an alternative is practicable if it is available and capable of being done after taking into consideration cost, existing technology, and logistics in light of the *overall project purpose*.”

In light of this, the *overall project purpose* was refined and clarified to more specifically describe and enumerate the needs of the City and region, to address WMATA technical specifications and program requirements, and to document the cost, existing technology, and logistics as well as environmental constraints:

“To maximize access to local and regional transit to and from the Potomac Yard area along the U.S. Route 1 corridor for *the greatest number of* current and future residents, employees, and businesses *in support of currently proposed and anticipated development in the area over the next several decades* consistent with the adopted North Potomac Yard Small Area Plan, *without excessive disruption of the current rail services while providing for the safety of workers and the general public.*”

Screening criteria by which the four (4) build alternatives identified in the FEIS will be evaluated include Availability (ownership, purchase of land), Constructability (capability of being done), Cost, and Logistics (constraints, safety, existing infrastructure, zoning/planning) along with Ridership (number of public served), Service Disruption, anticipated future growth, and environmental resources.

2.2 PROJECT NEED

The project need is based on planning and development which began in the mid-1980s to replace the rail yard and continuing through the Potomac Yard Metrorail Station Concept Development Study (2010). Metrorail system plans in 1968 and 1975 identified Potomac Yard as a future station site. A complete list of planning studies included in the EIS process can be found in the DEIS/FEIS. Major points defining the need for the PYMS at this location include:

- This rapidly growing urban area does not have direct access to regional rail transit services, which would provide frequent, high-speed, and all-day services across multiple jurisdictions.
- Forecasted growth for Alexandria is 35% over the next 30 years with a forecasted employment growth of 46%.
- This area is targeted for growth and development as part of the City’s master plan, including the NPYSAP (2010, 2017), Oakville Triangle/Route One Corridor Vision Plan (2016) and the Potomac Greens Small Area Plan and Coordinated Development District (CDD) Concept Plan (1992, Amended 1999, 2005, 2007, 2008, 2009, 2010).
- Increasing the share of rail transit trips would help manage congestion and emissions in the Route 1 corridor.
- Additional transportation options are needed to support the City’s master plan.



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- Due to the constrained capacity of the roadway network, additional transportation options are needed to accommodate travel demand through rail transit and other non-auto modes.
- The distance between the Braddock Road Metrorail Station and the National Airport Metrorail Station is over 3 miles, making it the longest segment of track inside the beltway without a station.
 - Local residents, shoppers, and workers are not within a walkable distance to either existing Metrorail Station.
 - A distance of 0.25 mile is often used as an acceptable walking distance in U.S. research studies
 - Provide Metrorail access for the existing and anticipated development in the Potomac Yard area.

2.3 BACKGROUND AND HISTORY

The redevelopment of Potomac Yard began when interest in the railyard began to diminish and planning continues as an ever-evolving process. The former railroad yard is linear in nature and contains two main parcels, Potomac Yard and Potomac Greens, divided by a 120-foot wide railroad corridor running through the tract. The City's vision is documented in a series of small area plans that divides Alexandria into unique neighborhoods, each with its own character and development goals. Each plan was created with the involvement of the community and multiple opportunities for public review and input. The following discusses the planning process for Potomac Yard and the integral Metrorail station and provides background for the decision to place a Metrorail station in this location.

2.3.1 Planning, Zoning, and Approvals

On June 13, 2017, City Council approved the Planning Commission recommendation to adopt NPYSAP Update, amending the Plan approved in 2010. The adoption came after a 12-month community engagement process facilitated by the Ad Hoc North Potomac Yard Advisory Group. The 2010 NPYSAP, containing CD) #19 and Landbay F, established the vision and guiding principles for the redevelopment of the approximately 70-acre site as a sustainable, mixed-use, walkable community oriented around the construction of the PYMS, and established the framework to determine funding sources for the PYMS and potential phasing options for redevelopment of the Plan area.

Similarly, the PYPGSAP was created in 1992 and outlined the overall plan for redevelopment of the railyard. This plan has been revised, amended, and updated in 1995, 1999, 2006, 2008, 2010, 2011, 2012, 2013, 2016, and 2017. PYPGSAP incorporates the Metrorail station within the land-use concept plan. The proposed PYMS site fits within the conceptual framework of the small area plan and supports the plan's objective "to encourage redevelopment of Potomac Yard and Potomac Greens as a pedestrian oriented urban environment with a mix of uses". Furthermore, the current location of the Metrorail station will be closer to planned commercial uses in Potomac Yard, which better aligns with the small area plan's goal "to develop livable neighborhoods and successful commercial areas". References and links to all small area plans can be found in Section 8 - References.

2.3.2 National Environmental Policy Act

Compliance with the NEPA is required if there is federal funding or a federal action necessary for a project. The PYMS will use federal funding mechanisms for the construction of the station and federal action is necessary from the Federal Transit Authority (FTA) for approval of construction. As such, WMATA and the City, along with FTA and the National Park Service (NPS), completed the NEPA process, resulting in the approval of a DEIS and FEIS, a Section 4(f) document to address impacts to



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park and recreational property, a Section 106 process to address historic and cultural resources, and Record of Decision (ROD) from both the FTA and NPS. References and links to all NEPA documents can be found in Section 8 – References and are incorporated by reference into this JPA. Through the NEPA alternatives screening process, the DEIS reviewed in detail a No Build Alternative and four build alternatives, referred to as Build Alternative A, Build Alternative B, Build Alternative B-CSX Design Option, and Build Alternative D. Figure 4 outlines the original study area used in the NEPA process.

The City Council selected Build Alternative B, Option 2 Construction Access (no construction access from the GWMP) as the Locally Preferred Alternative. Prior to consideration by the City Council, the project was reviewed by City staff, boards, and commissions, and the Council held its own public hearing on the project. The City Council resolution stated that Build Alternative B was the best alternative to support the high-density mix of uses envisioned for North Potomac Yard, adjacent communities, and realizing the transportation, economic development, and fiscal benefits of the project to the community.

FTA, as the lead federal agency, determined that the FEIS Build Alternative B is the preferred alternative. FTA also supports the City's Locally Preferred Alternative B because it would best meet the project purpose and need by providing a new direct access point to the regional transit system and maximizing potential transit ridership. This would facilitate the shift of automobile trips to other modes and provide accessibility to the regional transit system for the greatest number of area residents and employees. The FTA determined in its ROD that the Build Alternative B is also the environmentally preferable alternative in accordance with 40 CFR 1505.2 as it best meets the purpose and need while providing the environmental benefits to the GWMP through the Net Benefits Agreement with NPS (Appendix C).



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2.3.3 National Park Service

The NPS was a cooperating agency in the NEPA Process. NPS owns the GWMP and administers an easement, the Green Scenic Area Easement (GSAE), both of which will be impacted by the project. Minimizing and mitigating for impacts to the GWMP and GSAE were a high priority to the NPS during the NEPA phase. The PYMS requires permanent use of approximately 0.16 acres and temporary use of 0.55 acres of the GWMP, as estimated in the D/FEIS. It also requires permanent use of approximately 1.71 acres and temporary use of 3.09 acres of the GSAE. To document the mitigation measures that will be implemented to minimize and mitigate harm to the GWMP and GSAE, NPS and the City signed the Net Benefits Agreement on November 1, 2016. This agreement specifies details of the land exchange, the minimization and mitigation of the visual impact to the GWMP, and the City's financial contributions to the Compensatory Mitigation Fund. The NPS also issued a ROD for the project dated November 1, 2016 which further details the selection of the preferred alternative and outlines specific measures to minimize impacts to wetlands including an evaluation of the site's pre- and post- hydraulic and hydrologic conditions to demonstrate that wetlands should succeed after construction. Lastly, the NPS issued a Special Use Permit (SUP) for the development of the project in Fall 2018.

Section 4(f) of the United States Department of Transportation (USDOT) Act of 1966 prohibits the FTA and other USDOT agencies from using land from publicly owned parks, recreation areas (including recreational trails), wildlife and water fowl refuges, or public and private historic properties, unless there is no feasible and prudent alternative to that use and the action includes all possible planning to minimize harm to the property resulting from such a use. After extensive study and analysis, it was determined that there was no feasible alternative that meets the purpose and need of the project that does not affect publicly owned park and recreational facilities. The PYMS location and design was approved during the 4(f) analysis and mitigation measures were included in the Net Benefits Agreement (Appendix C).

Design-Build Process

The PYMS is using a design-build process with WMATA as the lead agency. The design-build process allows for enhanced design and construction integration and project economic efficiency. Since the original approval of the station, WMATA went through its contractor assessment process to select a design-build team. Potomac Yard Contractors (PYC) was selected to design and build the station. Other members of the design team include the architecture firm of Leuterio Thomas and the civil engineering firm Arup Group. Now that the preliminary Development Special Use Permit (DSUP) (Appendix D) was approved on December 15, 2018 by the City Council, PYC will advance the approved preliminary design to a final design phase and then, upon permit issuance by the regulatory agencies, implement the construction of the PYMS. City staff will continue to work with WMATA and PYC to ensure the final design adheres to the City's criteria and vision. PYC is required to obtain all necessary permits and approvals from the City and other agencies. Construction of various components of the station will be initiated as final approvals are achieved through the City's Final Site Plan Review and Building Permit processes.

Revised Station Design

The original DSUP approval of the PYMS was granted by City Council on June 28, 2016. Based on the original bids exceeding the anticipated budget, the City decided to reduce the scope of the station design from the concept included in the D/FEIS. The bidders were asked to remove the station's southern mezzanine and the associated south entrances from both the east and west sides of the rail corridor specific elements to bring the respective bids within the revised \$320 million budget. The choice to eliminate the southern mezzanine and associated entrances was based on the projected higher ridership from the area closest to the northern entrance at the future buildout of North Potomac Yard.



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Amazon Headquarters / Virginia Tech Innovation Campus

Although the Amazon Headquarters and Virginia Tech Campus locations in the vicinity of the PYMS were recently announced, neither project was known or considered during the planning process that began in 2015 with the project evaluation in the DEIS. The City's intent has been to attract businesses such as these through the development of the small area plans for Potomac Yard. The arrival of these entities is in response to the regional planning efforts in housing, retail, and transportation. Neither Amazon nor Virginia Tech are the driving factors for this Metrorail Station, but both will benefit from the planning, zoning, and vision of the City over the past 25 years.

The Commonwealth of Virginia entered into a Memorandum of Understanding (MOU) with Amazon on November 12, 2018. The MOU provides that the Commonwealth will make available a maximum of \$295 million available in non-General Funds to fund five transportation projects in accordance with a funding schedule set forth within the MOU. One of the transportation projects includes \$50 million for the Potomac Yard Southwest Entrance, which was included in the MOU because of the expected transit ridership related to the Amazon headquarters and the \$1 billion Virginia Tech Innovation Campus, which is proposed for a site southwest of the Metrorail station.

Several alternatives are under consideration for the Southwest Entrance, none of which are located within jurisdictional resources (Appendix E – Potomac Yard Metrorail Station Project; Slideshow; 1/12/19). All alternatives involve property west of the station, while the jurisdictional resources are east of the station.



3. ANALYSIS OF ALTERNATIVES

Prior to the development of this JPA, this project was subjected to an exhaustive review by FTA, NPS, WMATA, and the City under the NEPA and other relevant environmental statutes. This review included the completion and approval of a DEIS/FEIS, a Section 4(f) document to address impacts to park and recreational property, and a Section 106 process to address historic and cultural resources. Conclusions and commitments resulting from the NEPA process are documented in RODs from the NPS and FTA. Through this process, FTA, NPS, WMATA, and the City took a hard look at the environmental consequences of Build Alternatives B, A, B-CSX Design Option and D. The agencies concluded that Alternative B is the Preferred Alternative under NEPA.

An alternatives analysis has been conducted for this JPA that builds on and incorporates by reference the extensive environmental review and alternatives analyses that were memorialized in the documents referenced above. The objective of this analysis is to document the review of a reasonable range of alternatives and to identify the least environmentally damaging practicable alternative (LEDPA) in accordance with the USACE's Section 404(b)(1) Guidelines, 33 C.F.R. Part 230, and the VDEQ's Virginia Water Protection Permit Program Regulation, 9 VAC 25-210. For the reasons outlined in this section, this alternatives analysis concludes that Alternative B also is the LEDPA.

A comparison of the impacts associated with each build alternative (and the No-Build Alternative) at the time of the DEIS / FEIS are summarized in Attachment H of the FTA ROD (Section 8 – References). References and links to all NEPA documents are in Section 8 - References.

3.1 SUMMARY OF ALTERNATIVES EVALUATION AND SCREENING

3.1.1 Initial Screening Process

Through the NEPA scoping process, a range of 36 initial alternatives were evaluated and screened to select those that were potentially responsive to the project's purpose and need, consistent with land use and development plans, and technically feasible. This review was described in detail in the DEIS, Section 2.2 *Screening Process*, the 2011 *Initial Screening of Alternatives* technical report, and the 2012 *Refinement of Alternatives, Constructability, and Construction Staging* technical report (Figure 5 – Initial Screening). As the alternatives were refined, 11 Metrorail station location alternatives were considered, with each including an underground, at-grade, and aerial option. These alternatives were identified as A, B1, B2, B3, C1, C2, D1, D2, D3, E1, and E2. In addition, a Virginia Railway Express (VRE) Station alternative, a bus alternative, and a parking garage alternative were also considered. All alternatives were first reviewed on the consistency of the alternative meeting the goals and objectives of the purpose and need of the DEIS. Through the initial screening, the following alternatives (underground, at-grade and aerial options) were determined to be consistent with the goals and objectives of the project's purpose and need: A, B1, B2, B3, C1, C2, D1, D2, and D3. Alternatives E1 and E2 and the VRE station, bus, and parking garage alternatives were eliminated from further consideration (Figure 6 – Alternatives From EIS).

The remaining 27 alternatives were reviewed based on the consistency of each alternative with the North Potomac Yard Small Area Plan (2010) and the Potomac Yard CDD (CDD #10) Concept Plan (approved 1999, updated 2010). Alternatives A, B1, B2, and B3 (underground, and at-grade, and aerial options) met the criteria for consistency with land use and development plans. Alternatives C1 and C2 underground and aerial station options and Alternatives D1, D2, and D3 underground and aerial station options were consistent with the criteria. The Alternatives C1 and C2, at-grade station options and Alternatives D1, D2, and D3 at-grade stations options, which would require new track alignments or impacts to planned development, were not consistent with the plans and were eliminated from further consideration.



POTOMAC YARD METRORAIL STATION

Analysis of Alternatives



FIGURE 5. INITIAL SCREENING PROCESS RESULTS (FROM DEIS)



POTOMAC YARD METRORAIL STATION

Analysis of Alternatives

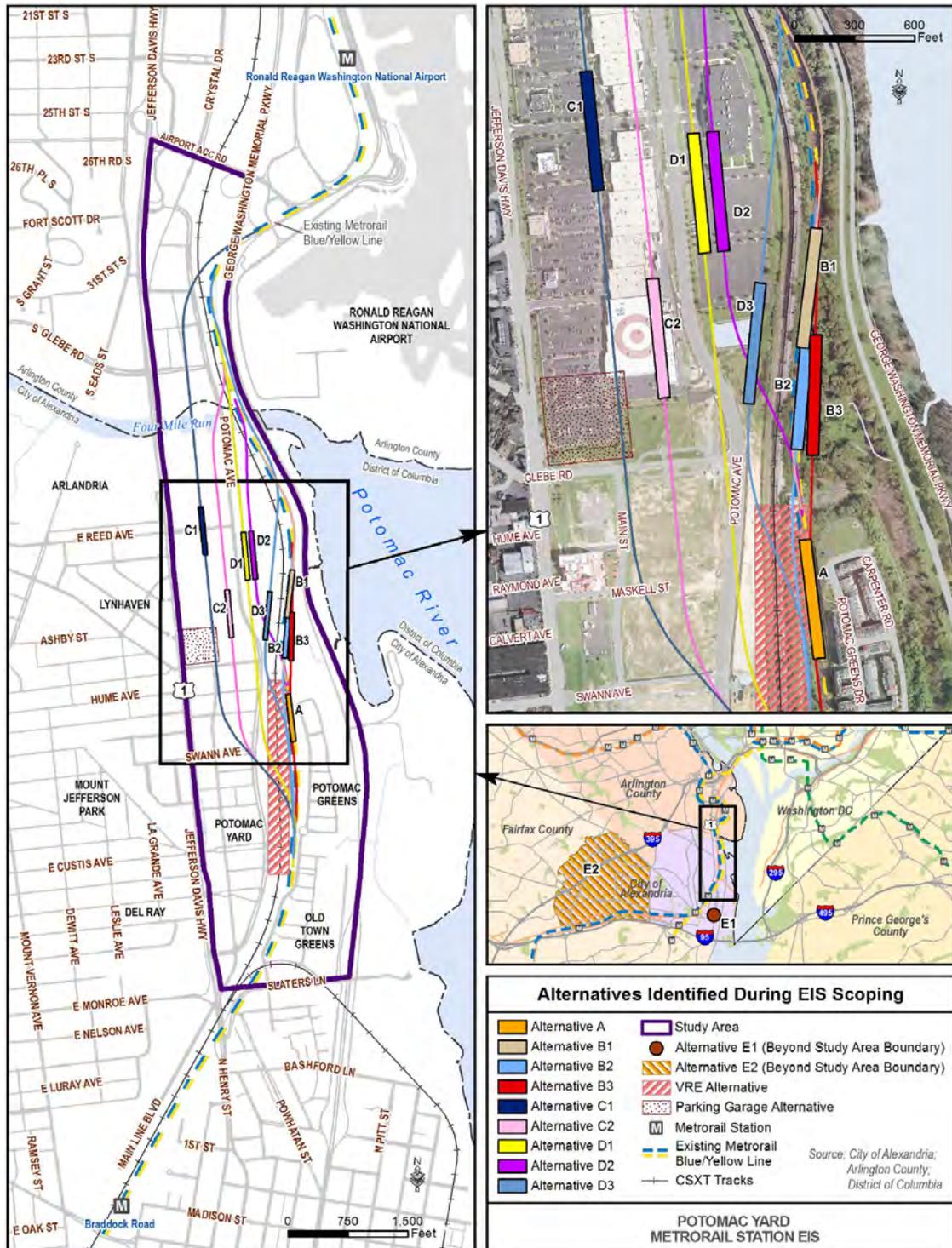


FIGURE 6. ALTERNATIVES FROM DEIS



POTOMAC YARD METRORAIL STATION

Analysis of Alternatives

Each of the remaining 22 alternatives (Alternative A, B1, B2, B3 underground, at-grade, and aerial station options and Alternatives C1, C2, D1, D2, D3 underground and aerial station options) were analyzed for technical feasibility. An engineering design of each of these alternatives was developed to approximately 5% design. Rail engineers conducted a technical feasibility analysis which evaluated the alternative for compliance with design criteria as they apply to maximum allowable track speed, horizontal and vertical alignment geometry, horizontal and vertical clearance requirements and constructability/construction phasing requirements, as detailed in the current adopted WMATA Manual of Design Criteria, Release 9 (2008) and relevant CSX Criteria. Through this analysis only five alternatives (Alternatives A, B1, B2, and B3 at-grade station options and Alternative D3 aerial station option) were found to preliminarily meet the constructability, vertical clearance, and horizontal clearance requirements. Those alternatives were therefore carried forward for further evaluation.

The five build alternatives were further reviewed to identify station design and configurations based on the following considerations: regulatory requirements; impact to community resources and planned development; and environmental considerations. The screening process determined that there could be numerous variations in the precise layouts and locations of these five general alternatives. Therefore, consolidated "feasible station zones" that could accommodate Build Alternative A (consisting of Alternative A at-grade); Build Alternative B (consolidating Alternatives B1, B2, and B3 at at-grade), and Build Alternative D (consisting of D3 aerial) were identified for further analysis. These alternatives were developed in more detail for evaluation in the DEIS.

Following the screening process, cooperating and participating agencies suggested three additional alternatives that potentially could reduce the apparent environmental impacts of Alternatives A, B, and D. These alternatives included the CSX Realignment Alternative (also called Alternative B-CSX Design Option), the New Ferry Service Alternative, and the Streetcar Service Alternatives. These additional alternatives were subjected to the same screening process that was applied to the initial set of alternatives during the scoping process, as described in the FEIS, Section 2.2.3. Of those three alternatives, the B-CSX Design Option was identified as a reasonable alternative and was carried forward for further review in the DEIS.



POTOMAC YARD METRORAIL STATION

Analysis of Alternatives



FIGURE 7. FOUR BUILD ALTERNATIVES

3.1.2 Summary of the Four Build alternatives Presented in the DEIS

The DEIS includes analyses of Build Alternatives A, B, and D, the B-CSX Design Option, and a No-Build Alternative. All build alternatives were proposed to include standard station elements for an urban Metrorail station without Park & Ride or off-street Kiss & Ride facilities. The City is required to construct a bicycle and pedestrian bridge over the CSX Railroad and Metrorail Line to provide 24-hour access between the Potomac Greens and Potomac Yard neighborhoods whether or not a Metrorail station is built in this area. During the study period, Alternatives A and B each included two pedestrian access bridges over the CSX right-of-way, one at each end of the station allowing the City to utilize one of the station's access bridges to provide this required pedestrian and bicycle connection and integrate the bridge into the design of the Metrorail station.

For Alternatives A and B, the DEIS considered two construction access options: one with access from the GWMP (Option 1) and the other through Potomac Greens (Option 2). That analysis allowed FTA to understand the potential construction impacts of Alternatives A and B associated with Option 1, even though NPS policy and federal regulations prohibit commercial vehicles on the GWMP if another option is available.



POTOMAC YARD METRORAIL STATION

Analysis of Alternatives

Alternative B-CSX Design Option is a design refinement of Alternative B, which shifts the CSX tracks and provides two pedestrian access bridges over the CSX right-of-way, one at each end of the station. Alternative B-CSX Design Option and Build Alternative D were located too far away from the Potomac Greens neighborhood to integrate the pedestrian and bicycle bridge into the design of the station. Pedestrian access would not be provided to Potomac Greens under the Alternative B-CSX Design Option as part of this project but would be developed as a separate project by the City. Alternative D did not include a pedestrian/bicycle bridge over the CSX right-of-way between Potomac Greens and Potomac Yard; this would need to be completed as a separate project by the City.

For each station, passengers would enter the station at the mezzanine level, which would include a station manager's kiosk, fare gates, and fare vendors. Service and ancillary rooms required for electrical, mechanical, and plumbing services would be located between the mezzanine and platform levels for Alternatives A, B, and B-CSX Design Option and at the same level as the mezzanine for Alternative D.

3.2 ALTERNATIVES ANALYSIS REVIEW CRITERIA

An alternatives analysis was conducted for this JPA that builds on and incorporates by reference the extensive environmental review and alternatives analyses that were memorialized in the DEIS and FEIS and Section 4(f) Evaluation. Potential alternatives that were screened through the DEIS process and found to be infeasible or inconsistent with the project purpose have not been carried forward. To conduct the alternatives analysis for this JPA, the four build alternatives and the No-Build Alternative from the DEIS were evaluated to determine if the alternative is practicable, meaning that they are available and capable of being implemented taking into consideration cost, existing technology, and logistics, in light of the overall project purpose as stated in Section 2 – Purpose and Need. More specifically, this analysis was completed for each potential alternative using the following criteria:

- Practicable Alternative Considerations and Criteria
 - Track and Station Design Standards
 - CSX Right-of-Way and Operations
 - Constructability
 - Land Acquisition and Relocations
 - Cost
 - Financial Feasibility Analysis
- Ability to Meet the Overall Project Purpose
 - Maximum Access to Station
 - Consistency with Plans and Development
 - Disruption of Current Rail Services
 - Safety of Workers and the General Public
- Relative Environmental Impacts
 - Wetlands and Water of the United State
 - Noise and Vibration
 - Threatened and Endangered Species
 - Floodplain
 - Resource Protection Area (RPA)
 - GWMP and Other Historical Resources

The following provides a discussion of how the four build alternatives and the No-Build Alternative relate to the practicable alternative considerations and criteria, the ability to meet the overall project purpose, and the relative environment impacts listed above. The LEDPA summary, based on the review of this criteria is discussed in Section 3.4.



POTOMAC YARD METRORAIL STATION

Analysis of Alternatives

3.2.1 Practicable Alternative Considerations and Criteria

3.2.1.1 Track and Station Design Standards

WMATA maintains design criteria for track and station planning and design in addition to strict policies on operations and maintenance. All build alternatives considered were assessed based on design criteria, construction methodology, and operation and maintenance of the existing tracks and services. For example, WMATA policy requires that Metrorail lines not be shut down for longer than a three-day weekend (76 hours) (WMATA Manual of Design Criteria 2016). The design boundaries were determined by the ability to construct new track with sufficient length of tangent to tie the new track back into existing track without requiring the Blue and Yellow lines to be out of service for longer than 76 hours at one time.

The criteria each station needs to meet includes:

- Maximum of 4% grade on mainline tracks into and out of station
- Maximum radius of curvature on mainline tracks is 755 feet approaching station
- 750 feet of tangent track
- Grade in station is 0.20% to 0.35%

Alternative B alignment would require the following track work:

- Track realignment, involving an approximately 500 to 1,000-foot shift of existing track (double track);
- Installation of approximately 1,300 feet of proposed new track (double track); and
- Removal of approximately 1,300 feet of existing track (double track).

Alternative B was a build alternative that would be built off-line and outside of the active rail corridor, which means that the track and station construction work would take place in an area segregated from active Metrorail or CSX train traffic. Vertical alignment of the new track would be at the same elevation (+/- 4 inches) as the existing Metrorail track alignment. The majority of the track work would be done off-line. Special track work (to include construction of a double crossover) would be located approximately 100 feet north of the station.

Alternative A station location was determined by the amount of existing straight track available to accommodate the station. Only minimal track realignment would be required within the station area and in special track work areas, including construction of a double crossover, located approximately 900 feet south of the station. However, the lack of track realignment needed is because this alternative must be built on-line, which means that the station would be constructed over and around the existing Metrorail tracks while the line is in operation.

The challenges presented by on-line construction of the station outweigh the minimal track work associated with this option. Traditional construction techniques cannot be safely employed at the Alternative A location because of several track geometry constraints including the existing WMATA Traction Power Substation's proximity to the CSX tracks at the north end of the proposed station site that precludes creating an off-line bypass (a "shoo-fly") to divert train traffic around the station construction site. As detailed in the Constructability section below, the construction of Alternative A was evaluated as a feasible alternative during the NEPA process based on the assumption that a protective structure would be constructed over and around the existing railroad to allow Blue/Yellow Line train traffic to continue during the construction of the station. Using the protective structure to construct Build Alternative A would significantly increase the length of time it takes to construct the station because many of the major construction activities could only be completed during weekend shutdown periods. The Project Team estimates that constructing Build Alternative A would require 48-weekend shutdowns. The overall station design would reflect the need for the protective shell, allowing enough room around the shell for the construction of the platforms and structures.



POTOMAC YARD METRORAIL STATION

Analysis of Alternatives

Alternative B-CSX Design Option would require major track work, including the relocation of the CSX tracks to the west to provide the room necessary for the station and realigned Metrorail tracks to avoid GWMP property and the Greens Scenic Area easement. B-CSX Design Option would relocate the CSX tracks to the west of the existing line, straightening the alignment and eliminating the eastward curve of the existing CSX line from a point near the intersection of Potomac Avenue and East Glebe Road to a point just north of the existing Potomac Yard Movie Theater. The track design would maintain the WMATA and CSX design standards for minimum clearance (50 feet) between the Metrorail facilities and the CSX tracks and design standards for vehicle operating speeds along the relocated tracks. The design option also included crossover tracks just north of the station to maintain operational flexibility. B-CSX Design Option would leave adequate room to accommodate planned improvements to Long Bridge, a railroad bridge located to the north of the project study area.

Alternative D station location and alignment were determined based on a number of technical factors: 1) ability to achieve the vertical clearance necessary over the CSX right-of-way; 2) maintenance of WMATA standards for minimum speeds and maximum grades; and 3) ability to construct an alternative with no service outages longer than 76 hours at any one time, as required by WMATA policy.

The Alternative D alignment would require major track work as follows:

- Realignment, involving an approximately 1,000-foot shift of existing track (double track);
- Construction of two Metrorail aerial bridges crossing the CSX right-of-way north and south of the station;
- New structures (aerial bridges) over Four Mile Run, CSX, and Metrorail tracks;
- Installation of approximately 5,600 feet of proposed new track (double track), mostly on aerial structure; and
- Removal of approximately 5,600 feet of existing at-grade track (double track).
- West of the CSX right-of-way, where the new alignment crosses the CSX right-of-way via a new Metrorail aerial structure, approaches the proposed station, and crosses the CSX right-of-way again via an additional new Metrorail aerial structure.

To position the station on the west side of the CSX right-of-way, Alternative D would require that the Metrorail alignment cross over the CSX right-of-way north of the station, and again south of the station, to tie-in to the existing alignment as it enters a tunnel below-grade. To satisfy this requirement, Alternative D would require that most of the new track be elevated and aerial structures be constructed along the alignment, including one 300 to 400-foot single-span bridge over Four Mile Run (new bridge), and multiple-span aerial structures, on relatively flat skew, over existing Metrorail and CSX tracks. Also, because it would be necessary for most of the new track to be elevated, the station would be aerial and located on an elevated structure. The station would utilize a center platform layout so that the same facilities may provide vertical circulation for riders going northbound or southbound on the Metrorail Blue or Yellow lines. Special track work (to include construction of a double crossover) would be required approximately 100 feet north of the station.

The **No-Build Alternative** would not require any track work.



POTOMAC YARD METRORAIL STATION

Analysis of Alternatives

3.2.1.2 CSX Right-of-Way and Operations

Potomac Yard is a major transportation corridor for CSX Transportation, which owns, maintains and operates tracks in the vicinity of the Blue/Yellow Line tracks via a permanent easement on its right-of-way. The project study area includes the CSX three-track north-south RF&P Railroad Sub-Division Mainline, which hosts 96 freight and passenger trains daily with a track speeds of 60 miles per hour (mph) for passenger operations and 55 mph for freight operations. Any changes to the Metrorail tracks will affect CSX operations to varying degrees based on the design and construction methodology. The purchase or easement acquisition of land from CSX is a lengthy, costly, and arduous task that has the potential to significantly impact the project cost and schedule, and potentially could preclude construction altogether. It is assumed that the project cost and schedule will increase in proportion to the need to acquire easements from CSX or otherwise obtain approvals from CSX to affect its operations.

Even if the project does not need to acquire land from CSX, construction activities on or in the vicinity of the CSX right-of-way have the potential to impact the project. Construction activities which occur on CSX property or within 25 feet of CSX track, or which involve construction equipment or activities that in the event of a structural or mechanical failure or other type of accident could result in disturbances within 25 feet of CSX track would be considered by CSX to have the potential to “foul the track.” When construction activities present a risk of fouling of track, CSX would require that project’s construction plans be reviewed and approved by CSX’s engineers, at significant expense to the project. CSX also would require one or more CSX flagmen on site to verify that the railroad is clear for safe passage of trains. CSX would furnish the required flagman protection services at the expense of the project, and the project team would need to remain in constant contact with the flagman when construction activities affect or have the potential to affect CSX tracks. Construction activity occurring within the foul zone of CSX track would be required to stop with equipment secured or moved clear of the foul zone within a few minutes’ notice to allow the passage of trains. Construction activities which cannot be stopped, moved in the clear and secured, within a few minutes’ notice would require a pre-planned outage of railroad operations. Pre-planned outages require several months of planning to allow CSX time to modify their operations and continue providing service to their customers, as well as other railroads that operate on their track. Timing of these outages would be at the discretion of CSX and subject to change. Outages permitted by CSX are typically no more than six hours in duration.

Alternative B would not require the acquisition of land from CSX for construction. Proposed construction access for this alternative proposed to use Potomac Greens Drive and will not require any at-grade crossing of the CSX tracks near the project area. The only required coordination with CSX will be for setting the pedestrian bridges over the CSX right-of-way. As noted above, the City is obligated to incur the expense of constructing pedestrian access over the CSX right-of-way irrespective whether the station is constructed at this location.

Alternative A would not require the acquisition of land from CSX for construction. Proposed construction access for this alternative proposed to use Potomac Greens Drive and will not require any at-grade crossing of the CSX tracks near the project area. Like Alternative B, setting the pedestrian bridges will require coordination with CSX.

Alternative B-CSX Design Option would significantly disrupt CSX, Amtrak, Metrorail, and VRE during the construction. Because Alternative B-CSX Design Option called for the station to be located on the current CSX right-of-way, the City and WMATA would have to obtain the consent of CSX, which holds a permanent easement for its existing right-of-way. Neither WMATA nor the City could use its power of eminent domain to acquire CSX’s property. Securing CSX property rights would involve extensive coordination, which would impact the overall project schedule and be extremely costly.



POTOMAC YARD METRORAIL STATION

Analysis of Alternatives

Alternative D would require an easement for two aerial crossings of the CSX tracks. Construction over the tracks would require coordination with CSX and potential track closures.

No-build Alternative would not require any land, easements, or coordination with CSX.

3.2.1.3 Constructability (Logistics, Technology, Safety)

Constructability is the factor that weighs the logistical, technological, and safety considerations of associated with the construction of the various alternatives. In this case, items such as working areas, storage areas, access routes, and type of equipment are considered. For this project, the location of the site (within an active rail corridor or outside of the active rail corridor) and whether the station can be built on-line or off-line are critical to the constructability of an alternative. For any alternative, the City will need to provide a permit to address the Noise and Light ordinance to allow construction on weekends and evenings, primarily during weekend shutdowns.

Safety is of paramount importance to the City and WMATA and is carefully considered in all activities. While standard construction activities involve many safety risks including moving equipment, ground disturbance (utilities, electricity), environmental factors, vehicular traffic, overhead equipment, and working at heights, this project adds working in or near active train movements at operational speeds as additional significant safety risks. Passenger and freight rail safety is also of critical importance. Work on or near tracks increases the possibility of track damage or impediments on the tracks, increasing the risk of a rail accident. In most circumstances, trains cannot stop in time to avoid catastrophe if the track is fouled by falling debris, equipment, or construction workers. Even a hammer dropped on the tracks has the potential to foul the tracks and cause an accident. An active rail line within the construction site will lead to significant challenges in moving both workers and equipment across the site, increasing safety risks, schedule, and costs. Similarly, cranes working over active tracks, lifting and placing large loads, increases the risk of track or train damage. Minimizing the number of and amount of time crossing of the tracks reduces the overall safety risk to both workers and passengers.

Alternative B would be located outside of an active rail corridor and is an alternative that would be built off-line. This not only reduces the required coordination with CSX and potential disruption to services, it also provides a much safer work environment for all workers during construction activities. There would be adequate space for storage, room for the haul roads needed to bring in fill material and working space for cranes and other equipment. Alternative B could be built near the existing tracks, but outside of the active train corridor allowing a larger workspace and safety buffer between construction activities and active train movements. Being built off-line allows the construction site to be secured and excluded from the public. Cranes would not be required to carry loads over active rail lines to construct this alternative, and workers would not need to operate in and around active Metrorail or CSX traffic. This alternative minimizes crossings reducing potential safety risks. Alternative B provides no significant constructability challenges.

Alternative A would be constructed on-line on active Metrorail tracks, meaning that the station would have to be constructed over and around the existing Blue/Yellow Line tracks while maintaining regular Metrorail service through the active construction site. The daily combined trips on the Blue/Yellow lines through this area ranges from 434 to 354 during the week and 232 to 330 on the weekends. This presents numerous constructability and safety challenges.

Traditional off-line construction techniques cannot be safely employed at the Alternative A location because of several track geometry constraints including the existing WMATA Traction Power Substation's proximity to the CSX tracks at the north end of the proposed station site. This structure precludes creating an off-line bypass, called a "shoo-fly", to divert train traffic around the station construction site. Construction of Alternative A was evaluated as a technically feasible alternative during the NEPA process based on the assumption that a protective structure would be constructed over and around the existing



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railroad to allow Blue/Yellow Line train traffic to continue during the construction of the station. However, that assumption was not developed any further. To further evaluate this alternative for the JPA, the project team prepared a conceptual design to evaluate whether this solution could be implemented in a reasonable, efficient, and safe manner.

Construction of a station at Alternative A would require installation of a protective structure over the tracks to protect against track fouling by materials, equipment, and personnel (Figures 8 and 9). The concept, more fully developed by the design/build project team, involves constructing a series of concrete encased steel "soldier piles" along both sides of the existing track for the entire 850-foot-long station structure. Steel beams would connect these columns longitudinally and across the tracks forming a steel frame to support a protective shell. Precast hollow core panels would then be placed on top of the steel structure, and a chain link fence would be installed on both sides to discourage fouling of the track and to avoid electrocution.

The entire structure would need to have a grounding and stray current protection system to protect against corrosion from the WMATA traction power system. All the existing signal and communication circuits would need protection during the installation of the protective structure. Once the station elements are constructed to the point that it is safe to remove the protective structure, the structure would have to be cut flush with the ground and the foundations abandoned in place. Figures 8 and 9 depict the conceptual design of this feature.

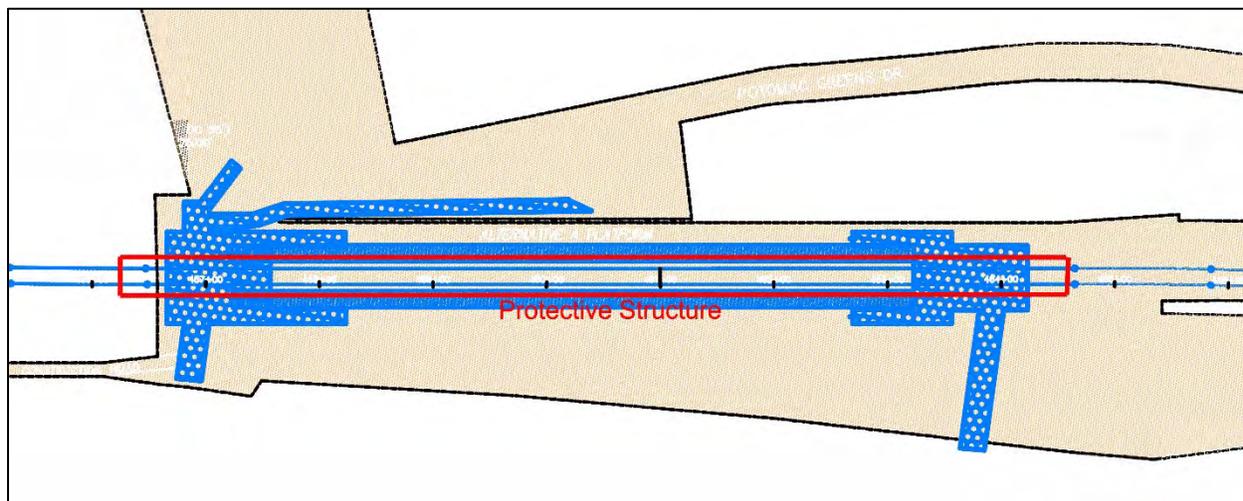


FIGURE 8. PLAN VIEW: PROTECTIVE STRUCTURE FOR ALTERNATIVE A



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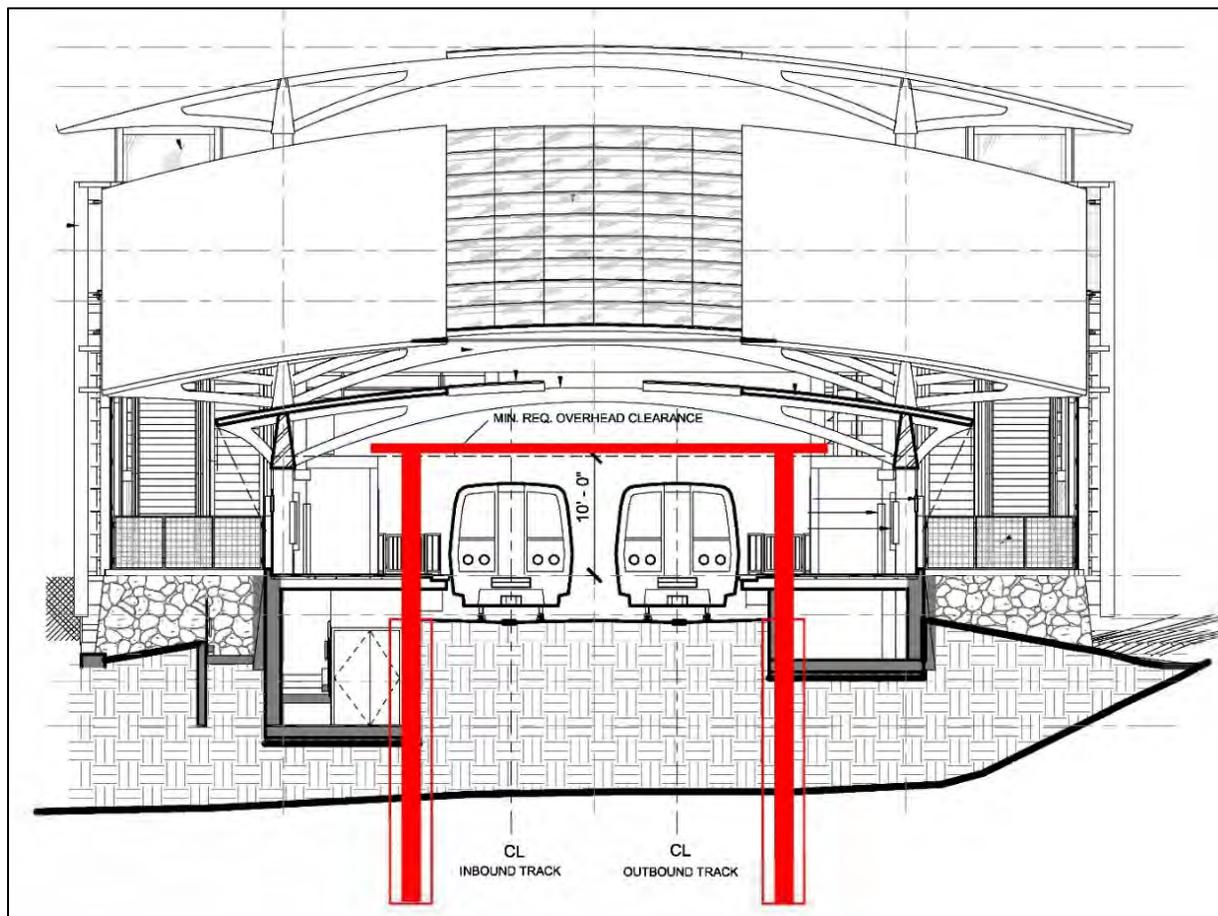


FIGURE 9. CROSS SECTION VIEW: PROTECTIVE STRUCTURE WITHIN METRORAIL STATION CONSTRUCTION

The engineering challenge for the final design and installation of the protective structure is that it would need to meet the competing objectives of being sufficiently robust to protect workers and Metrorail passengers during months of project construction while also being able to be constructed and removed in short windows during a series of planned weekend shutdowns. That tradeoff introduces certain risk to the design and function of the structure, which would need to protect both the traveling public and the construction workers at all times from unexpected accidental incidents. Certain hazards, such as the heavy lifting of large structural steel members, could not be minimized to a reasonably acceptable level even with the structure in place because these elements, if dropped, would present a significant structural failure risk. Therefore, much of the heavy lifting work for this alternative (including construction of the structure itself) would have to be completed during periods of weekend shutdowns.

The construction of this protective structure is estimated to take approximately 12 weekend shutdowns, and allowing for three weekend shutdowns allowed per month, would take 4 months to construct. Construction of the large structural elements of the station would require another 12 weekend shutdowns and take an additional 4 months to complete. Once the primary station elements are complete, it will take approximately 6 weekend shutdowns (another 2 months) to remove. Building the permanent station elements around this structure is not ideal, and certain elements (e.g., platform edges, basement walls, new tracks, systems, finishes) would need to be built after the protective structure removal creating an



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additional 18-weekend shutdowns (an additional 6 months). In total, the protective measures necessary to minimize the risks associated with building Alternative A as an on-line station are expected to add, at a minimum, an additional 16 months to the construction schedule versus a standard off-line structure.

Although Alternative A would be constructed using a protective structure the entire length of the station to separate the active Metrorail trains from the construction activities, the construction of the shell itself would be very dangerous. Workers would face two hazards. First, they would be in close proximity to the electrified third rail on both sides of the track. The third rail has 750 volts of Direct Current electricity. Direct contact with the third rail is fatal. The electricity can also kill by arcing or “jumping” over short distances. The current also would travel through any piece of equipment made of conductive material that may inadvertently touch the third rail. Second, workers would be in close proximity to trains traveling through the worksite. On an average day 434 to 454 trains use the Metrorail tracks, along with approximately 96 trains on the adjacent CSX tracks, which means trains passing every few minutes. Much of the work to build the shell would have to be performed in between the time that trains pass through the work zone. This would involve workers starting and stopping work many times each hour for train passage or conducting the work only during the prescheduled weekend closing of the Metrorail tracks for the shell construction. Any tool or piece of construction debris left on the tracks has the potential to cause train damage or a derailment.

Once the shell is built, this situation would still present numerous safety hazards that would be present for the time it would take to construct the station. The cranes would be lifting loads over the shell of the structure, increasing the possibility of damage to the shell. Workers would be separated from the trains by the shell but would still be in close proximity to moving trains and electrified tracks. The basic fact that workers, trains, and passengers would be separated by very little space and a construction shell creates an extremely unsafe and potentially catastrophic environment.

Alternative B-CSX Design Option would be built off-line within an active rail corridor. This alternative requires the construction of new CSX lines to replace the existing tracks prior to constructing the new Metrorail tracks and station, adding significant construction tasks for track relocation. CSX operations would be shifted to the three new tracks one at a time. Once the new CSX tracks were complete and CSX operations have ceased along the existing tracks, then the construction of the Metrorail station and new track could occur. The project would require access from the west side of the Metrorail and CSX tracks, utilizing Potomac Avenue. To access the area between the relocated CSX tracks and the Metrorail Line, construction access would be required via the road through the Rail Park and across the CSX tracks during temporary stoppages of CSX operations. All CSX track work would need to be complete prior to starting the Metrorail tracks and station.

In comments on the DEIS, both the VDRPT (May 4, 2015 letter) and the VRE (May 15, 2015 letter) objected to the B-CSX Design Option based on impacts to railroad operations. Letters can be found in Appendix F – Correspondence.

Alternative B-CSX Design Option involves relocating CSX tracks prior to constructing the new Metrorail tracks. This would place workers in an active railyard during the CSX track relocation. Additionally, working close to or on the CSX tracks increase the risk to active CSX trains and passengers.

As discussed above, Alternative B-CSX Design Option also presents significant logistical challenges associated with coordinating with CSX to obtain the necessary easements and approvals.

Alternative D requires the construction of an elevated track, starting north of Four Mile Run, crossing over the CSX tracks into Potomac Yard, and then crossing over the CSX tracks again to reconnect to the existing Metrorail line near the Potomac Greens neighborhood. Alternative D would require the majority of the proposed Metrorail track alignment to be constructed on retained fill added to gradually raise the tracks to the correct elevation or on an aerial structure, including two train bridges crossing over CSX



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rails. This alternative poses challenges with the construction of aerial tracks and an elevated platform including the station.

A bridge over Four Mile Run would be needed, requiring bridge abutments be constructed adjacent to Four Mile Run along with in-stream piers. A construction access easement would be required at Four Mile Run to install a temporary bridge pier that would support the new Metrorail bridge during construction. In the vicinity of Four Mile Run, access on the east side of the existing Metrorail alignment would be via the GWMP, which is not allowed by the NPS under the negotiated use permit.

At the south end of the alternative, construction of proposed inbound track would be required in a relatively tight cross-section area adjacent to the Potomac Greens and Old Town Greens neighborhoods. It is estimated that construction would require two 76-hour outages of WMATA services on the Blue and Yellow Metrorail lines. Alternative D would also require crossing, and possibly disturbing, an existing Dominion Energy below-grade utility on the west side of the CSX right-of-way at four locations.

Alternative D requires the construction of multiple aerial structures to cross over the CSX tracks twice. In addition, a bridge structure will be constructed over Four Mile Run. Construction of these structures' places worker at significant heights, increasing the fall risk to workers. Construction of structures over the tracks increase the risk of dropping tools or construction material onto the tracks below, causing damage to track or trains, increasing the risk of derailment or damage to trains and passengers. In addition, Alternative D requires construction access from the GWMP which is not acceptable to the NPS.

The **No-Build Alternative** would not involve any constructability or safety issues.

3.2.1.4 Land Acquisition and Relocations

Each alternative requires the acquisition of land from various entities; some requiring access to properties under easements. Property owners include the United States government, NPS, City, and private entities, including CSX.

Alternative B would require the permanent acquisition of 3.97 acres of property, which includes 3.30 acres of land owned by the City, 0.51 acre of land that is privately owned, and 0.16 acre of NPS parkland. Alternative B would require 1.71 acres of the Greens Scenic Area easement (owned by the United States Government and administered by NPS) based on the information in the DEIS. Acquisition of property and interests in property administered by NPS would be subject to an equal value land exchange as defined in the Net Benefits Agreement (Appendix C). CSX right-of-way acquisition is not required for Alternative B.

Alternative A, based on estimates from the D/FEIS, would require the permanent acquisition of 1.27 acres of property, which includes 1.16 acres of land owned by the City and 0.11 acre of land that is privately owned. None of the land required includes NPS parkland or the Greens Scenic Area easement. There is no CSX property acquisition required for Alternative A.

In addition to the active train issue at this location, the adjacent townhomes to the east of the existing WMATA tracks would be severely impacted by construction noise and lack of access to the rear of their units because of their proximity to the new station construction. These units may become unlivable and require relocations/compensation to the property owners for the disruption and access constraints.

Alternative B-CSX Design Option, based on estimates in the D/FEIS, would require the permanent acquisition of 14.36 acres of property, which includes 4.44 acres of land owned by the City and 9.92 acres of land that is privately owned, and would displace the existing movie theater and associated parking in North Potomac Yard. None of the land required includes NPS parkland or the Greens Scenic Area easement. The development of this alternative would require land currently owned by CSX. Based on previous experience and the lack of endorsement from CSX, the cost associated with the purchase of



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land from CSX and the amount of time required to negotiate the use of this property is considered prohibitive for the project. Furthermore, there is a reasonable possibility that CSX and the City/WMATA could not reach terms for the acquisition or that CSX could refuse to negotiate, meaning that this option may not be available. In addition, since the NEPA process was completed, the owner of the movie theater began pursuing a new redevelopment plan for the theatre location based on the City's decision to forward Alternative B.

Alternative D, based on estimates in the D/FEIS, would require the permanent acquisition of 10.04 acres of property and would displace the existing movie theater and associated parking in North Potomac Yard. The land to be acquired would include 5.55 acres of land owned by the City, 1.43 acres of NPS land in the area near Four Mile Run, and 3.06 acres of privately-owned land. The development of this alternative would require right-of-way currently owned by CSX. The cost associated with the purchase of land from CSX and the amount of time required to negotiate use of this property, roughly estimated at 18 months or more, is prohibitive for the project. In addition, the development of Alternative A would require property in the City of Arlington because of the crossing over Four Mile Run, which would extend the project from the City into Arlington. Also, since the NEPA process was completed, the owner of the movie theater began pursuing a new redevelopment plan for the theatre location based on the City's decision to forward Alternative B.

The **No-Build Alternative** would not require any land acquisitions.

3.2.1.5 Cost

Costs were assessed during the NEPA process (DEIS and #7 Technical Memo; Economic Impacts) to estimate land and construction costs based on plans developed to the same level of detail (5% plans). Those cost estimates from 2015 are shown in Table 3-1 as the DEIS costs. The other cost listed with Alternative B is the value of the contract awarded to PYC for design and construction.

TABLE 3-1. COST ESTIMATES

Build Alternative	Cost Estimate (millions)
Alternative B	\$268 (DEIS) \$213.7 (PYC Contract)
Alternative A	\$208.8 (DEIS) The cost of Alternative A is expected to be substantially higher than was estimated in the DEIS due to the direct costs and construction-delay costs associated with the required protective shell.
Alternative B-CSX Design Option	\$351.4 (DEIS) The cost of Alternative B-CSX Design Option is expected to be substantially higher than was estimated in the DEIS due to the required coordination with CSX.
Alternative D	\$492.7 (DEIS)

Alternative B has progressed to the design phase and has been awarded to a design/build team with a capital budget of \$213.7 million since the completion of the NEPA process. This budgeted amount is a



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more accurate reflection of actual construction cost than the estimate in the DEIS, which was based on a preliminary 5% design, but is nevertheless within the range of costs estimated in the DEIS for this alternative.

As the project has progressed from the NEPA phase, the City has determined that the overall budget for the PYMS is \$320 million. This budgeted amount includes all costs associated with the design and development of the project including public outreach, City and WMATA staff involvement, stakeholder coordination (including NPS and CSX), permitting, and mitigation. The difference of approximately \$100 million of additional cost between the PYC contract value and the overall budget would be comparable for all of the build alternatives.

Alternative A was considered feasible during the EIS process based on the assumption that a protective shell structure would be constructed over the existing railroad to allow train traffic to continue during the construction of the station. However, the cost estimates for this alternative did not fully evaluate the costs associated with constructing the protective structure or of trying to construct the station around that structure. The additional cost of the protective structure, working over active train system, disruption to the adjacent neighbors, and the additional project overhead for the increased construction schedule substantially increased the cost of the Alternative A Station over the cost of a traditional off-line station. Additional costs would result primarily from the (i) design, materials, and construction of the protective structure; (ii) engineering services to design the station over and around the structure; (iii) additional time (estimated to be at least 6 months) added to the construction schedule to construct station elements during weekend and night periods when trains are not running; (iv) removal and disposal of the protective structure; (v) real estate accommodations; and (vi) insurance. Therefore, the cost of Alternative A is expected to be substantially higher than was estimated in the DEIS.

Alternative B-CSX Design Option calls for the station to be located on the current CSX right-of-way, requiring the City and WMATA to obtain the consent of CSX, which holds a permanent easement for its existing right-of-way. Although CSX has not categorically ruled out the possibility of its agreement, it stated in its April 30, 2015 letter that it strongly preferred that the B-CSX Design Option not be chosen for the project due to anticipated disruption of CSX's operations. Moreover, in both the April 30, 2015 and an earlier May 28, 2014 letter, CSX set certain general conditions that must be met if any agreement were to be reached. Those conditions include reimbursement for all of CSX's costs for the relocation, including design, land acquisition, construction, and payment of passenger delay costs and penalties to Amtrak and VRE, additional pedestrian access structures, and additional undefined roadway and railroad access. The potential amount of those costs has not been determined and it is uncertain that the City could pay the necessary amount. Furthermore, negotiations could take considerable time with no certainty that an agreement could be reached (or reached at a cost-effective price). Therefore, the actual cost of implementing this alternative would likely to be substantially higher than the estimated cost in DEIS.

Alternative D was costlier to build due to the need to construct an elevated line and station. The cost was estimated in the DEIS to be 40% greater than the next lowest-cost alternative, Alternative B-CSX Design Option, and approximately twice the cost of Alternatives B and A. Due to the dramatic increase in cost over the other alternatives and fact that it exceeds the amount the City could reasonably budget for the project, the cost of Alternative D appears to be prohibitive.

The **No-Build Alternative** does not impose any costs. The City would, however, still be required to bear the cost of constructing a pedestrian and bicycle bridge over the CSX right-of-way between Potomac Greens and Potomac Yard.

3.2.1.6 Financial Feasibility

The City contracted a final report analyzing the financial feasibility for all four build alternatives dated April 2015 (Appendix G). The objective of the report was to update the financial viability of the four proposed



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build alternatives outlined in the DEIS based on the then-current cost estimates and evaluate the impacts to the Potomac Yard tax base growth in revenues, potential developer contribution, and special tax district revenues for each alternative. All the alternatives will result in an increased Metrorail operating subsidy cost to the City of approximately \$1.3 million per year, based on WMATA's Metrorail subsidy formula. This analysis assumed that the incremental subsidy requirements would be funded out of revenues generated by Potomac Yard development. Factors influencing the financial feasibility are the project cost, amount of growth in the tax district areas, final density of development build-out, developer contributions in the various landbays, and net new taxes (real property, sales, lodging, meals).

Alternative B would have positive cash flow that exceeds its debt service and operating costs with no funding gap over the forecast period. Having the highest development buildout in Potomac Yard based on the station location, Alternative B would yield the most tax revenue. Even with slighter higher 2015 estimated construction costs over Alternative A, it would yield the most net tax revenue gain over time of any alternative. Alternative B would also benefit most from developer contributions.

Alternative A would have positive cash flow that exceeds its debt service and operating costs for the entire forecast period (thru 2045), based on the assumptions used in the 2015 analysis (which did not include the protective structure). Relatively lower development buildout, based on the location of the station further from the highest ridership density, yields materially less tax revenue gain over time, but Alternative A ranked lowest among the four alternatives in cost versus revenue comparison. Alternative A has the lowest estimated cost but also results in the lowest amount of net development, suggesting a lower risk/lower reward scenario. The projected financial feasibility of this alternative is lower than projected because construction costs did not include the construction of the additional protective shell.

Alternative B-CSX Design Option would have positive cash flow that exceeds its debt service and operating costs with no funding gap over the forecast period because it includes three additional years of development and construction. It had a higher cost to construct than Alternatives A and B and produced more net tax gain than Alternative A but materially less net tax gain than Alternative B. Loss of significant development opportunity due to the relocation of the CSX tracks onto developable property contributed to this lesser tax gain. The higher station costs increase the financial risk compared to Alternatives A and B.

Alternative D would have a large funding gap that exceeds its debt service and operating cost for eight years. This alternative would also have the largest construction cost of any of the alternatives and significantly lower net tax revenues over time than Alternatives B and B-CSX Design Option.

The **No-Build Alternative** would not impose any costs or materially affect current tax revenues.

3.2.2 Ability to Meet Overall Project Purpose

As stated in Section 2 – Purpose and Need, the overall project purpose is:

“to maximize access to local and regional transit to and from the Potomac Yard area along the U.S. Route 1 corridor for the greatest number of current and future residents, employees, and businesses in support of currently proposed and anticipated development in the area over the next several decades consistent with the adopted North Potomac Yard Small Area Plan, without excessive disruption of the current rail services while providing for the safety of workers and the general public.”

The following sections discuss the alternatives compared to ridership, adopted development plans, and disruption of service included in the project purpose.



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3.2.2.1 Maximum Access to Station

Ridership depends upon the station location and access points within Potomac Yard. Because this station will not have a parking lot/structure or a Kiss & Ride option, all users will be accessing the station by foot or bicycle. A distance of 0.25 miles is a preferred distance used as an acceptable walking distance for station planning (WMATA Station Area Planning Guide 2017). Based on standards used by WMATA for station design, ridership begins to drop once the station is more than 0.25 mile from the potential user with a severe drop after a half-mile. As noted in the overall purpose, the alternative that maximizes the access to transit for the greatest number of current and futures residents, employees, and businesses best meets the overall project purpose.

Alternative B would be located within walking distance of the highest number of residents, as well as offices, shopping, and entertainment destinations, existing and planned, and is anticipated to have 13% greater ridership than the other three build alternatives (as stated in the DEIS). This alternative would enable significantly more office use with a greater percentage of the planned office area located with the 0.25-mile walking distance. Specifically, Alternative B would be located within walking distance of the highest density development in North Potomac Yard, thereby enabling the highest density and greatest mix of uses, including office uses, to be constructed. Assuming projected development in the approved plans occurs as outlined in the DEIS, the number of residents within 0.25 mile of Alternative B will be 19,800. The number of employees within this 0.25-mile distances is 24,400. The daily automobile trips shifted to transit is estimated to be 6,700 with the auto mode share for trips in the Potomac Yard area estimated at 34%. Alternative B met the ridership elements of the overall project purpose and provides the maximum access to transit for the greatest number of current and future residents, employees, and businesses.

Alternative A would be more than 0.25 mile from the area of greatest density, indicating the ridership will not be optimal. The number of residents within 0.25 mile of Build Alternative A would be 15,200. The number of employees within this 0.25-mile distance would be 7,100. The daily automobile trips shifted to transit is estimated to be 5,100 with the auto mode share for trips in the Potomac Yard area estimated at 34%. Alternative A would not meet the ridership elements of the overall project purpose because it fails to maximize the number of current and future residents, employees, and businesses that would be served by the station.

Alternative B-CSX Design Option would be more than 0.25 mile from the greatest density, based on the assumption that the projected development in the approved plans occurs as outlined in the DEIS. The number of residents within 0.25 mile of Alternative B-CSX Design Option would be 16,700. The number of employees within this 0.25-mile distance would be 12,000. The daily automobile trips shifted to transit was estimated to be 5,200 with the auto mode share for trips in the Potomac Yard area estimated at 34%. Alternative B-CSX Design Option would not meet the ridership elements of the overall project purpose because it failed to maximize the number of current and future residents, employees, and businesses that will be served by the station.

Alternative D would have 16,500 residents and 13,200 employees within the 0.25 radius from the station, assuming the projected development in the approved plans occurs as outlined in the DEIS. The daily automobile trips shifted to transit was estimated to be 5,200 with the auto mode share for trips in the Potomac Yard area estimated at 34%. Alternative D would not meet the ridership elements of the overall project purpose because it failed to maximize the number of current and future residents, employees, and businesses that would be served by the station.

A summary of the projections of persons within reasonable walking distance of the four build alternatives is included in Table 3-2 below.



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TABLE 3-2. PROJECTED METRORAIL ACCESS SUMMARY FOR THE FOUR BUILD ALTERNATIVES (DEIS)

	Build Alternative B	Build Alternative A	Build Alternative B-CSX Design Option	Build Alternative D
Number of Residents Within 0.25 Mile	19,800	15,200	16,700	16,500
No. of Employees within 0.25 Mile	24,400	7,100	12,000	13,200
No. of Automobile Trips Shifted to Transit	6,700	5,100	5,200	5,200
Total	50,900	27,400	33,900	34,900
Less than Alternative B		46%	33%	31%

The **No-Build Alternative** would not meet the overall project purpose because it provided no walkable access to the Metrorail system for residents and employees in the Potomac Yard area.

3.2.2.2 Consistency with Plans and Development

The City has developed small area plans for the residential and commercial redevelopment of Potomac Yard. On June 13, 2017, City Council approved the Planning Commission recommendation to adopt the NPYSAP, amending the Plan approved in 2010. The 2010 NPYSAP, containing CDD #19 and Landbay F, established the vision and guiding principles for the redevelopment of the site as a sustainable, mixed-use, walkable community oriented around the construction of the PYMS, and established the framework to determine funding sources for the Metrorail Station and potential phasing options for redevelopment of the Plan area.

Similarly, the PYPGSAP was created in 1992 and outlined the overall plan for redevelopment of the railyard. This plan has been revised, amended, and updated in 1995, 1999, 2006, 2008, 2010, 2011, 2012, 2013, 2016 and 2017. Plans for a Metrorail station should be consistent these documents that the City and the residents created for the development of their community.

Alternative B would be consistent with the NPYSAP and would maximize allowable development under current CDD #19 zoning. In addition, Alternative B accommodates the maximum amount of square footage (13.075 million square feet) of Potomac Yard development under the approved plans, including 7.525 million square feet in North Potomac Yard (CDD #19).

Alternative A is located farther south than envisioned in the NPYSAP and CDD #19 zoning regulations, which stipulate a Metrorail station in the vicinity of Alternative B to support the planned level of development in CDD #19. Build Alternative A would accommodate a substantially smaller volume of development in North Potomac Yard (3.7 million square feet, CDD #19) than planned.

In addition, Alternative A accommodated only 9.250 million square feet of Potomac Yard development under the approved plans, which is 3.825 million square feet less than the allowable amount of development of 13.075 million square feet. This would result in a loss of commercial and office space, and a loss in revenue derived from these spaces. Because Alternative A was not consistent with the NPYSAP, it would not meet the overall project purpose.

Alternative B-CSX Design Option would be located farther north and west than stipulated in the NPYSAP and CDD #19 zoning regulations, which stipulate a Metrorail station located to support the planned level



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of development in CDD #19. Alternative B-CSX Design Option would accommodate a substantially smaller volume of development in North Potomac Yard (3.7 million square feet; CDD #19) than planned.

In addition, Alternative B-CSX Design Option only accommodated 9.250 million square feet of Potomac Yard development under the approved plans, which is 3.825 million square feet less than the allowable amount of development of 13.075 million square feet. The relocation of the CSX tracks west of their current location would use space currently planned for development. Because Alternative B-CSX Design Option was not consistent with the NPYSAP, it would not meet the overall project purpose.

Alternative D would be located farther north and west than stipulated in the NPYSAP and CDD #19 zoning regulations, which stipulate a Metrorail station situated to support the planned level of development in CDD #19. Alternative D would accommodate a substantially smaller volume of development in North Potomac Yard (3.7 million square feet, CDD #19) than planned.

In addition, Alternative D accommodated only 9.250 million square feet of Potomac Yard development under the approved plans, which is 3.825 million square feet less than the allowable amount of development of 13.075 million square feet. This would result in a loss of commercial and office space, and a loss in revenue derived from these spaces. Because Alternative D was not consistent with the NPYSAP, it would not meet the overall project purpose.

The No-Build Alternative would not meet the overall project purpose because it is inconsistent with NPSAP and does not support development in CDD #19.

3.2.2.3 Disruption of Current Rail Services

Major disruptions to current rail services are counterproductive to the purpose of facilitating redevelopment and access to and use of public transit in the Potomac Yard Area. Track shutdowns would close Metrorail service between the Ronald Reagan Washington National Airport station and Braddock Road station, require the use of temporary bus shuttle service to transport riders between the two stations, and be limited to a maximum outage of 76 hours at a time per WMATA standards. All necessary single-tracking, shutdowns, and testing would be conducted in compliance with WMATA policies.

Alternative B would be constructed along new tracks east of the existing Metrorail tracks during regular operating hours of Metrorail service. The majority of the new station would be built and all trackwork, including the crossover, would be constructed up to the existing Metrorail right-of-way without any service disruptions. Rail service between the Ronald Reagan Washington National Airport station and Braddock Road station would be shut down to make the final connection between the new track and the existing track. Alternative B required the least disruption of current rail services and therefore best meets the project's purpose and need.

Alternative A would be constructed around the existing Metrorail tracks and during regular operating hours of Metrorail service by using a temporary falsework tunnel-like enclosure. The falsework would be built during track closures or overnight periods. Once finished, it would allow construction activities to progress with minimal impact on existing rail service. When the majority of the station is complete, the removal of the falsework tunnel and construction of the double-crossover would occur concurrently during a single shutdown. Near the end of construction, pre-cast platform sections would be installed and require Metrorail service through the site to be single-tracked. Pedestrian bridges and station finishes would be completed without impacting Metrorail service.

The construction of this protective structure would take approximately 12 weekend shutdowns and allowing for three weekends allowed per month would take 4 months to construct. Construction of the large structural elements of the station would require another 12 weekend shutdowns and take an additional 4 months to complete. Once the primary station elements are complete, it will take approximately 6-weekend shutdowns (another 2 months) to remove. Building the permanent station



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elements around this structure is not ideal, and certain elements (e.g., platform edges, basement walls, new tracks, systems, finishes) would need to be built after the protective structure removal creating an additional 18-weekend shutdowns (an additional 6 months). In total, building Alternative A as an in-line station does not meet the project purpose because it requires an additional 16 months to the construction schedule versus an off-line structure with scheduled weekend shut downs.

Alternative B-CSX Design Option would significantly disrupt CSX, Amtrak, Metro, and VRE during the construction. Because Alternative B-CSX Design Option calls for the station to be located on the current CSX right-of-way, all rail services will be disrupted while new track are constructed west of the current location. The City and WMATA would have to obtain the consent of CSX, which holds a permanent easement for its existing right-of-way. Securing CSX property rights, if possible, would involve extensive coordination which may impact the overall project schedule and be extremely costly.

Although CSX did not categorically rule out the possibility of its agreement, it stated in its April 30, 2015 letter that it strongly preferred that the Alternative B-CSX Design Option *not* be chosen for the project due to anticipated disruption of CSX's operations. The CSX tracks would need to be reconstructed west of the current location, needing track shut downs to facilitate construction and then the transfer of the trains from the old to the new tracks. Alternative B-CSX Design Option was not supported by the CSX, Virginia Department of Rail and Public Transportation (VDRPT), or VRE. This alternative required greater disruption to rail services than Alternative B, and therefore did not meet the overall project purpose.

Alternative D required the installation of the aerial track sections over the existing Metrorail and CSX rights-of-way that would require service shutdowns. Once clear of existing WMATA and CSX track, the remaining trackwork would be completed up to the existing Metrorail right-of-way without any service disruptions. The southernmost track section just north of the portal would require demolishing and rebuilding existing retaining walls due to space limitations. Rail service between National Airport and Braddock Road stations would be shut down to make the final connection between the new track and the existing track. When the lines reopen, trains would operate on the new track and pass through the unfinished station without stopping until the station is opened for service. Following completion of construction, the old Metrorail tracks would be removed from service. The pedestrian bridge and station finishes would be completed without impacting Metrorail service and the existing Metrorail bridge over Four Mile Run would be abandoned when the new bridge is complete.

The **No-Build Alternative** would not directly affect CSX or Metrorail operations. However, the City would still have to construct a pedestrian/bicycle bridge over the CSX right-of-way between Potomac Greens and Potomac Yard.

3.2.2.4 Safety of Workers and the General Public

The City has a duty to protect its citizens, employees, and contractors from unreasonable harm. Any alternative that does not adequately provide for the safety of workers and the general public cannot meet the overall project purpose.

Alternative B would be only alternative built off-line with the majority of construction access located away from active Metrorail and CSX tracks. This would allow the construction site to be secured and exclude the public. Cranes would not be required to carry loads over active rail lines to construct this alternative, and workers would not need to operate in and around active Metrorail or CSX traffic. This alternative provided materially no additional safety risks above standard risks associated with any large construction project. Therefore, Alternative B best addressed the safety considerations including in the overall purpose of the project.

Alternative A would be constructed on-line using a protective structure the entire length of the station to separate the active Metrorail trains from the construction activities; however, the construction of the shell



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itself is very dangerous. Workers would build the shell in between the time that trains pass through the work zone. On an average day 434 to 454 Metrorail trains use these tracks, with trains passing every few minutes. This would involve workers starting and stopping work many times each hour for train passage or closing the Metrorail tracks for the shell construction. Any tool or piece of construction debris left on the tracks has the potential to cause train damage or a derailment.

Once the shell is built, this situation would still present numerous safety hazards for the additional time it would take to construct the station. The cranes would be lifting loads over the shell of the structure, increasing the possibility of damage to the shell. Workers would be separated from the trains by the shell but would still be in close proximity to moving trains and third rail electrified with 750 volts of direct current. Beyond the threat of direct contact with the third rail, the electricity has the potential to arc over short distances or carry current through any conductive material. The basic fact that workers, trains, and passengers would be separated by very little space and a construction shell creates an unsafe environment.

Alternative B-CSX Design Option involved relocating CSX tracks prior to constructing the new Metrorail tracks. This would place workers in an active railyard during the CSX track relocation. Additionally, working close to or on the CSX tracks increase the risk to active CSX trains and passengers. The possibility of track fouling is greater and introduced additional risk to passing trains.

Alternative D required the construction of multiple aerial structures to cross over the CSX tracks twice. In addition, a bridge structure would be constructed over Four Mile Run. Construction of these structures placed worker at significant heights, increasing the fall risk to workers. Construction of structures over the tracks increased the risk of dropping tools or construction material onto the tracks below, causing damage to track or trains, increasing the risk of derailment or damage to trains and passengers.

The **No-Build Alternative** would not affect worker or passenger safety.

3.2.3 Environmental Impacts

3.2.3.1 Wetlands and Waters of the United States

The DEIS estimated permanent and temporary impacts to non-tidal wetlands and Waters of the United States (WOUS) for the four build alternatives. In Table 3-3 below, Alternatives A, B-CSX Design Option, and D reflect estimates from the DEIS. The impacts associated with Alternative B, based on plans being development by PYC, have been updated. The No-Build Alternative would not impact any WOUS.

TABLE 3-3. WETLAND AND WOUS IMPACTS

Build Alternative	Non-Tidal Wetland Impacts	Other WOUS Impacts
Alternative B	1.56 ac permanent 2.01 ac temporary	None
Alternative A	0.02 ac permanent 0.01 ac temporary	None
Alternative B-CSX Design Option	None	None
Alternative D	0.52 ac permanent 0.41 ac temporary	Crossing of Four Mile Run (tidal tributary to Potomac River)



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Alternative B requires permanent and temporary non-tidal wetland impacts resulting from the placement of fill for construction. There are no conversion impacts. While heavily disturbed and altered, the site does contain PEM and PFO wetlands. A majority of the vegetation, both emergent and woody, is comprised of invasive species as determined by the Virginia Department of Conservation and Recreation (VDCR) Virginia Invasive Species Plant List. As noted throughout this JPA, the subject site has been modified by rail yard, construction, and remediation-related land disturbing activities in the past. The wetlands within the area the PYMS project area most recently contained oil water separator ponds (see Section 1 – Project Information: Aerial Photographs) that were removed in 1993. In addition, there are several areas of irregular, unnatural topography throughout the site that appear to be spoil piles possibly from remediation activities or road construction. Invasive species tend to occupy areas that are heavily disturbed. Section 4 – Avoidance and Minimization discusses the PYMS impacts based on design decisions made after the NEPA process. A detailed habitat description and wetland functional assessment of the PYMS construction area are included in Section 5 – Environmental Resources.

Alternative A has minimal WOUS impacts, and **Alternative B-CSX Design Option** has none.

Alternative D permanently and temporarily impacts wetlands, and requires a bridge over Four Mile Run, a sizeable tidal tributary to the Potomac River.

For the alternatives that impact WOUS, the demonstration of avoidance and minimization is required as part of the permitting process. In addition, compensatory mitigation is required for permanent impacts and all temporary impacts will be restored to pre-existing conditions. Details of the proposed avoidance and minimization and compensatory mitigation for the PYMS are included in Sections 4-Avoidance and Minimization and Section 6-Compensatory Mitigation.

3.2.3.2 Noise and Vibration

Alternative B long-term noise and vibration impacts remained the same as the No Build Alternative. The D/FEIS and supporting documents state that no additional exceedances of FTA and WMATA noise criteria compared to the No Build Alternative were projected. Station and train public address announcements would have the potential to be heard at residences in the Potomac Greens neighborhood. The location of the station would not increase noise or vibration levels for the residences in Potomac Greens both during or following construction.

Alternative A includes the new double-crossover tracks south of the proposed station which would result in vibration effects at six residences in Potomac Greens due to Metrorail trains passing over the new switches. Because of the close proximity of the Build Alternative A to Potomac Greens potential station noise and vibration impacts, as well as potential visual intrusion into homes by the station patrons, would likely be greater than the other Build Alternatives. No additional exceedances of FTA and WMATA noise criteria (compared to the No Build Alternative) are projected. However, station and train public address announcements have the potential to impact residences in the Potomac Greens neighborhood.

In addition to the active train issue at this location, the adjacent townhomes to the east of the existing WMATA tracks would be severely impacted by construction noise and lack of access to the rear of their units because of their proximity to the new station construction. These units may become unlivable and require relocations/compensation to the property owners for the disruption and access constraints.

Alternative B-CSX Design Option had no additional exceedances of FTA and WMATA noise criteria compared to the No Build Alternative. However, station and train public address announcements would have the potential to impact residences in the Potomac Greens neighborhood.

Alternative D would shift elevated tracks closer to residences in Potomac Greens and would exceed FTA and WMATA criteria at 10 residences. In addition, the location of the double crossover would result in vibration impacts at seven residences. Station and train public address announcements would also have



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the potential to impact residences in the Potomac Greens neighborhood. However, due to the location of the station from Potomac Greens, these impacts would be greater in comparison to Alternative B both during and post construction.

The **No-Build Alternative** would not have increased noise or vibration impacts.

3.2.3.3 Threatened and Endangered Species

A discussion of studies regarding the threatened and endangered species is included in Section 5 – Environmental Resources. None of the alternatives have an impact on any threatened or endangered species. As such, this was not a significant environmental consideration for this project.

3.2.3.4 Floodplain

This project is located near the Potomac River and is affected by its floodplain. The DEIS estimated impacts to the floodplain for the four build alternatives, as summarized in Table 3-4 below. The impacts associated with the current Alternative B (PYMS) construction have been updated in the table. The No-Build Alternative would not impact any floodplain. Section 5– Environmental Resources features a section on floodplain resources.

TABLE 3-4. 100-YEAR FLOODPLAIN IMPACTS

Build Alternative	Permanent Floodplain Impacts (acre)
Alternative B	1.75
Alternative A	0
Alternative B-CSX Design Option	0
Alternative D	0.90

Alternatives B and D would require fill in the FEMA mapped floodplain. Considerations were taken during the preliminary design to address impacts to the floodplain including locating the station, facilities, tracks and storage utilities above the 100 and 500-year floodplain as required by the Zoning Ordinance of the City. In general, the City requires that no filling of any kind shall be allowed within the boundaries of any A or AE zone except where such filling, when considered in conjunction with all other uses, existing and proposed, will not increase the base flood elevation more than 0.5 feet. For this project, the City is further stipulating that the designer “furnish specific engineering data and information as per Section 6-307 (A), as to the effect of the proposed fill in the AE Zone on future flood heights. No final site plan shall be released until the applicant has demonstrated that no increase in water surface elevation for the 100-year flood will result due to implementation of this project. Computations are to include backwater calculations starting at a downstream cross section to an upstream cross section. Computations shall be made by modifying the existing HEC-RAS model, as prepared by the USACE, Baltimore District (DSUP2016-0004).”

Alternatives A and B-CSX Design Option would not require fill within the 100-year floodplain.



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3.2.3.5 Resource Protection Area

Resource Protection Areas (RPA) are the corridors of environmentally sensitive land adjacent to water bodies with perennial flow and include tidal and nontidal wetlands connected by surface flow. The RPA also includes the RPA buffer which extends 100 feet from the boundary of a perennial stream or wetland, including connected and contiguous intermittent stream and wetland areas. By this buffer definition, often areas already developed are within the RPA buffer area. The DEIS estimated impacts to the RPA for the four build alternatives, as summarized in the table below. The impacts associated with the Alternative B have been updated in Table 3-5 based on recent plans created by PYC. The No-Build Alternative would not impact RPA. Section 5– Environmental Resources discuss the RPA.

TABLE 3-5. RPA BUFFER IMPACTS

Build Alternative	Permanent RPA Buffer Impacts (acre)	Temporary RPA Buffer Impacts (acre)
Alternative B	4.27	0.61
Alternative A	0.41	0.49
Alternative B-CSX Design Option	1.12	0.58
Alternative D	2.07	2.4

All alternatives require permanent and temporary impacts to the RPA buffer resulting from placing fill for construction and other land disturbing activities. Considerations were taken during the preliminary design to address impacts to the RPA. However, the Zoning Ordinance for the City (Section 13-123) allows for “construction, installation, operation and maintenance of electric, natural gas, fiber-optic, and telephone lines, railroads and public roads constructed by the Virginia Department of Transportation (VDOT) or by or for the City in accordance with VDOT standards (built separately from development projects regulated under Section 13-106), and their appurtenant structures.”

For the alternatives that impact the RPA, the final site plan will comply with the City requirements noted above.

3.2.3.6 George Washington Memorial Parkway and Other Historical Resources

As previously discussed, the GWMP (which includes the historic Mount Vernon Memorial Highway [MVMH]), located east of the build alternatives, is federally owned land administered by the NPS. The GWMP commemorates the first president, preserves the natural setting, and provides a quality entryway for visitors to the nation’s capital. The segment of the GWMP within the project is listed in the National Register of Historic Places (NRHP).

Alternative B had adverse effects on the MVMH and GWMP resulting from permanent land transfers, temporary construction activities within MVMH and GWMP property requiring a permit from NPS, and temporary and permanent visual effects. For the portions of these resources within the Area of Potential Effects (APE), these effects would result in some diminishment of the landscape architecture area of significance included in the NRHP nominations of the MVMH and GWMP.



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Alternative B was designated as the Preferred Alternative chosen by the locality to move forward as the build alternative. As such, Alternative B moved forward in the Memorandum of Agreement (MOA) developed under Section 106 of the NHPA with the VDHR and NPS. The MOA, signed on October 24, 2016, is between the FTA, City, WMATA, NPS, and the Virginia State Historic Preservation Office regarding the PYMS. The USACE was a consulting party and invited to sign the MOA but delegated that authority to FTA. The MOA stipulated details of the land exchange, landscape treatment, station design and architecture, and treatment of architectural and archaeological resources.

As previously noted, NPS owns the GWMP and administers an easement, the GSAE. Minimizing and mitigating for impacts to the GWMP and GSE were a high priority to the NPS. To document the mitigation measures that will be implemented to minimize and mitigate harm to the GWMP and GSAE, NPS and the City signed the Net Benefits Agreement on November 1, 2016. The Net Benefits Agreement was developed to offset any impact to these resources. This agreement specifies details of the land exchange, the minimization and mitigation of the visual impact to the GWMP, and the City's financial contributions to the Compensatory Mitigation Fund. Alternative B would not have effects on archaeological resources.

Alternative A would also have adverse effects on the MVMH and GWMP. These effects include both temporary and permanent visual effects on the MVMH and GWMP. For the portions of these resources within the APE, these effects would result in some diminishment of the landscape architecture area of significance included in the NRHP nominations of the MVMH and GWMP. Alternative A would not have effects on archaeological resources.

Alternative B-CSX Design Option would have adverse effects on the MVMH and GWMP resulting from temporary and permanent visual effects. For the portions of these resources within the APE, these effects would result in some diminishment of the landscape architecture area of significance included in the NRHP nominations of the MVMH and GWMP. This alternative would not have effects on archaeological resources, because no construction staging areas, temporary access roads, or transfers of land for the design option would occur at the sites.

Alternative D requires construction access from the GWMP. This alternative has adverse effects on the MVMH and GWMP resulting from permanent land transfers, temporary construction activities within MVMH and GWMP property requiring a permit from NPS, temporary and permanent visual effects, and temporary and permanent loss of vegetation. Construction access would also cause effects to the MVMH and GWMP resulting from long-term loss of vegetation in areas that were part of the original landscape design. For the portions of these resources within the APE, these effects would result in some diminishment of the landscape architecture area of significance included in the NRHP nominations of the MVMH and GWMP. Without design-based avoidance, Build Alternative D would also have an adverse effect on one archaeological resource if this property is eligible for the NRHP.

In addition, commercial vehicles are prohibited from the GWMP, with limited exceptions, under *NPS Management Policies 2006* (9.2.2.2.1) and Federal regulations (36 CFR 5.6). The NPS policy states that "commercial traffic will be prohibited on roads within parks, except for the purpose of serving park visitors and park operations (9.2.1.2.1)." If access to private lands is otherwise not available, the park Superintendent has the discretion to issue permits for commercial vehicles. However, other options are available for the Metrorail project.

The No-Build Alternative would not impact any historical resources, nor would it add any benefits to the NPS via a Net Benefits Agreement.



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3.3 LEDPA ANALYSIS

The LEDPA analysis was conducted to document the review of the four build alternatives and No-Build Alternative in compliance with 33 CFR Part 230 and to identify the LEDPA in accordance with the USACE Section 404(b)(1) Guidelines, 40 CFR Part 230, and the VDEQ's Virginia Water Protection Permit Program Regulation, 9 VAC 25-210. A potential alternative is excluded from consideration as the LEDPA if it is found to be not a practicable alternative under one or more of the relevant review criteria as detailed above and/or if it fails to meet the overall project purpose. If more than one alternative is considered practicable under all criteria and meets the overall project purpose, the alternative with the least environmental impact would be deemed the LEDPA. The analysis concludes that Alternative B is the LEDPA.

The No-Build Alternative does not meet the overall project purpose. While the information for the No-Build Alternative is included in Table 3-6, the No-Build Alternative is removed from further discussion.

3.3.1 Practicable Alternative Considerations and Criteria

3.3.1.1 Track and Station Design Standards

An alternative is considered practicable if it meets the track station and design standards with minimal amount of track work and minimal additional structures.

All four build alternatives meet the track and station design standards and are therefore, practicable under this criterion. However, Alternative B does not require a protective structure to build the station, which more than offsets the additional track work compared to Alternative A. Therefore, Alternative B is the most favorable alternative to build under this review criterion.

Alternative A requires the construction of the protective shelter and extensive weekend shutdowns. Alternative B-CSX Design Option requires major track work including the realignment of CSX tracks. Alternative D, the only aerial station, also requires major track work and two aerial structures over CSX right-of-way, a new bridge over Four Mile Run, aerial tracks and supports, and the replacement of a retaining wall. Therefore, Alternatives A, B-CSX Design Option, and D are considered practicable alternatives to build but are not as favorable as Alternative B based on the track and station design criteria.

3.3.1.2 CSX Right-of-Way and Operations

An alternative is considered a practicable alternative if the alternative minimizes necessary coordination with CSX, limits the disruption to services, and limits the potential for fouling the tracks.

Alternatives B and A are considered practicable alternatives because they allow for a predictable construction schedule with minimal pre-planned outages. In addition, the alternatives do not require acquisition of land from CSX.

Alternative D is a practicable alternative based on this criterion but is not favorable. Alternative D could be built with pre-planned outages on CSX track, but would require easements for two aerial crossing of the CSX track. This coordination will take extensive time and, if approved, extend the construction schedule and cost for this alternative.

Alternative B-CSX Design Option is not a practicable alternative due to the major disruption of existing track services. In addition, the City and WMATA would have to obtain the agreements from CSX, which holds a permanent easement for its existing right-of-way.



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3.3.1.3 Constructability

An alternative is considered a constructible alternative if the alternative can be built off-line, is outside of an active rail corridor, can be built within a reasonable amount of time, is within the City limits, and has no substantially elevated safety risks.

Alternative B is the only practicable alternative under the constructability criterion. This alternative would be built off-line and constructed outside of an active rail corridor. There are no scheduling or safety challenges, and the entire project is within the City limits. Alternative B has no unique construction challenges and is practicable to construct.

Under the constructability criterion, Alternatives A, B-CSX Design Option, and D are not practicable alternatives to build.

Build Alternative A would require on-line station construction that presents significant safety and constructability challenges even if a protective shell structure is constructed. Using the protective structure would significantly lengthen the construction period because many of the major construction activities could only be completed during weekend shutdown periods. Factoring in these weekend shutdowns, the Project Team reasonably estimated that building Alternative A as an on-line station would add 16 months to the construction schedule versus an off-line structure. Although this alternative would be constructed on-line using a protective shell to reduce safety risks to workers and passengers; the location of the site immediately adjacent to active rails and an electrified third rail presents additional safety challenges.

Alternative B-CSX would be built off-line within an active rail corridor and poses challenges with moving the existing CSX lines in addition to constructing the new Metrorail tracks. The construction within an active rail right-of-way, introduces additional safety risks due to constant rail activity. Alternative D is built off-line with varied constructability challenges, including the location of the site within an active rail corridor, the construction of the elevated track, the bridge over Four Mile Run extending the project outside of the City limits, and the construction of multiple aerial structures. Alternative D introduces safety challenges associated with construction within an active rail yard and over water, with the added hazards associated with the aerial work.

3.3.1.4 Land Acquisition and Relocations

An alternative is considered a practicable alternative if the alternative requires no CSX land acquisition (beyond easements the City would have to obtain to provide pedestrian crossings irrespective of the station location) and minimal additional land acquisition and relocations.

Under this criterion, both Alternatives B and A are practicable alternatives. To construct Alternatives B and A, property acquisition would be required; however, neither alternative requires CSX property acquisition. Alternative B also provides benefits to the NPS and users of the GWMP through the mitigation proposed in the Net Benefits Agreement.

Under the land acquisition criterion, Alternatives B-CSX Design Option and D are not practicable alternatives to build. Both Alternatives B-CSX Design Option and D would require the permanent acquisition of property, including land currently owned by CSX. Based on previous experience, and general conditions expressed by CSX, the cost associated with the purchase of land from CSX and the amount of time required to negotiate the use of this property is considered prohibitive for the project. Furthermore, it is a reasonable possibility that CSX and the project could not reach terms for the acquisition or that CSX could refuse to negotiate, meaning that this option may not be available. Documentation also cites the lack of support for Alternative B-CSX Design Option by CSX, VDRPT, and VRE. In addition, Alternative D requires land acquisition outside of the City limits.



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3.3.1.5 Cost

An alternative is considered a practicable alternative on the basis of cost if 1) the cost was fully assessed considering all components of land acquisition and construction and 2) the cost is within 20% of the proposed alternative.

Alternative B is a practicable alternative. The cost of this alternative is known with an allocated budget, whose value is 40% less than the alternatives with complete cost estimates.

Alternative A was only considered feasible during the NEPA process based on the assumption that a protective shell would be constructed over the existing railroad to allow train traffic to continue during the construction of the station. It does not appear that any analysis of the associated cost and schedule impacts was done during the NEPA process to further evaluate the practicality the protective structure solution. Therefore, this suggests the cost of Alternative A may be higher than originally anticipated by at least \$20 million. Although there are significant questions about whether all costs of Alternative A have been captured, it can not be excluded as impracticable on the basis of cost.

Because the Alternative B-CSX Design Option calls for the station to be located on the current CSX right-of-way, the City and WMATA would have to obtain the consent of CSX, which holds a permanent easement for its existing right-of-way. Neither WMATA nor the City may use their power of eminent domain to acquire CSX's property. Although CSX has not categorically ruled out the possibility of its agreement, it stated in its April 30, 2015 letter that it strongly preferred that the B-CSX Design Option not be chosen for the project due to anticipated disruption of CSX's operations. Moreover, in both the April 30, 2015 and an earlier May 28, 2014 letter, CSX set certain general conditions that must be met if any agreement were to be reached. Those conditions include reimbursement for all of CSX's costs for the relocation, including design, land acquisition, construction, and payment of passenger delay costs and penalties to Amtrak and VRE, additional pedestrian access structures, and additional undefined roadway and railroad access. The potential amount of those costs has not been determined and it is uncertain that the City could pay the necessary amount. Furthermore, negotiations could take considerable time with no certainty that an agreement could be reached (or reached at a cost-effective price). Therefore, the cost included in Table 3-6 does not represent these potential additional costs and this Alternative B-CSX Design Option is not a practicable alternative.

Alternative D was costlier to build due to the need to construct an elevated tracks and station. The cost was estimated in the DEIS to be 40% greater than the next lowest-cost alternative, Alternative B-CSX Design Option, and approximately twice the cost of Alternatives B and A. In comparison to the budgeted cost for Alternative B (\$320 million), the cost of Alternative D is still 40% higher. This cost exceeds the amount the City could reasonably budget for the project and is not a practicable alternative to build.

3.3.1.6 Financial Feasibility Analysis

An alternative is considered a practicable alternative if determined to be financially feasible in the City's 2015 study.

The feasibility study determined that Alternatives A and B are financially feasible and are therefore practicable alternatives. Alternative B results in a maximum debt service of \$13.9 million and anticipated \$72 million in development contributions. Alternative A had an estimated maximum annual debt service of \$8.8 million and no developer contributions, far less than Alternative B. Also, the costs associated with the projective shell construction required for Alternative A were not included in the cost estimate and the financial feasibility study; therefore, while still a practicable alternative, Alternatives A is less favorable due to the uncertainty of the referenced costs and reduced financial benefit.



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Based on the findings of the feasibility study, Alternative D is not financially feasible and is therefore not a practicable alternative. Alternative B-CSX Design Option was deemed financially feasible only because the project schedule included three additional years to collect revenue and introduced any additional financial risk due to the higher construction cost.

3.3.2 Ability to Meet the Overall Project Purpose

3.3.2.1 Maximum Access to Station

As part of the overall project purpose, the selected alternative would maximize access to local and regional transit to and from the Potomac Yard area along the U.S. Route 1 corridor for the greatest number of current and future residents, employees, and businesses.

Alternative B best meets the overall project purpose by maximizing the access to transit for the greatest number of current and futures residents, employees, and businesses. While the other alternatives offer transit opportunities, they do not meet the ridership objectives of the overall project purpose.

3.3.2.2 Consistency with Plans and Development

Part of the overall project purpose includes that the alternative will maximize ridership access to the station in support of currently proposed and anticipated development in the area over the next several decades consistent with the adopted NPYSAP.

Alternative B is the only build alternative that is consistent with the NPYSAP and would maximize allowable development under current CDD #19 zoning, achieving the overall purpose of the project. The other three alternatives do not maximize the allowable development and are not in consistent with the local area plans. Therefore, Alternatives A, B-CSX Design Option, and D do not meet the overall project purpose.

3.3.2.3 Disruption of Current Rail Services

As part of the overall project purpose, the alternative will maximize ridership access to the station in support of currently proposed and anticipated development in the area consistent with the adopted NPYSAP, without excessive disruption of the current rail services.

Alternative B meets the project purpose with minimal pre-planned outages on the CSX tracks. While Alternative D also has minimal rail disruption, it is non-favorable as the alternative also requires easements for two aerial crossing of the CSX track.

The construction of Alternative A would require extensive system shutdowns during the construction of the protective shell and of the station. Alternative B-CSX Design Option will also cause major disruption of existing track services during the construction of the new CSX tracks. There is documentation citing the lack of support for this alternative by CSX, VDRPT, and VRE. Neither B-CSX nor A meet the intent of the project purpose due to substantial service disruption.

3.3.2.4 Safety of Workers and the General Public

As part of the overall project purpose, the alternative will maximize ridership access to the station in support of currently proposed and anticipated development in the area over the next several decades consistent with the adopted NPYSAP, without excessive disruption of the current rail services while providing for the safety of workers and the general public.

Alternative B is the only alternative constructed off-line and outside of an active rail corridor and includes no additional safety risks above the standard risks associate with any large construction project. Due to



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the minimal outages, and off-line construction zone, this also reduces the opportunities for the fouling of tracks, causing accidents. Therefore, this alternative fully addresses the overall project purpose regarding safety.

Alternatives A is built directly on-line, and A, B-CSX Design Option, and D are within an active rail right-of-way, introducing risk to both workers and the public. In addition, the construction of the protective shell for Alternative A is meant to reduce safety risks to workers and passengers; however, the immediate location of the site to the active rails and the electrified third rail presents additional safety challenges associated with the construction of the shell and work around the shell. Alternative D has the safety challenges associated with construction within an active rail yard, plus the added hazards associated with the aerial and bridge work. Therefore, Alternatives A, B-CSX, and D do not meet the intent of the project's purpose.

Table 3-6 provides a summary of the review of each alternative to determine if it is practicable and meets the overall project purpose based on information from the D/FEIS and supplemental information gathered for this JPA. For criteria that are deemed practicable or that meet the overall project purpose, the table differentiates between criteria that are favorable and unfavorable. This favorable/unfavorable distinction is made solely for the purposes of informed decision-making and is not a factor in the LEDPA determination. For each relevant review criterion, the table is coded to indicate the following:

- Green Favorable – Practicable Alternative or Supports the Overall Project Purpose
- Yellow Not-Favorable – Practicable Alternative or Supports Overall Project Purpose, But Includes Uncertainty, Risk, or Other Factors that Make It Unfavorable
- Red Not Practicable Alternative or Does Not Meet the Overall Project Purpose
- Clear No Effect/Neutral



POTOMAC YARD METRORAIL STATION

Analysis of Alternatives

TABLE 3-6. JPA ALTERNATIVES

Resource	No-Build Alternative	Build Alternative B	Build Alternative A	Build Alternative B-CSX Design Option	Build Alternative D
Practicable Alternative Considerations					
Track Station and Design Standards	N/A	Built off-line Only alternative constructed outside of an active rail corridor Moderate track work	Built directly on-line Constructed within an active rail yard Minimal track work Requires construction of protective shell to safeguard moving trains from construction materials	Built off-line Constructed within an active rail yard Major track work including realignment of CSX tracks	Built off-line Constructed within an active rail yard Major track work Major construction access easements required
CSX Right-of-way and Operations	N/A	Minimal CSX interaction No land needed from CSX Coordination needed to set pedestrian bridge	Minimal CSX interaction No land needed from CSX Coordination needed to set pedestrian bridge	Maximum CSX involvement Realignment and reconstruction of CSX tracks Need CSX rights of way Not endorsed by CSX	Moderate CSX interaction Need easement/approval to create two aerial crossings of the CSX tracks
Constructability	N/A	Built off-line Outside of an active rail corridor No additional safety risks Adequate space for storage, staging, and equipment movement	Built on-line Within active rail corridor Requires non-traditional construction techniques Additional safety risk of working near active trains and electrified third rail Protective shell needs to be accommodated within station design	Built off-line Within active rail corridor Substantially more track work to relocate and reconstruct CSX tracks before building Metrorail tracks.	Built off-line Requires multiple aerial structures, two aerial crossings of the CSX tracks, aerial platform, bridge over Four Mile Run.
Land Acquisition and Relocations	N/A	4.12-4.52 acres	1.27 acres Potential need to condemn private residences	14.36 acres Movie theater	10.04 acres Movie theater



POTOMAC YARD METRORAIL STATION

Analysis of Alternatives

Resource	No-Build Alternative	Build Alternative B	Build Alternative A	Build Alternative B-CSX Design Option	Build Alternative D
Cost	N/A	\$268 million stated in the EIS \$213.7 awarded in PYC contract	\$208.8 million (cost may be greater based on additional analysis following the NEPA process)	\$351.4 million (cost may be greater based on additional analysis following the NEPA process)	\$492.7 million
Financial Feasibility	N/A	Positive cash flow that exceeds its debt service and operating costs with no funding gap over the forecast period Yields the most tax revenue due to highest development buildout Yields the most net tax revenue gain over time	Positive cash flow that exceeds its debt service and operating costs for the entire forecast period. Relatively lower development build-out yields materially less tax revenue gain over time.	Positive cash flow that exceeds its debt service and operating costs with no funding gap over the forecast period Produces more net tax gain than Alternative A but materially less net tax gain than Alternative B Loss of significant development opportunity due to the relocation of the CSX tracks to developable property contributes to this lesser tax gain	Large funding gap that exceeds its debt service and operating cost for eight years Largest construction cost of any of the alternatives and significantly lower net tax revenues over time than Alternatives B and B-CSX Design Option Not financially feasible



POTOMAC YARD METRORAIL STATION

Analysis of Alternatives

Resource	No-Build Alternative	Build Alternative B	Build Alternative A	Build Alternative B-CSX Design Option	Build Alternative D
Ability to Meet Overall Project Purpose					
Metrорail Ridership Number of Passengers / Day (2040)	None	11,300	10,000	10,000	10,000
Maximum Access to Station	None	<p>Located within walking distance of the highest number of residences, offices, shopping, and entertainment destinations</p> <p>Projected number of residents / employees within 0.25 miles based on projected development is 19,800 / 24,400</p> <p>Projected daily automobile trips shifted to transit is 6,700</p> <p>Total = 50,900</p>	<p>Located greater than 0.25 mile from the greatest density of the projected development</p> <p>Projected number of residents / employees within 0.25 miles based on projected development is 15,200 / 17,100</p> <p>Projected daily automobile trips shifted to transit is 5,100</p> <p>Total = 27,400</p>	<p>Located greater than 0.25 mile from the greatest density of the projected development</p> <p>Projected number of residents / employees within 0.25 miles based on projected development is 16,700 / 12,000</p> <p>Projected daily automobile trips shifted to transit is 5,200</p> <p>Total = 33,900</p>	<p>Projected number of residents / employees within 0.25 miles based on projected development is 16,500 / 13,200</p> <p>Projected daily automobile trips shifted to transit is 5,200</p> <p>Total = 34,900</p>
Consistency with Plans and Development	Not consistent with City plans and regional transportation plans, as it does not include a Metrorail station at Potomac Yard or maximize development	<p>Consistent with City planning for North Potomac Yard</p> <p>Consistent with regional transportation plans</p> <p>Accommodates 13.075 million square feet of development in Potomac Yard including 7.525 million square feet in North Potomac Yard (CDD #19)</p> <p>Station design meets the HD1 Height District limit</p>	<p>Not consistent with NPYSAP</p> <p>Accommodates 9.250 million square feet of development in Potomac Yard including 3.700 million square feet in North Potomac Yard (CDD #19)</p> <p>Requires amendments to CDD #10 and CDD #19</p>	<p>Not consistent with NPYSAP</p> <p>Accommodates 9.250 million square feet of development in Potomac Yard including 3.700 million square feet in North Potomac Yard (CDD #19)</p> <p>Requires amendments to CDD #10 and CDD #19</p>	<p>Not consistent with NPYSAP</p> <p>Accommodates 9.250 million square feet of development in Potomac Yard including 3.700 million square feet in North Potomac Yard (CDD #19)</p> <p>Requires amendments to CDD #10 and CDD #19</p>



POTOMAC YARD METRORAIL STATION

Analysis of Alternatives

Resource	No-Build Alternative	Build Alternative B	Build Alternative A	Build Alternative B-CSX Design Option	Build Alternative D
Disruption of Current Rail Services	N/A	Minimal disruption of rail services	Extensive system closures while building/removing protective shell	Extensive system closure Disruptions while CSX tracks are relocated	Minimal disruption of services Requires easements from CSX for aerial crossings
Safety of Workers and General Public	N/A	<p>Constructed off-line</p> <p>Distance between workers and active rails</p> <p>Distance between construction and passenger trains</p> <p>No cranes required to carry loads over active rail lines</p>	<p>Constructed using protective shell structure to separate the Metrorail trains from construction activities</p> <p>Workers separated from active rails but still in close proximity to active trains and electrified third rail.</p> <p>Cranes needed to lift loads over the protective shell resulting in potential for materials to hit the shell.</p> <p>Higher risk of fouling</p>	<p>Constructed in an active rail corridor placing workers in immediate vicinity of active CSX and Metrorail lines.</p> <p>Increased risk of damage to active tracks due to construction activities.</p> <p>Higher risk of fouling</p>	<p>Constructed in an active rail corridor placing workers in immediate vicinity of active rail lines</p> <p>Construction of multiple aerial structures to cross over the CSX tracks twice exposes workers to construction at heights</p> <p>Bridge construction over Four Mile Run</p> <p>Construction of structures over the tracks increase the risk of dropping tools or construction material onto the tracks below, causing damage to tracks or trains, increasing the risk to trains and passengers.</p>



POTOMAC YARD METRORAIL STATION

Analysis of Alternatives

3.3.3 Environmental Factors

The DEIS reviewed the four build alternatives and No-Build Alternative based on several environmental factors. As the project progressed, the impacts associated with the PYMS design have also been reviewed. These impacts are summarized in Table 3-7. The environmental factors vary between the alternatives, and various regulatory processes have been followed to assess and mitigate impacts to parkland (Section 4(f) evaluation and Net Benefits Agreement), historic resources (Section 106 process and MOA), and environmental resources. The completion of the Section 404 process will evaluate the wetland and waters impacts, avoidance and minimization efforts and mitigation measures. The minimal environmental impacts associated with the project alternatives do not make any alternative unfeasible or impracticable but are necessary to differ between practicable alternatives. However, for the reasons discussed above, there is only one practicable alternative for this project that fully meets the purpose and need.



POTOMAC YARD METRORAIL STATION

Analysis of Alternatives

TABLE 3-7. ENVIRONMENTAL IMPACTS

Resource	No Build Alternative	Build Alternative B	Build Alternative A	Build Alternative B-CSX Design Option	Build Alternative D
Water Resources					
USACE Jurisdictional Wetlands	None	Permanent – 1.56 acre Temporary – 2.01 acre	Permanent – 0.02 acre Temporary – 0.01 acre	None	Permanent – 0.52 acre Temporary – 0.41 acre
Other WOUS	None	None	None	None	Bridge over Four Mile Run will result in stream and subaqueous bottomland impacts
100-year Floodplain Impacts	None	Permanent – 1.75 acre Temporary – 2.10 acre	None	None	0.90 acre
RPAs	None	Permanent - 4.27 acre Temporary – 0.61 acre	Permanent - 0.41 acre Temporary – 0.49 acre	Permanent - 1.12 acres Temporary – 0.58 acre	Permanent - 2.07 acres Temporary – 2.4 acres
Threatened or Endangered Species					
Protected Species	None	None	None	None	None
Section 106					
Adverse Effects on GWMP/MVMH	No	Yes Mitigated through the MOA and Net Benefits Agreement	Yes	Yes	Yes
Archaeological Sites Affected	None Known	No adverse effect	None	None	1 site



POTOMAC YARD METRORAIL STATION

Analysis of Alternatives

Resource	No Build Alternative	Build Alternative B	Build Alternative A	Build Alternative B-CSX Design Option	Build Alternative D
Direct construction impacts to architectural resources	None	None	None	None	Affects MVMH/GWMP
Noise and Vibration					
Exceed FTA Noise Criteria	None	None	None	None	7 sites
Exceed WMATA Noise Criteria	None (7 sites would continue to exceed WMATA criteria as in current condition)	None (7 sites would continue to exceed WMATA criteria as in current condition)	None (7 sites would continue to exceed WMATA criteria as in current condition)	None (7 sites would continue to exceed WMATA criteria as in current condition)	None (3 sites would continue to exceed WMATA criteria as in current condition)
Exceed FTA Vibration Criteria	None	None	6 sites	None	7 sites
Exceed WMATA Vibration Criteria	None	None	1 site	None	None



POTOMAC YARD METRORAIL STATION

Analysis of Alternatives

3.4 LEDPA SUMMARY

Alternative B is the LEDPA, because it is the only practicable alternative that also fully meets the overall project purpose and need. The following provides a summary of each of the four build alternatives based on if the alternative is a practicable alternative while meeting the project purpose.

3.4.1 Alternative B - LEDPA

Alternative B is the LEDPA because it is the only practicable alternative based on cost, constructability, safety, compliance with existing plans, ridership and economic development and minimal disruption to existing rail services that fully meets the overall project purpose and need.

Unlike the other alternatives, Alternative B is the only alternative located outside of an active rail yard and is the only alternative built off-line. Alternative B involves the least amount of track work, minimal additional structures associated with the station, and does not require a protective structure to build the station. This also provides a much safer work environment for workers and the public both during and post construction. Alternative B allows for a predictable construction schedule with minimal pre-planned outages to existing rail services and does not require acquisition of land from CSX.

Alternative B is financially feasible and is the only alternative that is not cost prohibitive that has all defined costs. In addition, the City has already budgeted the cost of this alternative, so it is fully funded.

Alternative B fully meets the project's overall purpose by maximizing ridership access to the station in support of currently proposed and anticipated development consistent with the adopted NPYSAP, without excessive disruption of the current rail services while providing for the safety of workers and the general public.

Alternative B is the only alternative that maximizes the access to transit for the greatest number of current and future residents, employees, and businesses. This alternative supports the highest density and greatest mix of uses, including office uses, to be constructed based on the location and does not remove potential developable areas in accordance with the NPYSAP and CDD #19. This alternative also facilitates the highest number of trips taken by transit and encourage a variety of transportation options due to the dense mix of uses that it enables. Not only does the alternative meet the goals of the City and the stated purpose and need of the project, this alternative provides environmental benefits to GWMP users through a Net Benefits Agreement with NPS. Alternative B can be constructed with minimal disruption to the existing rail service and minimal safety risks, while meeting the transit goals in accordance with the City plans.

Alternative B will result in environmental impacts to natural resources and the human environment. The station cannot be shifted outside of the impacted wetland boundaries due to the track design limitations. However, compensatory mitigation will be provided for permanent impacts and all temporary impacts will be restored to pre-existing conditions in accordance with the state and federal water quality permits. Due to the location of the station from Potomac Greens, noise and vibration impacts will be reduced in comparison to other alternatives, both during and post construction.

3.4.2 Alternative A

Alternative A is not the LEDPA because it is not considered a practicable alternative and does not meet the overall project purpose.

Located within an active rail area and built on-line, this alternative introduces unnecessary safety risks to the public and workers. Even if the protection shell is constructed, this alternative presents significant



POTOMAC YARD METRORAIL STATION

Analysis of Alternatives

safety and constructability challenges that affect the consideration as a practicable alternative. In addition, major rail system shutdowns will be required to construct this alternative.

The estimated cost of Alternative A (\$208.8 million) is the lowest cost of the alternatives analyzed in the DEIS. However, Alternative A was only considered feasible during the NEPA process by constructing a protective shell structure over the existing railroad to allow train traffic to continue during the construction of the station. It does not appear that any analysis with associated cost and schedule impacts was done during the NEPA process to further the protective structure solution. These costs were also not included in the City's financial feasibility study. Therefore, this suggests the cost of Alternative A may be higher than originally anticipated and is not a practicable alternative to build.

Alternative A would locate the station farthest from the dense redevelopment and planned office uses in North Potomac Yard decreasing ridership, redevelopment density, offices, jobs, and user fares. Alternative A fails to meet the project purpose because it does not maximize access to the transit system for current and future residents and employees in the area of Potomac Yard and is not consistent with City's local area development plans. The construction of Alternative A would require extensive system shutdowns during the construction of the protective shell and of the station. This alternative is built directly on-line and within an active rail right-of-way, introducing risk to both workers and the public. While the protective shell is meant to reduce safety risks to workers and passengers; the immediate location of the site to the active rails presents additional safety challenges.

The station location immediately adjacent to the Potomac Greens community increases noise and vibration, and privacy intrusion. Homeowners closest to the station will lose the use of their backyards because of the construction activity and may require temporary or permanent relocation.

3.4.3 Alternative B-CSX Design Option

Alternative B-CSX Design Option is not the LEDPA because it is not considered a practicable alternative and does not meet the overall project purpose.

Alternative B-CSX Design Option requires major track work including the realignment of CSX tracks. Located within an active rail area and built on-line, this alternative introduces unnecessary safety risks to the public and workers. This alternative also involves major disruption of existing track services. There is documentation citing the lack of support for this alternative by CSX, VDRPT, and VRE.

The City and WMATA would have to obtain the agreements from CSX, which holds a permanent easement for its existing right-of-way. It is not certain that this coordination could be completed in a timely and effective manner, if at all, meaning that this alternative may not be available to construct. The cost conditions required by CSX associated with the alternative have not been determined and it is uncertain that the City could pay the necessary amount. Therefore, the cost included in the DEIS nor in the City's feasibility study does not represent these potential additional costs and Alternative B-CSX Design Option is not a practicable alternative based on the uncertainty related to cost.

This alternative does not maximize the access to transit and would require the use of five acres of land in Potomac Yard that would otherwise be available for development and is therefore, not consistent with the NPYSAP. As previously noted, there is extensive disruption to existing rail service and increased safety considerations.

In addition, the B-CSX Design Option was originally developed to avoid the use of NPS property in response to NPS objections. Because the City and NPS have agreed to a Mutual Benefit Agreement that addressed NPS's objections to Alternative B, the Alternative B-CSX Design Option is no longer necessary.



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Analysis of Alternatives

3.4.4 Alternative D

Alternative D is not the LEDPA because it is not considered a practicable alternative and does not meet the overall project purpose.

Located within an active rail area and built on-line, this alternative introduces unnecessary safety risks to the public and workers. Alternative D, the only aerial station, also requires major track work and two aerial structures over CSX right-of-way, a new bridge over Four Mile Run, aerial tracks and supports, and the replacement of a retaining wall, increasing schedule, cost, and overall safety. Alternative D could be built with pre-planned outages on CSX track, but would require easements for two aerial crossing of the CSX track. This coordination will take extensive time and extend the construction schedule and cost for this alternative. As this is a City project, this alternative is not a practicable alternative as it extends past the City's limits.

Alternative D was substantially costlier to build than any of the alternatives. This cost exceeds the amount the City could reasonably budget for the project and is not a practicable alternative to build. Based on the findings of the City's financial feasibility study, Alternative D is not financially feasible and is therefore not a practicable alternative.

Alternative D would locate the station further from the dense redevelopment decreasing ridership. In addition, the station would not be consistent with the NPYSAP as it would occupy land that is currently slated for development, thereby reducing the development potential of the North Potomac Yard. Build Alternative D is located within an active rail yard, requiring additional CSX coordination and disruption to existing rail service and an increased risk for worker safety during construction.



POTOMAC YARD METRORAIL STATION

Avoidance and Minimization

4. AVOIDANCE AND MINIMIZATION

A design/build construction contracting method was selected for delivery of the PYMS. This method utilizes preliminary designs, operational requirements, performance metrics, and site constraints to establish a baseline for proposal review and award. As such, the detailed analysis for avoidance and minimization can most efficiently be performed after a design/build team has been selected and the construction methodology, including equipment, materials, construction sequencing, temporary laydown areas, and final design, is determined.

PYC was selected as the design/build team in September 2018. Since the contract award, PYC has further analyzed the site and potential construction methodology, including ways to reduce permanent and temporary impacts on jurisdictional resources. In addition, further field work was conducted to evaluate the resources present within the approximately 17-acre project area including a tidal wetland survey and a wetland function and values assessment. Additional ecological information regarding habitat and wetlands can be found in Section 5 – Environmental Resources.

The following evaluates options reviewed to avoid and minimize potential impacts of the PYMS, including minor shifts in alignment or minor changes to design, within the area identified in the DEIS as Alternative B. Major changes in station location and/or design are not considered in this section. As different station locations and designs are discussed in Section 3 – Alternatives Analysis, which documents that no practicable alternative is available.

4.1. PERMANENT IMPACTS

The station and track design are based on WMATA design standards that include specifications for track curvature and grade, station type (underground, at-grade, aerial) and station design (center platform vs. side platforms). The construction of the PYMS will result in the permanent loss of non-tidal wetlands resulting from the fill and grading necessary to achieve the proposed design.

4.1.1. Station Design

The station has been designed to minimize its footprint to the extent feasible. Most of the service and maintenance rooms are located partially below-grade in a corridor underneath the station platform rather than adjacent to the platform. The elimination of a previously planned second mezzanine from the station design plan further reduces the footprint and wetland impacts. The reduced station footprint minimizes permanent aquatic impacts on the east side of the station.

This station has been designed without a Park & Ride, Kiss & Ride parking lot, or parking garage structure. Focusing this station on pedestrian and bicycle traffic allows a design with a minimal footprint and the minimal new impervious surface.

4.1.2. Track and Station Location

As discussed in Section 3 – Alternatives Analysis, there is a maximum curvature and grade for the tracks approaching and within a station. Design standards require a maximum 0.35% grade on 750 vertical tangent feet within the station, and a maximum 4% grade with a 755-foot radius of curvature approaching/leaving the station. These standards were used while siting PYMS. While very minor shifts in track alignment may be possible within the design standards, other constraints limit location flexibility. Shifting the station to the west to further minimize wetland impacts would move the construction into the existing Metrorail tracks. Because the tracks within a Metrorail station must be straight, an on-line station



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cannot be built at this location due to the track curvature. Because an on-line station could not be built at the location of the existing tracks, construction also would require the complete shutdown of rail service for an extended period for track work and create unsafe working conditions for both workers and passengers. The proposed design allows off-line station construction near the existing Blue/Yellow line to facilitate a track connection conforming to the design standard while maintaining space between the existing and proposed facilities, thus allowing construction without impeding current service or risking worker and passenger safety, as well as avoiding the relocation of CSX tracks.

Shifting PYMS to the southern end of the site would negatively affect the existing Potomac Greens neighborhood due to increased noise, vibration, and additional intrusion of construction equipment and would not provide significant reduction in aquatic resource impacts. In the proposed design, the new track diverges from the current track at the northern end of Potomac Greens, just west of Potomac Greens Drive. Shifting the station south would move the divergent point further south and push the tracks into the existing residences in Potomac Greens and into Potomac Greens Drive. Homes would be displaced, and existing roads compromised. Furthermore, shifting the location further south would have minimal, if any, net reduction in wetlands impacts. Moving the station into the neighborhood would limit the working space for construction equipment, access, and laydown/storage, which means that additional temporary workspaces in wetlands at the northern and eastern portions of the site likely would be necessary. Due to the concave track curvature (relative to the station) at this location, shifting the station location further south also would necessitate that the station be shifted further east. Shifting the alignment in that direction would offset much if not all of the permanent wetland impacts and potentially would impact tidal wetlands. Although the track connection point at the southern end would be removed from the wetlands, the track realignment and connection point at the northern end would still require temporary and permanent wetland impacts for fill and track construction.

Shifting the station to the north would still impact the same wetlands to the east due to the grading, fill, and track layout required to maintain correct elevation and curvature. It would also move the construction closer to the GWMP, creating a greater negative impact to the viewshed of the GWMP and would increase impacts under Section 106.

4.1.3 Fill Slope

To match the elevation of the tracks approaching and exiting the station and achieve a the required maximum track grade of 0.35%, the station platforms and mezzanine must be built atop fill. The limits of fill required to support the station, tracks, and access/ emergency vehicle road on the eastern side of the station was scrutinized in the NEPA and preliminary planning phase, then again in the design phase by PYC. A range of embankment slopes was considered. A 1:1 slope reduces the impacts to wetlands but creates construction and safety issues with equipment working on a very steep slope. Also, maintenance of the slope integrity and landscaping becomes very difficult, and riprap stabilization is necessary. A 2:1 slope or greater (i.e. 3:1) is much easier to manage, safer to construct, and easier to landscape, but impacts more wetlands. After several engineering exercises, a slope of 1.5:1 was chosen to minimize the wetland impact to the greatest extent practicable while still maintaining the integrity of the embankment.

The visual impacts of the station on the multiple historic resources (GWMH, NPS Greens Scenic Easement, and City of Alexandria Old and Historic District) factor highly in the overall design of the station and any retaining wall or embankment evaluated in the design process. Large retaining walls would create a visual intrusion into the landscape. The NPS has expressed a strong desire to reduce visual impacts to the GWMP as much as possible. The NPS ROD states “the approach for the design is based on using materials that reflect both the design heritage of the GWMP as well as the natural, wooded environment in which the station will sit. The station is also designed to sit lightly in the landscape and not take a monumental approach, minimizing visual impacts to the GWMP.” The final design of the station and embankment are subject to review and approval by the NPS, and Alexandria Board of Architectural



POTOMAC YARD METRORAIL STATION

Avoidance and Minimization

Review to ensure that visual impacts to historic resources have been adequately addressed. The embankment screens the fire road and realigned track beds from view, reducing the visual impacts on the GWMP and other historic resources. Selection of the 1.5:1 slope embankment allows the project to both reduce the station's visual impacts and minimize wetland impacts to the extent practicable.

4.1.4 Emergency Access Roads

An access road beginning at Potomac Greens Drives and located adjacent to and east of the station is necessary to allow vehicular traffic at the station for maintenance, employees, and emergency services. Initially, the access road was planned as a 12-foot wide road to minimize wetland impacts. However, the need to accommodate larger emergency vehicles, including fire trucks, required that the road width be at least 22 feet. The fire access road along the eastern side of the site was modified from 12 feet to 22 feet, based comments from the City during the DSUP process. The Fire Marshall comments stated:

“Emergency vehicle easements shall be a minimum of 22 feet across the travel lane. The emergency vehicle easement shall provide access to strategic areas of the building and fire protection systems. Curbing and street components shall conform to the standards established by Transportation and Environmental Services and this document for emergency vehicle easements.”

Likewise, the Code Review referenced:

“The Applicant shall provide a separate Fire Service Plan which illustrates where applicable: a) emergency ingress/egress routes to the site; b) one fire department connection (FDC) for buildings under 5 stories or 55 feet or two sufficiently remote FDC's for buildings over 5 stories or 55 feet; c) FDC's located within one hundred (100) feet of any existing or new fire hydrants d) new fire hydrants installed not less than forty (40) feet from building e) on site fire hydrants spaced with a maximum distance of three hundred (300) feet between hydrants and the most remote point of vehicular access on site; f) emergency vehicle easements (EVE) around the building with a minimum width of twenty-two (22) feet; g) the location and size of the separate fire line(s) for the building fire service connection and fire hydrants.”

Multiple iterations of the road were designed to limit impacts while taking into account engineering constraints of the slopes and station design. Increased road width increased permanent wetland impacts along the eastern edge of the project. Figures 10-12 show the options considered with wetland impacts ranging from 66,500 square feet (1.53 acres) to 65,600 square feet (1.51 acres) for Alternative 1 and 72,500 square feet (1.66 acres) for Alternative 2. The original design (Figure 10) is the DSUP design showing the narrower road and a curvaceous fill slope to improve the natural appearance of the fill. Figure 11 shows Alternative 1 (selected Alternative) with a wider road, but straight, narrow fill slope to minimize impacts, while Figure 12 shows a slightly different configuration with greater resource impacts. Alternative 1 was chosen to move forward into design which minimizes the impacts to the wetlands while still meeting the requirement for a 22-foot wide emergency access road.



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Avoidance and Minimization

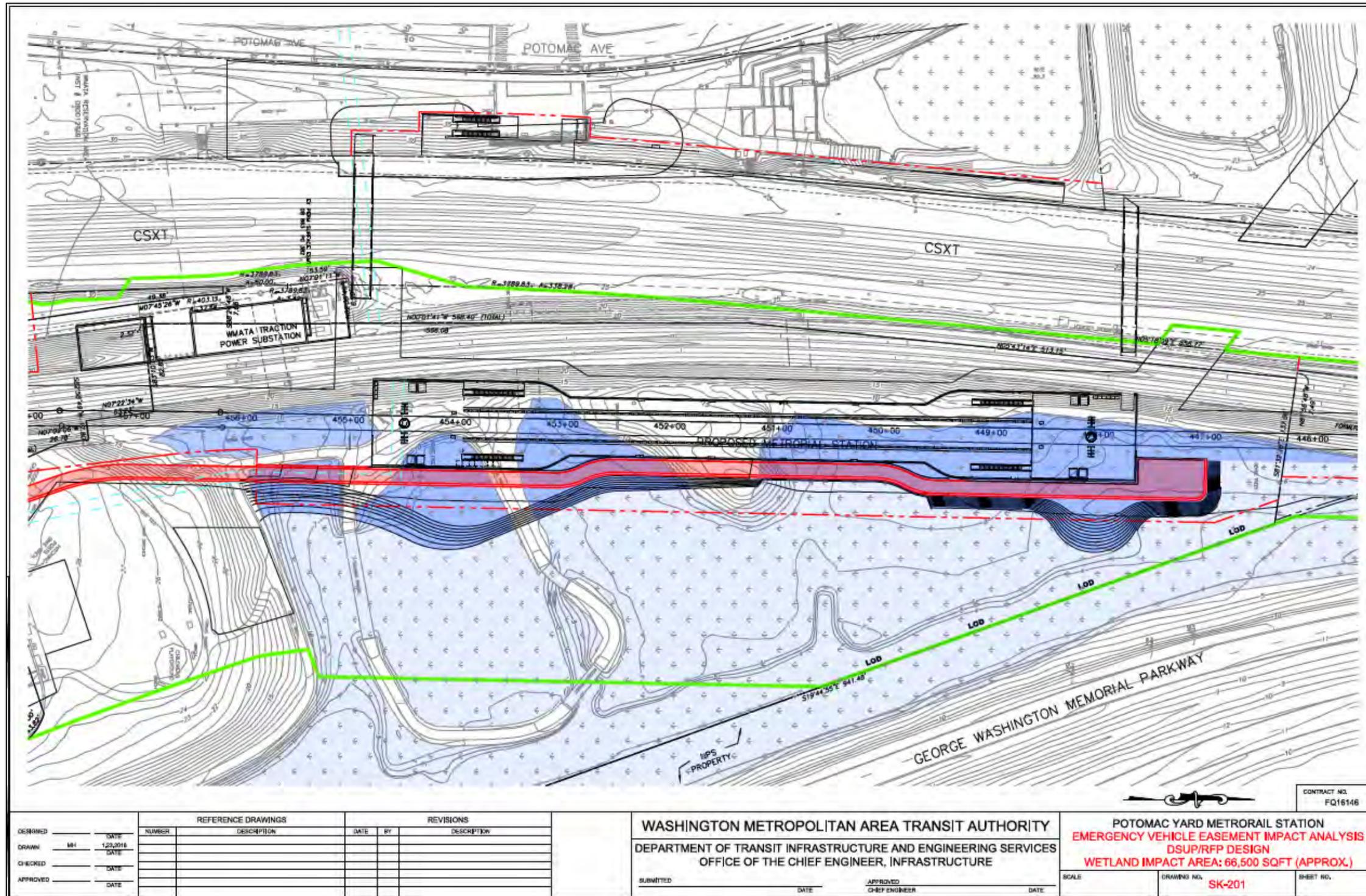


FIGURE 10. ORIGINAL EMERGENCY ACCESS ROAD AND UNDULATING SLOPE (NOTE: SOUTHERN MEZZANINE HAS SINCE BEEN REMOVED)



POTOMAC YARD METRORAIL STATION

Avoidance and Minimization

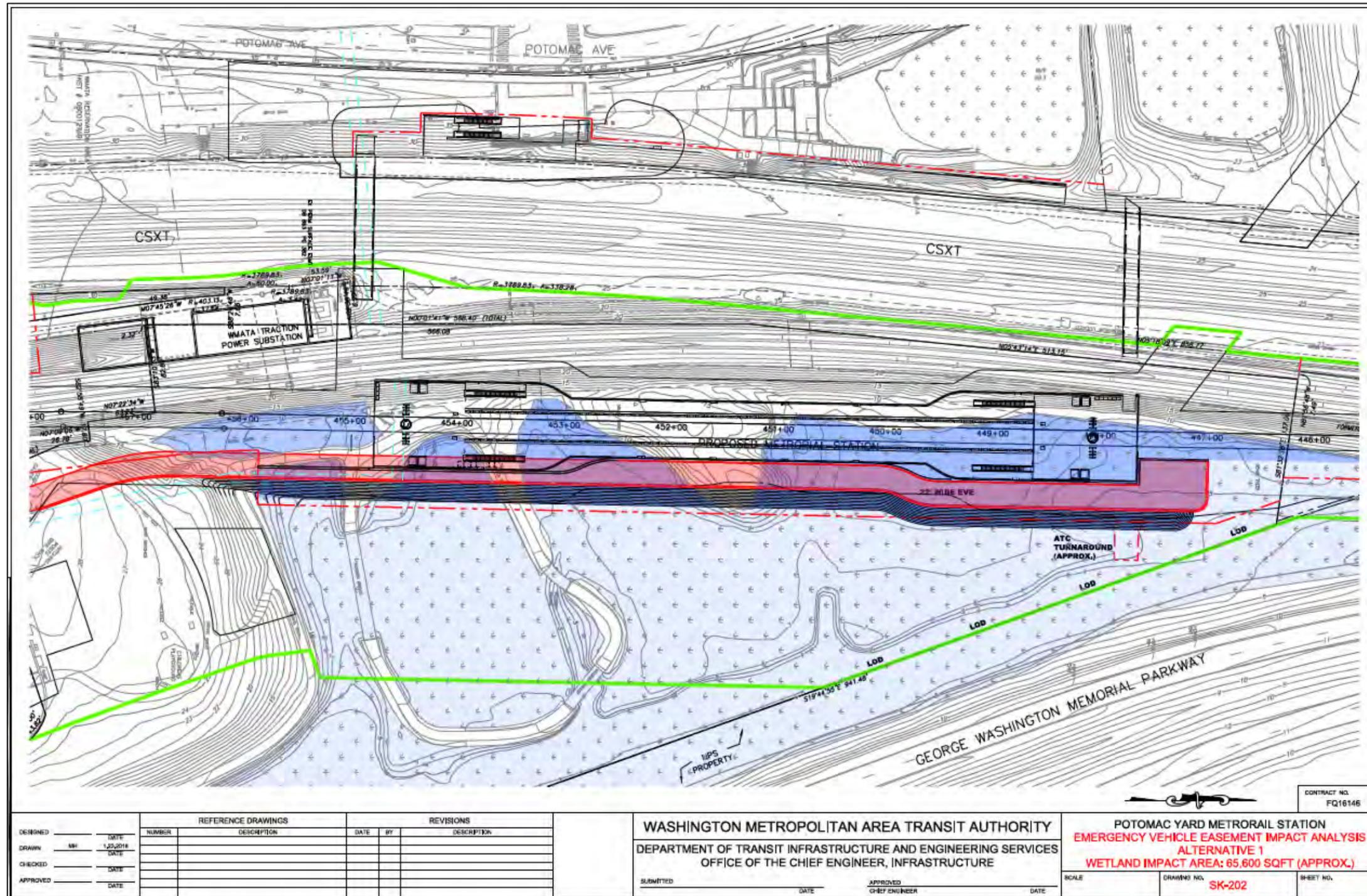


FIGURE 11. ALTERNATIVE 1 FOR 22-FOOT EMERGENCY ACCESS ROAD (NOTE: SOUTHERN MEZZANINE HAS SINCE BEEN REMOVED)



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Avoidance and Minimization

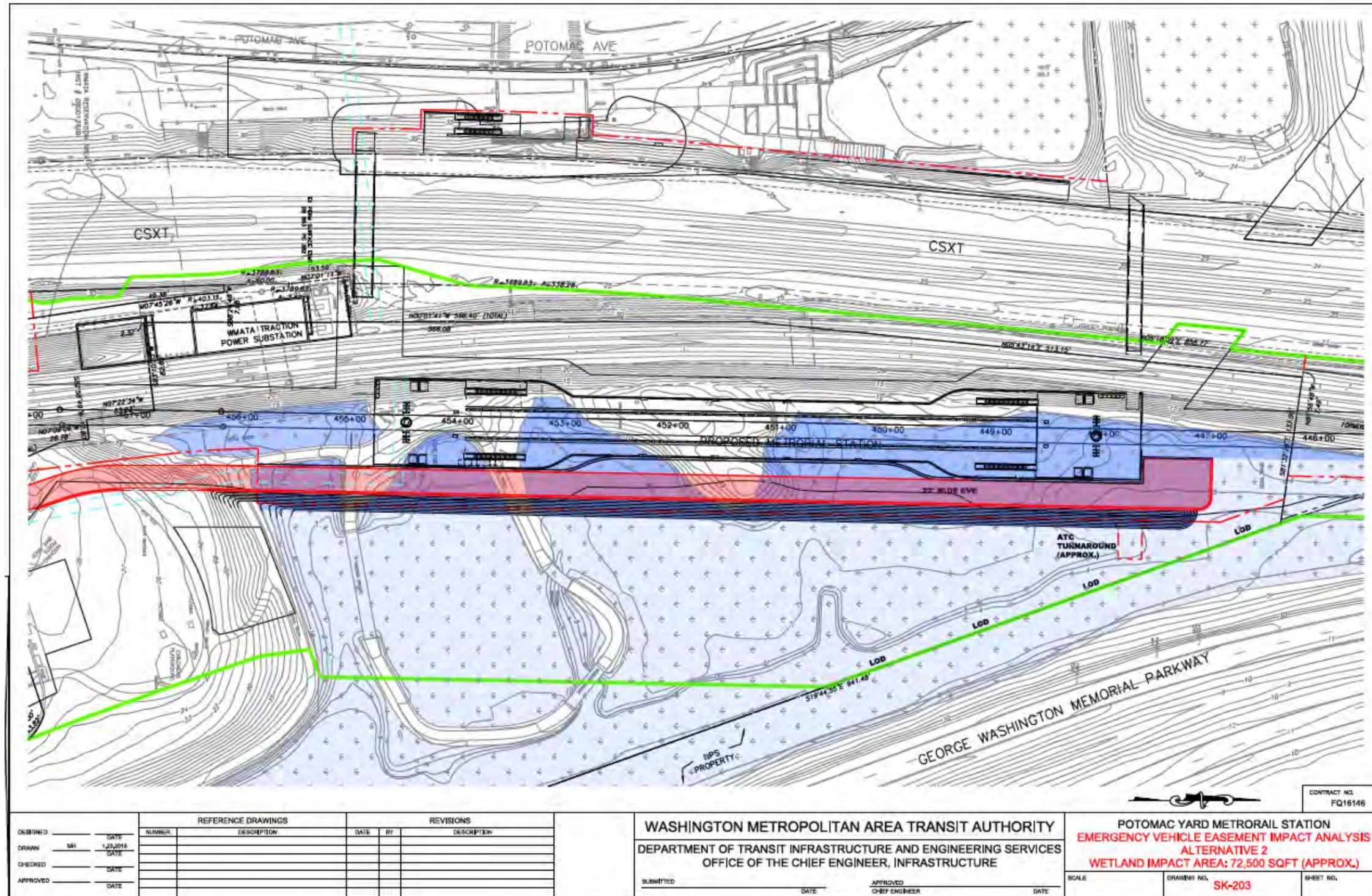


FIGURE 12. ALTERNATIVE 2 – EMERGENCY ACCESS ROAD (Note: Southern Mezzanine has since been removed)



POTOMAC YARD METRORAIL STATION

Avoidance and Minimization

4.1.5 Stormwater Management

If not properly managed, stormwater management facilities can greatly contribute to the total jurisdictional impacts of a project by using water resource areas such as wetlands or streams to convey or treat stormwater runoff generated by impermeable surfaces. The designers on this project will treat all runoff outside of the water resource areas. The Preliminary DSUP plans include an underground detention system on the eastern side of the station, along with an underground sand filter. On the southern and western portions of the site grass swales and bioretention filters will be used to store and treat runoff.

4.1.6 Summary

After the foregoing options were considered to avoid and minimize to the greatest extent practicable, the PYMS permanent unavoidable impacts for the station, tracks, access road, and associated fill of 0.92 acre PFO and 0.64 acre PEM non-tidal wetlands, for a total of 1.56 acre of permanent impact (Figures 13 and 14 – Appendix B: Graphics). Table 4-2 shows the progression of impacts as plans have been refined, including the impacts proposed in this application.

TABLE 4-2. PERMANENT IMPACTS COMPARISON

Date	PFO (acre)	PEM (acre)	TOTAL (acre)
January 2019 JPA	0.92	0.64	1.56
August 2018 Design Modification	0.92	0.637	1.56
October 2017 JPA	1.01	0.64	1.65
NPS ROD			Up to 3.25
FTA ROD			2.92-3.24

The design team has made every effort to minimize impacts to onsite jurisdictional areas while still meeting the project purpose and need. Appropriate and necessary steps have been taken to minimize potential adverse impacts resulting from the discharge of fill into the aquatic ecosystem. This project is not expected to impact a public water supply, any shellfish harvesting area, spawning grounds, waterfowl habitat; nor jeopardize threatened or endangered species of which we are aware; nor disrupt the movement of aquatic life. Therefore, this activity should not cause or contribute to the significant degradation of WOUS, nor should the activity adversely or substantially affect human health or welfare; life stages of organisms dependent upon the aquatic ecosystem; ecosystem diversity, productivity, or stability; or significantly degrade recreational, aesthetic, or economic values.

4.2. TEMPORARY IMPACTS

Temporary impacts were identified in the D/FEIS based on conceptual plans (5% design), allowing for typical construction access/egress, laydown areas, and storage based on standard, accepted construction practices. A design/build team can better explore site-specific construction methodology based on the skill set of team members and subcontractors, construction equipment available, materials, construction techniques, and unique strategies to meet the specific project requirements. Once PYC was selected for this project, they began looking at specific ways to reduce wetland impacts and, similarly, reduce the restoration areas.

Previous iterations of the conceptual plan included temporary impacts ranging from 3.25 acres in the FTA ROD down to 2.85 acres in the August 2018 design modification. Additional minimization by the design/build team, as discussed below, has reduced the temporary impacts to 2.01 acre (Figures 13 and



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14 – Appendix B: Graphics). Table 4-3 shows the progression of impacts as plans have been refined, including the impacts proposed in this application.

TABLE 4-3. TEMPORARY IMPACTS COMPARISON

	PFO (acre)	PEM (acre)	TOTAL (acre)
January 2019 JPA	1.1	0.91	2.01
August 2018 Design Modification	1.31	1.54	2.85
October 2017 JPA	1.38	1.59	2.97
NPS ROD			Up to 3.25
FTA ROD			2.92-3.24

Initial construction methodology assumed building the tracks and station from the eastern side of the project which would require a very wide construction laydown and staging areas. The design/build team is proposing to add fill starting at the southern end, and work toward the northern end of the project. This process will reduce the amount of temporary construction area needed. An access road will be created to reach the northern end of the project and fill will be brought in to create the appropriate grade and elevation for the tracks, starting at the northern end. Fill and grading will continue moving in a southerly direction until the necessary grades are reached.

A 50-foot wide work area between the final toe of slope and the proposed haul road is the minimum reasonably necessary to accommodate crane activities as it moves north-to-south carrying construction materials along the length of the project. Fill is necessary to create a solid, even work area for the crane to traverse the site. Trees will be cleared and clean fill material will be used to create the work space. Fill will be placed on top of filter fabric, separating the wetland soil from the fill material. This will preserve the wetland soils in place, along with the natural seed bank that can assist in regenerating wetland vegetation.

4.3 TIDAL IMPACTS

The tidal limits were determined during a field survey in November 2018. The original project limits defined in the design/build contract encroached into the tidal area. PYC revisited their initial plans to use this land for the stockpiles and staging and revised the work area limits to completely avoid the tidal area. A buffer of at least 10 feet will be placed around the uppermost tidal limit and will be protected in the field by erosion and sediment controls and additional tree protection fencing to create an obvious visual boundary to workers and equipment operators. A discussion of the tidal area can be found in Section 5- Environmental Resources.

4.4 SECONDARY IMPACTS

Secondary impacts can occur due to construction near or adjacent to natural resources. Tidal and non-tidal wetlands occur downstream of the project, in addition to the nearby Potomac River. The design/build team will make every effort to avoid secondary impacts to these resources. For this project, two specific items were explored as potential secondary impacts: stormwater management and erosion/sedimentation control. The DSUP (Appendix D), approved by the City on December 15, 2018, contains information regarding both topics. A summary is provided below.



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4.4.1 Stormwater Plan

The project site is located within the Potomac River watershed and consists primarily of wetlands with an existing rail bed located within the project boundary. The existing runoff drains eastward to a wetland area. Proposed conditions will consist of re-developing a new section of the existing rail bed, a new Metrorail platform, power switchgear building and pedestrian ramps and bridges for station access. Proposed runoff will drain to an existing wetland area eastward of the project site, similar to the existing runoff.

The proposed conditions increase the impervious area by 42,756 square feet (0.98 acres). Per the requirements of Article 13-109(E)(5)(d) of Alexandria Zoning Ordinance, to meet the 20% phosphorus reduction required, the Virginia Runoff Reduction Method (VRRM) Redevelopment spreadsheet was utilized to compute the post-development phosphorus loading requirement. A phosphorus reduction of 4.55 pounds/year is needed to meet water quality requirements. A combination of proprietary and non-proprietary BMPs in the conceptual plan, including Bioretention (Level 1), Hydrodynamic Devices and Underground Sand Filter to achieve a total of 4.58 pounds/year phosphorus removal for proposed conditions. As such the removal requirement has been met in the conceptual plan.

The increased runoff volume from the proposed conditions will be managed using an underground detention facility. This is located below the proposed station access road along the eastside of the station and discharging into the existing wetland area. Based on the Energy Balance Equation the required storage volume for the channel protection (1-year) and flood control (10-year) is estimated as 8,064 cubic feet and 13,500 cubic feet, respectively. The underground detention outfall drains into an existing wetland that discharges into a culvert beneath the GWMP. Per the requirements of Article 13-109(F) (1) of Alexandria Zoning Ordinance, the release of stormwater at a higher rate than pre-development conditions is prohibited. The point of analysis was set at the existing culvert beneath the GWMP. The allowable discharge is 7.97 cubic feet per second and 22.54 cubic feet per second for the 1-year and 10-year storm events respectively. Bentley Systems' PondPack modeled proposed conditions with a computed discharge of 4.10 cubic feet per second in the 1-year and 17.37 cubic feet per second in the 10-year. As channel protection and flood protection criteria are met in the 1-year, no adverse impacts are anticipated in the channel. Both flows were also modeled using Bentley Systems' Flowmaster at the point of analysis to evaluate potential for erosive velocities. Given the shallow slope at the outfall, the velocity in the 1-year is estimated at 1.85 feet per second and the 10-year is modeled at 2.86 feet per second. Per the Virginia Stormwater Management Handbook, these are lower than a typical vegetated permissible velocity of 3.00 feet per second. As such, it is not expected to cause erosion of the wetland. No level spreader or outlet protection is currently depicted in the conceptual plan; however, if a need is determined during more detailed design phases, the appropriate outfall treatment will be designed and incorporated.

The City manages the Virginia Stormwater Management Program for construction within city limits. The contractor will obtain coverage under the General Virginia Pollutant Discharge Elimination System (VPDES) Permit for Discharges of Stormwater from Construction Activities (CGP), including approval of a Stormwater Pollution Prevention Plan (SWPPP), prior to starting construction. These documents will verify that the stormwater calculations for quantity and quality, BMPs, erosion control plan, and pollution prevention plan meet Alexandria and state standards.

4.4.2 Erosion and Sediment Control Plan

An Erosion and Sediment Control Plan must be approved by the City's Director of Transportation and Environmental Services prior to the beginning of construction. All sediment control practices shall be constructed, inspected, and maintained in accordance with the minimum standards and specifications of the City, the Virginia Erosion and Sediment Control Handbook, CGP, SWPPP, and the Virginia Erosion and Sediment Control Regulations (9 VAC 25-840). Sediment basins and traps, perimeter dikes,



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sediment barriers and all other control measures shall be installed as a first step for any land disturbing activity. During construction, routine inspections will ensure that the controls are maintained.

4.5 CUMULATIVE IMPACTS

The overall Potomac Yard development is a very large endeavor over a large section of landscape. As the aerial photos in Section 1 – Project Information demonstrate, this land was previously used as a massive rail yard. To a great extent, the natural resources were removed or substantially altered during the course of rail yard development and operations. Further changes in the landscape occurred during the remediation efforts when the yard was decommissioned. There are numerous entities proposing residential and commercial development, all requiring utilities and transportation infrastructure, within the original Potomac Yard footprint. Some have completed the zoning and plan approval process while others are still being developed. The City is not planning other construction projects within Potomac Yard, but it is encouraging the overall redevelopment based on the small area plans. The cumulative impact on natural resources (wetlands, waters, habitat, floodplain, protected species) is minimal due to the historic land disturbance and removal of environmental features. Overall cumulative impacts were evaluated in more detail in the D/FEIS.



5 ENVIRONMENTAL RESOURCES

5.1 WETLANDS

A delineation of WOUS was conducted on an approximate 117-acre area by AECOM, Inc. in 2011 using the 1987 USACE Wetland Delineation Manual and Interim Regional supplement: Atlantic Gulf and Coastal Pain Region. The delineation was confirmed by the USACE on September 28, 2012 and reconfirmed on September 27, 2017. The jurisdictional determination documentation is provided in Appendix H. The subject site, included in the wetland delineation, comprises approximately 17 acres of the original 117-acre property and is located between the GWMP and the CSXT Railroad tracks, north of the Potomac Greens neighborhood (Figure 15 – Appendix B, Graphics).

Based on the data collected during the various field studies and review of aerial photography, the subject site has been modified by rail yard related land disturbing activities in the past (Section 1: aerial photos). While the entire site has been manipulated during the life of the railyard, the wetlands within the subject site most recently contained oil water separators (Aerial Reference) that were removed in 1993. As part of the remedial efforts in 1993, RF&P removed the three ponds from the former Potomac Greens Sub-Area. The water was pumped from each pond and the sediments were solidified with kiln dust and disposed off-site. The soil beneath the ponds was excavated until the concentration of total petroleum hydrocarbons (TPH) in the underlying soil was less than 100 milligrams per kilogram (mg/kg). The contaminated soil was then properly disposed of off-site. One of the former oil/water separator ponds is located within the site proposed for the PYMS building and one of the ponds is located within the proposed site of the new Metrorail Track.

There are several areas of irregular, unnatural topography throughout the site that appear to be spoil piles. While disturbed, the site does currently contain PEM and PFO wetlands.

The VMRC administers Virginia's tidal wetlands law pursuant to Section 28.2-1300 of the code of Virginia and the Wetlands Zoning Ordinance (WZO) contained therein. The WZO defines vegetated tidal wetlands as "lands lying between and contiguous to mean low water and an elevation above mean low water equal to the factor one and one-half times the mean tidal range...and upon which is growing any of the following species." As such, a tidal elevation survey was conducted in December 2018 by Waterway Surveys & Engineering and is provided in Appendix I. A graphic (Figure 16) showing the tidal wetland and its relationship to the project limits can be found in Appendix B. The survey reveals the presence of vegetated tidal wetlands within the subject site, but outside the currently proposed limits of disturbance. Appendix L contains supplemental datasheets to document current site conditions.

5.1.1 Habitat Descriptions

The following sections provide an overview of the current habitat within the subject site. The detailed report is provided in Appendix J – Habitat Assessment.

Palustrine Emergent Wetlands

Dominant vegetation within these PEM wetlands includes common reed (*Phragmites australis*), goldenrod (*Solidago spp.*), sawtooth blackberry (*Rubus argutus*), arrowleaf tearthumb (*Persicaria sagittata*), broadleaf cattail (*Typha latifolia*) and significant vine cover from porcelain berry (*Ampelopsis brevipedunculata*), with Japanese honeysuckle (*Lonicera japonica*) also present. PEM wetland areas within the subject site contain only sparsely scattered trees, saplings, and shrubs such as eastern cottonwood (*Populus deltoides*), American sycamore (*Platanus occidentalis*), Siberian elm (*Ulmus pumila*), and amur honeysuckle (*Lonicera maackii*).



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Hydrology present within the PEM wetland areas during field observations varied from areas of saturation in the upper 12 inches of the soil profile to inundation within depressional areas. Soils observed within PEM wetlands were sandy to silty clay loams 10YR 4/1 to 2.5Y 4/1 in Munsell color notation, with redoximorphic features present, suggesting a fluctuating water table.

Palustrine Forested Wetlands

Canopy trees within the forested portions of the site are characterized by eastern cottonwood, red maple (*Acer rubrum*), silver maple (*Acer saccharinum*), black locust (*Robinia pseudoacacia*), and black cherry (*Prunus serotina*). Most of these trees are considered to be early successional species and are located in drier portions of the site. These canopy trees range in size from 10-18 inches diameter at breast height, with larger trees onsite being primarily eastern cottonwood. Canopy trees present throughout the site are generally in fair condition as many of these trees contain significant invasive vine cover and deadwood within their crowns.

Hydrology present within the PFO wetland areas during field observations varied from areas of saturation in the upper 12 inches of the soil profile to inundation within depressional areas. Soils observed within PFO wetlands were primarily silty clay loams 10YR 4/1 to 7.5YR 4/2 in Munsell color notation, with redoximorphic features present, suggesting a fluctuating water table.

Non-Waters of the US

The remainder of the subject site consists of upland mounds and berms characterized by ruderal vegetation with significant cover from invasive species, situated on areas of higher ground. These areas appeared to lack one or more of the three parameters (vegetation, soils, hydrology) required for positive wetland identification during field observations due primarily to topographic setting resulting from historic alteration to the landscape. Vegetative cover within these areas consists of eastern cottonwood, red maple, black locust, and black cherry in the canopy and amur honeysuckle, eastern red cedar (*Juniperus virginiana*), staghorn sumac (*Rhus typhina*), sawtooth blackberry, and Japanese knotweed (*Fallopia japonica*) in the understory. There is significant vine cover throughout these areas in the form of porcelain berry, Japanese honeysuckle, oriental bittersweet (*Celastrus orbiculatus*), and English ivy (*Hedera helix*). Soils observed throughout these areas were highly variable as a result of historic human alteration to the landscape.

Invasive Species

A large portion of the vegetation documented within the subject site comprised of invasive species, as identified by the VDCR Virginia Invasive Species Plant List. Species on the list are ranked as exhibiting high, medium, or low levels of invasiveness based on their threat to natural communities and native species (VDCR, 2014). A list of common/dominant invasive species located within the wetland impact area are included in Table 5-1.

TABLE 5-1. INVASIVE SPECIES LIST

Invasive Species	Virginia Invasiveness Rank
Amur honeysuckle	High
Common reed	High
English ivy	Medium
Japanese honeysuckle	High
Japanese knotweed	High
Oriental bittersweet	High
Porcelain berry	High



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5.1.2 Functional Assessment

To document functions and values of wetlands within the study area, the Highway Methodology, originated by the New England District of the USACE (USACE, 1993) was utilized. The Highway Method approach includes a qualitative description of the physical characteristics of the wetlands, identifies the functions and values exhibited, and most importantly, provides the basis for the conclusions using "best professional judgment." While it is a descriptive approach to evaluating wetlands, it uses a format that is organized, predictable, and easily documented for each function and value. It incorporates both wetland science and human judgment of values. Functions relate to the ecological significance of wetland properties without regard to subjective human values, including all processes necessary for the self-maintenance of the wetland ecosystem. Values are benefits that derive from either one or more functions and physical characteristics of a wetland, and/or the human judgment of the worth, merit, quality or importance attributed to those functions. The following presents a summary of the assessment. The full report is provided in Appendix K – Functional Assessment.

The following functions and values were evaluated for the wetland impact area:

- Functions
 - Groundwater Recharge/Discharge
 - Flood flow Alteration
 - Fish and Shellfish Habitat
 - Sediment/Toxicant/Pathogen Retention
 - Nutrient Removal/Retention/Transformation
 - Production Export
 - Sediment/Shoreline Stabilization
 - Wildlife Habitat
- Values
 - Recreation
 - Educational/Scientific Value
 - Uniqueness/Heritage
 - Visual Quality/Aesthetics
 - Threatened or Endangered Species Habitat

Based on the results of the functional assessment evaluation, the subject site retains aquatic functions and values for many of the above-mentioned parameters. The principal functions/values of the system are groundwater recharge/discharge, flood-flow alteration, sediment/toxicant retention, nutrient removal, wildlife habitat and recreation. Additional functions/values that are suitable within the wetland impact area include sediment/shoreline stabilization, educational/scientific value, uniqueness and heritage, and visual quality/aesthetics. Functions and values lacking within the wetland impact area include fish and shellfish habitat and endangered species habitat. Overall the functional capacity of the wetlands is reduced due to the land use history and high levels of modification, as well as a dominant presence of invasive species.



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5.2 RESOURCE PROTECTION AREA

The project site lies with the City's mapped and regulated Chesapeake Bay Preservation Areas boundary (CBPA). The RPA 50 and 100-foot buffer is shown in Figure 17. The construction of the PYMS will result in 4.27 acre of permanent and 0.61 acre of temporary impacts to the RPA buffer. The Zoning Ordinance for the City (Section 13-123) allows for "construction, installation, operation and maintenance of electric, natural gas, fiber-optic, and telephone lines, railroads and public roads constructed by VDOT or by or for the City in accordance with VDOT standards (built separately from development projects regulated under Section 13-106), and their appurtenant structures."

5.3 THREATENED AND ENDANGERED SPECIES

In order to determine the potential for the proposed project to impact federally and/or state protected species, Stantec conducted a review of the following agency databases and on-line resources: U.S. Fish and Wildlife Service (USFWS) Information for Planning and Conservation database (IPaC); Virginia Department of Game and Inland Fisheries (VDGIF) Virginia Fish and Wildlife Information Service database (VaFWIS); VDGIF Northern Long-Eared Bat Winter Habitat and Roost Tree application; Little Brown Bat and Tri-colored Bat Winter Habitat and Roosts application; Center for Conservation Biology (CCB) Virginia Bald Eagle Nest Locator; and the VDCR Department of Natural Heritage (DNH) Natural Heritage Data Explorer (NHDE). The results of the database queries are included in Appendix M.

Based upon a review of the USFWS IPaC database, no federally threatened, endangered or candidate species were identified as potentially occurring within the project area and/or may be affected by the proposed project. In 2012, a search of the IPaC database conducted for the project in 2012 listed the sensitive joint-vetch (SJV). As a result, a SJV survey was conducted within areas that were identified as marginal habitat and the absence of the species was confirmed. Due to SJV not being identified on the recent search of the IPaC database, no additional surveys are required, and the project should have no effect on the species.

A search of the VDGIF VaFWIS on-line database did not indicate the confirmed presence of federal or state listed threatened or endangered fauna within a two-mile radius of the project area. Per the VDGIF Interagency Coordination Recommendations, coordination is only required with VDGIF on species identified in the VaFWIS database as confirmed within a two-mile radius of the project area. Therefore, unconfirmed species identified in the VaFWIS database were not evaluated.

A search of the VDGIF Northern Long-Eared Bat/Little Brown Bat and Tri-colored Bat Winter Habitat and Roosts applications did not identify any roost trees or hibernacula within the vicinity of the project area.

The CCB Virginia Bald Eagle Nest Locator indicates that there are no bald eagle nests within 3 miles of the project area.

The NHDE database listed the wood turtle (*Glyptemys insculpta*) as likely to occur within the Potomac River – Fourmile Run sub-watershed. The wood turtle is not listed as confirmed by VaFWIS within two miles of the project area. Due to the highly fragmented nature of the wetland area, limited areas of marginal habitat and lack of VDGIF records of the species within the project vicinity, impacts to the wood turtle are not anticipated.

Based upon the results of the database and on-line searches, no impacts on federally or state listed threatened, endangered or candidate species are expected because of this project.



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5.4 FLOODPLAIN

According to the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM) for Alexandria, Virginia, Community Panel Number 515519033E (Figures 18 and 19; Appendix B - Graphics), dated June 16, 2011, the proposed project is located within the 100-year floodplain (Zone AE). An estimated 1.75 acres of floodplain will be permanently filled and 2.1 acres will be temporarily disturbed. Considerations were taken during the preliminary design to address impacts to the floodplain, including locating the station, facilities, tracks and storage utilities above the 100 and 500-year floodplain as required by The Zoning Ordinance of the City. In addition, the City requires that no filling of any kind shall be allowed within the boundaries of any A or AE zone except where such filling, when considered in conjunction with all other uses, existing and proposed, will not increase the base flood elevation more than 0.5 foot. The final site plan will comply with this requirement.

5.5 HISTORIC RESOURCES

The National Historic Preservation Act Section 106 process was completed as part of the development of the FEIS. As part of the Section 106 process, a MOA was developed and subsequently signed on October 24, 2016 by the FTA, the City, WMATA, Virginia Department of Historic Resources (VDHR), and NPS to address adverse impacts on historic resources. A copy of the MOA is provided in Appendix N.

As discussed in the MOA, five historic properties are considered within the proposed project's APE. The FTA determined and VDHR concurred, that the proposed project will result in an adverse effect on four resources: the GWMP, MVMH, Parkways of the National Capital Region (PNCR), and the GSAE. The adverse effect is due to the removal of contributing vegetative features of the GWMP and MVMH for construction and staging, permanent and temporary use of the GWMP and GSAE land for constructing and permanent construction of rail facilities within the National Register boundaries of the GWMP and MVMH. Abington apartments were reviewed as part of the determination of effect and no adverse effect was determined and concurred upon.

Two archeological resources (44AX0221 and 44AX0222) were noted within the vicinity of the proposed project's APE. All work occurring during the construction near these two resources will be monitored by a Professional Archeologist. Specifically, the installation of protective fencing around these areas and any ground disturbing activities in their vicinity. The archeologist will review any area of disturbance shown on the final design within 50-feet of these areas and provide recommendations. Because of this, no impacts on these resources are proposed or anticipated.

As part of the preparation of the JPA, in December 2018, the VDHR Virginia Cultural Resources Information System (VCRIS) database was used to search archives for evidence of known historic resources within the proposed project area not previously identified. No additional resources were identified. A map of the project area and datasheets can be found in Appendix N.

5.6 HAZARDOUS MATERIALS

The presence of hazardous and contaminated materials at the site of the PYMS, located on a former railyard in the City, has been previously documented, including extensive remedial investigations and reports. The USEPA conducted previous environmental assessments of this portion of Potomac Yard in 1995 and determined that the site was stable, and that the human health and ecological risk associated with the site was acceptable under then-current and anticipated future use scenarios. The previous studies also concluded that the shallow groundwater is not utilized in the site area and is not a complete pathway to potential receptors.



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As part of the NEPA process, a Phase I Environmental Site Assessment (ESA) was completed for the entire study area to support findings presented for each proposed alternative in the DEIS (*Potomac Yard Metrorail Station Draft Phase I ESA and Hazardous & Contaminated Materials Technical Memorandum*, February 2013, found in Appendix O). A total of seven borings (B-1, B-2, B-4 through B-8) were completed within the project limits of the PYMS site (referred to in the DEIS / FEIS as Alternative B or the Preferred Alternative), during October 15 and October 16, 2015. All soil borings encountered fly ash within two feet of the ground surface, and all borings encountered fly ash saturated with groundwater at depths ranging from four to six feet below ground surface (*Potomac Yard Metrorail Station Final EIS*, June 2016).

The Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) analyses detected contaminants in ground water. The groundwater analyses focused on the metals most commonly associated with ballast; arsenic, copper, and lead. The 1995 CERCLA analysis identified metals and petroleum hydrocarbons present in the groundwater at the property. Recent groundwater sampling conducted at Landbay G, located across the existing Metrorail Blue/Yellow line from the project site, in 2004 and 2006 also detected concentrations of metals and petroleum hydrocarbons. The issue of potential groundwater contamination near the Potomac Yard site has been studied extensively over more than 20 years and there is no evidence of any ecological or health issue posed by any contaminated groundwater that may have migrated off the Potomac Yard site (*Potomac Yard Metrorail Station Final EIS*, June 2016).

Three oil/water separator ponds were located in the north, middle, and south portions of former Potomac Greens Sub-Area which collected surface water containing grease and spilled fuel oil from refueling and maintenance operations in the former Central Operations Area, North Yard, and South Yard Sub-Areas. During 1977 and 1978, the three ponds were moved from their original locations to clear a path for the Metrorail Yellow Line. The original separator ponds were then filled with soil and fly ash (ETI, Inc., 1995).

During 1993, the RF&P railroad removed the three ponds from the former Potomac Greens Sub-Area. The water was pumped from each pond and the sediments were solidified with kiln dust and disposed off-site. The soil beneath the ponds was excavated until the concentration of TPH in the underlying soil was less than 100 mg/kg. The contaminated soil was then properly disposed of off-site. One of the former oil/water separator ponds is located within the site proposed for the PYMS building and one of the ponds is located within the proposed site of the new Metrorail Track.

Dredge spoils from the mouth of Four Mile Run were placed at the Potomac Greens Sub-Area by the USACE in 1983. The USACE constructed a rectangular impoundment located in the south-central portion of Potomac Greens to contain the dredged material. The spoils were deposited within a 10 to 15-foot-high embankment and distributed in a layer that varied from 1 to 12 feet in thickness. The dredge spoils were removed during redevelopment of the Potomac Greens Sub-Area.

The results of the assessments show that construction in the project area has the potential to encounter cinder ballast, fly ash fill, soil with potentially elevated metal concentrations (arsenic), and impacted groundwater related to Recognized Environmental Conditions (RECs) (*Phase I ESA and Hazardous and Contaminated Materials Technical Memorandum*). Residual petroleum may also be encountered in fill material near the location and depth of former oil/water separator ponds. However, the project would not result in long-term or permanent adverse effects due to risk mitigation and engineering controls and measures that would be used during construction. Construction in the PYMS area is not expected to have permanent impacts to general soils, geological, groundwater, or topographic conditions (*Potomac Yard Metrorail Station / Final EIS* June 2016).

RECs within the study area have been remediated or mitigated by risk management methods during previous USEPA, VDEQ, and City oversight of historic remedial activities and during more recent subsequent redevelopment activities, including removal of contaminated soils. The City has concluded



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that there is no environmental need to further test the groundwater on the NPS easement, or elsewhere within the PYMS project limits, due to the following reasons:

- In a 1995 Risk Assessment, one of the studies used to evaluate removal action alternatives, concluded that contaminated groundwater did not pose a risk to human or ecological health
 - The recommended removal action did include a requirement for ongoing groundwater testing and a plan for response if the testing detected elevated levels of contaminants
- In 1997, as part of the remediation effort, *Off-Site Ecological Risk Assessment for the Potomac Yard Site*, dated March 20, 1997, evaluated whether contaminants from Potomac Yard were migrating off-site and posing a risk to human or animal health. The study tested sediments in Four Mile Run and the Potomac River and concluded that there was no evidence that hazardous substances from Potomac Yard posed an off-site ecological risk (M.C. Bernstein, personal communication, May 10, 2017)

The potential impacts of the construction of PYMS on RECs could occur during construction activities. There will be minimal excavation during construction; plans rely heavily on fill for the necessary grade changes. Any excavated materials will be hauled off site to an approved disposal area. All fill brought onsite, included permanent and temporary fill in the wetlands, will be clean fill from an approved offsite area. No below-grade structures are proposed for the PYMS at this time, except for underground utilities, vaults, or shallow excavations for piles. For the most part, these features would be placed in the clean fill needed to accommodate the station platform and required track. This clean fill would come from off-site resources and would include soils that are conducive to track functions and load-bearing specifications. (*Potomac Yard Metrorail Station / Final EIS* June 2016).

In summary, at the conclusion of construction of the PYMS, the site would be returned to its current stable condition or better. Management of contaminated soil and water on the site and disposal off-site would be conducted in accordance with applicable Virginia solid waste management regulations and water management regulations.



6 COMPENSATORY MITIGATION

6.1 NON-TIDAL PERMANENT WETLAND IMPACTS

Compensatory mitigation is required for all non-tidal, permanent wetland impacts resulting from this project. The USACE and USEPA published a rule regarding *Compensatory Mitigation for Losses of Aquatic Resources* effective June 9, 2008 that defines a hierarchy of mitigation options that will best benefit the environment. Based on the hierarchy, credits from a mitigation bank in the project’s watershed is the environmentally preferable choice for mitigation needed for permanent impacts because banks consolidate greater resources, involve substantial planning and review, and utilize the latest ecological expertise.

Compensatory mitigation is calculated using a mitigation to impact ratio based on wetland type. The compensatory mitigation ratio for PEM wetlands is 1:1; scrub-shrub wetlands is 1.5:1; and PFO wetlands is 2:1. Based on the proposed impacts and compensation ratios as shown in Table 6-1, 2.48 wetland credits are proposed for permanent impacts due to fill and grading.

TABLE 6-1. COMPENSATORY MITIGATION

PEM Impact (acre)	Required Mitigation (1:1 ratio)	PFO Impact (acre)	Required Mitigation (2:1 ratio)	Total Mitigation Required
0.64	0.64	0.92	1.84	2.48 credits

The City will purchase 2.48 credits from the Buena Vista Wetland Mitigation Bank managed by Falling Springs LLC and approved by both the USACE and VDEQ. Buena Vista’s service area includes the PYMS site. A credit availability letter and service area map are included in Appendix P – Compensatory Mitigation.

6.2 NON-TIDAL TEMPORARY WETLAND IMPACTS

The PYMS will temporarily impact 1.1 acre of non-tidal PFO wetlands and 0.91 acre non-tidal PEM wetlands for site access, temporary fill, and laydown and storage areas during construction. Based on the mitigation rule cited above, “Restoration should generally be the first option considered because the likelihood of success is greater and the impacts to potentially ecologically important uplands are reduced compared to establishment, and the potential gains in terms of aquatic resource functions are greater, compared to enhancement and preservation.” The City proposes to restore the temporary impacts to the wetlands by returning the area to existing contours after the removal of temporary fill, then revegetating the area. The restored area will feature native plants similar to current vegetation, with the exclusion of invasive species, and seeded with a native seed mix. Preliminary Wetland Restoration Plan providing planting and monitoring details can be found in Appendix P- Compensatory Mitigation.

The restoration plan, which was developed based on the standard permit conditions for restored areas, includes details for monitoring during restoration activities, and for successive years, until the success criteria are met. Pre-construction photographs will be taken of the site to document the existing conditions. During construction, monthly photographic monitoring of compensation site construction will be completed to document that construction activities are being performed in accordance with the permit conditions and in a manner to prevent impacts to adjacent surface waters. In accordance with the anticipated permit conditions, compensation site Construction Monitoring Reports will be submitted within 30 calendar days of each monitoring event. For temporary disturbances to surface waters, photographic



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Compensatory Mitigation

monitoring will be conducted at each temporary impact location after the temporary disturbance activity is complete in order to document that the area has been restored in compliance with the permit conditions. The first construction monitoring report will include the photographs taken at the compensation site prior to initiation of land disturbance or construction activities at the compensation site.

The restoration area will be monitored during the growing season for the 1st, 2nd, 3rd, 4th, 5th, and 7th monitoring year based on the following parameters:

- The first Restoration Monitoring Report will include an as-built survey conducted by a licensed surveyor for the wetland compensation area including the acreage and spot elevations throughout the compensation area.
- The 1st monitoring period will be the 1st growing season after the completion of grading and planting.
- If all success criteria have not been met in any monitoring year, then a monitoring report will be required for each consecutive year until two sequential annual reports indicate that all criteria have been successfully satisfied. This will be required regardless of the monitoring year; and,
- The monitoring period will be extended for adherence to all applicable success criteria, to include additional monitoring years if all success criteria are not met the final two monitoring years.
- For any year in which planting is conducted, monitoring of vegetation will take place at least 6 months following planting.
- Reports will be submitted by December 31 of each year until monitoring is complete.



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Public Involvement

7 PUBLIC INVOLVEMENT

The D/FEIS process documents the engagement activities during the NEPA process. City records were requested for meetings involving the public that have occurred after the FTA signed the Record of Decision on October 31, 2016 through the time of this application. The following meetings were held with the following organizations to solicit feedback during the City's DSUP application process:

- Wednesday, April 4, 2018-Community Meeting at Charles Houston Rec Center
- Tuesday, April 10, 2018-City Council Legislative meeting
- Thursday, April 12, 2018-WMATA Finance and Budget Committee Meeting
- Wednesday, May 09, 2018- Potomac Yard Metrorail Implementation Work Group (PYMIG) Meeting
- Monday, June 4, 2018-Lynhaven Civic Association
- Thursday, June 21, 2018-Potomac Yard Civic Association (PYCA)
- Monday, August 20, 2018-PYCA
- Thursday, August 23, 2018-Potowmack Crossing II Condo
- Wednesday, September 12, 2018-Del Ray Citizens Association
- Monday, September 17, 2018-Old Town Greens Condo and Town House Association
- Wednesday, September 19, 2018-Northeast Citizens Association
- Tuesday, September 25, 2018-City Council - Project Update
- Wednesday, September 26, 2018- PYMIG Meeting
- Monday, October 01, 2018-Lynhaven Civic Association
- Wednesday, October 17, 2018-Board of Architectural Review Briefing
- Wednesday, October 17, 2018-Potomac Greens Homeowners Association
- Thursday, October 18, 2018-Potomac Yard Civic Association PYCA
- Monday, October 22, 2018- PYMIG Meeting
- Tuesday, October 23, 2018-City Council Project Update
- Monday, October 29, 2018-PYMIG Meeting
- Monday, November 05, 2018-PYMIG Meeting
- Monday, November 12, 2018-PYMIG Meeting
- Monday, November 26, 2018-PYMIG Meeting
- Tuesday, December 06, 2018-Planning Commission Public Hearing
- Saturday, December 15, 2018-City Council Public Hearing
- Monday, February 4, 2019 – PYMIG Meeting



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Public Involvement

As shown by the list above, meetings were held with a variety of groups at a variety of locations and times. As a result of these meetings, City staff recommended approval of the Development SUPs for the project.

Additional public meetings for small area plans within the vicinity of the project were held. These meetings are listed below:

North Potomac Yard Small Area Plan:

- Monday, April 18, 2016 (7pm-9pm) – North Potomac Yard Small Area Plan (SAP) Update Kick-Off Meeting
- Saturday, April 30, 2016 (9am-1pm) – North Potomac Yard SAP Advisory Group Precedent Tour
- Tuesday, May 17, 2016 (8am-7pm) – North Potomac Yard SAP Workshop and Open House
- Monday, June 6, 2016 (7pm-9pm) – North Potomac Yard Advisory Group Meeting
- Monday, June 27, 2016 (7pm-9pm) – North Potomac Yard Advisory Group Meeting
- Thursday, June 30, 2016 (12pm-1:30pm) – North Potomac Yard Advisory Group Work Session – Focused on the Metro Zone
- Monday, July 25, 2016 (7pm-9pm) – North Potomac Yard Advisory Group Meeting
- Friday, July 29, 2016 (12pm-1:30pm) – North Potomac Yard Advisory Group Work Session
- Monday, August 29, 2016 (7pm-9pm) – North Potomac Yard Advisory Group Meeting
- Monday, September 19, 2016 (6pm-7pm) – North Potomac Yard Open House and Advisory Group Meeting
- Monday, October 17, 2016 (7pm-9pm) – North Potomac Yard Advisory Group Meeting
- Monday, November 14, 2016 (7pm-9pm) – North Potomac Yard Advisory Group Meeting
- Monday, January 31, 2017 (7pm-9pm) – North Potomac Yard Advisory Group Meeting
- Wednesday, February 15, 2017 (7pm-9pm) – Transportation Commission – Review of North Potomac Yard SAP
- Monday, February 28, 2017 (7pm-9pm) – North Potomac Yard Advisory Group Meeting
- Tuesday, March 28, 2017 (7pm-9pm) – North Potomac Yard Advisory Group Meeting
- Tuesday, April 18, 2017 (7pm-9pm) – North Potomac Yard Community Open House
- Wednesday, April 19, 2017 (7pm-9pm) – Transportation Commission – Approval of North Potomac Yard SAP
- Wednesday, April 26, 2017 (7pm-9pm) – North Potomac Yard Advisory Group Meeting
- Tuesday, June 6, 2017 (7pm-9pm) – Planning Commission approval of North Potomac Yard SAP Update
- Tuesday, June 13, 2017 (7pm-9pm) – Council approval of North Potomac Yard SAP Update

Oakville Triangle / Route 1 Corridor Plan:

- Tuesday, April 29, 2014 (7pm-9pm) – Oakville Triangle / Route 1 Corridor Advisory Group Meeting



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Public Involvement

- Tuesday, May 20, 2014 (7pm-9pm) – Oakville Triangle / Route 1 Corridor Advisory Group Meeting
- Monday, June 2, 2014 (7pm-9pm) – Oakville Triangle / Route 1 Corridor Advisory Group Meeting
- Monday, June 23, 2014 (7pm-9pm) – Oakville Triangle / Route 1 Corridor Advisory Group Meeting
- Thursday, August 14, 2014 (7pm) – Walking tour of Potomac Yard neighborhood and Oakville Triangle (open to public)
- Monday, August 18, 2014 (7pm-9pm) – Oakville Triangle / Route 1 Corridor Advisory Group Meeting
- Monday, October 27, 2014 (6pm-9pm) – Oakville Triangle / Route 1 Corridor Open House and Advisory Group Meeting
- Thursday, November 6, 2014 (7pm-9pm) – Planning Commission Work Session on the Oakville Triangle / Route 1 Corridor Plan
- Thursday, November 13, 2014 (7pm-9pm) – Oakville Triangle / Route 1 Corridor Advisory Group Meeting
- Wednesday, November 19, 2014 (7pm-9pm) – Transportation Commission – Update on the Oakville Triangle/Route 1 Corridor Plan
- Tuesday, December 9, 2014 (7pm-9pm) – City Council Work Session on the Oakville Triangle / Route 1 Corridor Plan
- Wednesday, December 10, 2014 (6pm-9pm) – Oakville Triangle / Route 1 Corridor Open House and Advisory Group Meeting
- Thursday, January 22, 2015 (7pm-9pm) – Oakville Triangle / Route 1 Corridor Advisory Group Meeting
- Thursday, February 26, 2015 (7pm-9pm) – Oakville Triangle / Route 1 Corridor Advisory Group Meeting
- Thursday, March 26, 2015 (7pm-9pm) – Oakville Triangle / Route 1 Corridor Advisory Group Meeting
- Wednesday, April 29, 2015 (7pm-9pm) – Oakville Triangle / Route 1 Corridor Advisory Group Meeting
- Monday, June 1, 2015 (7pm-9pm) – Oakville Triangle / Route 1 Corridor Advisory Group Meeting
- Tuesday, June 2, 2015 (6pm-7pm) – Planning Commission Work Session on Oakville Triangle / Route 1 Corridor Plan
- Tuesday, June 23, 2015 (6pm-7pm) – City Council Work Session on Oakville Triangle / Route 1 Corridor Plan
- Monday, June 29, 2015 (7pm-9pm) – Oakville Triangle / Route 1 Corridor Advisory Group Meeting
- Monday, August 17, 2015 (7pm-9pm) – Oakville Triangle / Route 1 Corridor Advisory Group Meeting
- Thursday, September 10, 2015 (7pm-9pm) – Oakville Triangle / Route 1 Corridor Advisory Group Meeting



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Public Involvement

- Wednesday, September 16, 2015 (7pm-9pm) – Transportation Commission – Public Hearing and approval of the Oakville Triangle/Route 1 Corridor Plan
- Saturday, October 17, 2015 – City Council Public Hearing to approve the plan and design guidelines
- Thursday, December 10, 2015 (7pm-9pm) – Oakville Triangle / Route 1 Corridor Advisory Group Meeting
- Wednesday, January 5, 2016 – Planning Commission Public Hearing to approve the plan
- Saturday, January 30, 2016 – City Council Public Hearing to approve a Master Plan Amendment

Potomac Yard Metrorail Station:

- Wednesday, November 2, 2011 (7pm-9pm) – Transportation Commission – Update on project
- Wednesday, March 7, 2012 (7pm-9pm) – Transportation Commission – Update on EIS
- Wednesday, November 12, 2012 (7pm-9pm) – Transportation Commission – Update on the EIS
- Wednesday, February 18, 2015 (7pm-9pm) – Transportation Commission – Update on the EIS
- Monday, May 11, 2015 (7pm-9pm) – Transportation Commission – Public Hearing on the Potomac Yard Metrorail Station EIS / Locally Preferred Alternative (LPA)
- Wednesday, November 18, 2015 (7pm-9pm) – Transportation Commission – Update on the EIS
- Wednesday, May 18, 2016 (7pm-9pm) - Transportation Commission – Approval of the Draft SUP and associated zoning approvals

Additional information regarding the City's public engagement efforts including agendas and presentations can be found at: <https://www.alexandriava.gov/potomacyard/default.aspx?id=101656>. Information regarding PYIMG can be found at: <https://www.alexandriava.gov/PotomacMetroWorkGroup>.



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8 REFERENCES

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- USACE, 1993. The Highway Methodology Workbook, US Army Corps of Engineers; New England District; October 1993
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