

Attachment G: Summary of Environmental Impacts

The below table represents a comparison of the environmental and socioeconomic impacts of the build alternatives and no-build alternative for the Project and it includes both short-term construction related effects and long-term impacts. The below effects do not include the design refinements to the Preferred Alternative.

Resource	Impacts				
	No Build Alternative	Preferred Alternative	Build Alternative A	B-CSX Design Option	Build Alternative D
Transportation					
Traffic	Increase in average delay at one intersection by 2040	Increase in average delay at one intersection by 2040	Increase in average delay at one intersection by 2040	Increase in average delay at one intersection by 2040	Increase in average delay at one intersection by 2040
Metrorail Operations	None	<ul style="list-style-type: none"> • Additional train midday off-peak (2020 and 2040) • Direct Metrorail access 	<ul style="list-style-type: none"> • Additional train midday off-peak (2016 and 2040) • Direct Metrorail access 	<ul style="list-style-type: none"> • Additional train midday off-peak (2016 and 2040) Direct Metrorail access 	<ul style="list-style-type: none"> • Additional train midday off-peak (2016 and 2040) • Direct Metrorail access
Surface Transit (bus)	None	None	None	None	None
Metrorail Ridership (2040)	n/a	11,300	10,000	10,000	10,000
Pedestrian and Bicycle Accommodations	Improved bicycle/pedestrian access between Potomac Yard and Potomac Greens	Improved bicycle/pedestrian access between Potomac Yard and Potomac Greens	Improved bicycle/pedestrian access between Potomac Yard and Potomac Greens	Improved bicycle/pedestrian access between Potomac Yard and Potomac Greens	Improved bicycle/pedestrian access between Potomac Yard and Potomac Greens
Parking and Access Facilities	None	Potential impact for on-street parking where there are no parking restrictions	Potential impact for on-street parking where there are no parking restrictions	Potential impact for on-street parking where there are no parking restrictions	Potential impact for on-street parking where there are no parking restrictions
Airport Facilities and Operations	None	Improves transit access to airport from Potomac Yard	Improves transit access to airport from Potomac Yard	Improves transit access to airport from Potomac Yard	Improves transit access to airport from Potomac Yard

Resource	Impacts				
	No Build Alternative	Preferred Alternative	Build Alternative A	B-CSX Design Option	Build Alternative D
Land Acquisitions and Displacements					
GWMP Land Acquisition	None	0.16 – 0.33 acre	None	None	1.43 acres
City of Alexandria Land Acquisition	None	3.44 - 3.67 acres	1.16 acres	4.44 acres	5.55 acres
Private Land Acquisition (Includes CSXT right of way)	None	0.52 acre	0.11 acre	9.92 acres	3.06 acres
Total Land Acquisition	None	4.12 – 4.52 acres	1.27 acres	14.36 acres	10.04 acres
Displacements	None	None	None	1 (Movie Theater)	1 (Movie Theater)
Impacts to Greens Scenic Area Easement	None	1.71 – 1.94 acres	None	None	None
Land Use, Zoning and Local Plans					
Land Use	None	Station, entrance facilities, and realigned track occupy existing public open space	Station entrance facilities occupy existing public open space	<ul style="list-style-type: none"> • Station, entrance facilities, and realigned track occupy portion of existing commercial development and existing public open space • Realigned track would affect planned street network 	<ul style="list-style-type: none"> • Station and elevated track occupy portion of existing commercial development • Realigned track would affect planned street network • Elevated track structures occupy existing and planned open space

Resource	Impacts				
	No Build Alternative	Preferred Alternative	Build Alternative A	B-CSX Design Option	Build Alternative D
Land Use, Zoning and Local Plans (cont'd)					
Zoning	Permits 3.700 million square feet of development in North Potomac Yard (CDD #19)	<ul style="list-style-type: none"> Permits 13.075 million square feet of development in Potomac Yard including 7.525 million square feet in North Potomac Yard (CDD #19) Refined station design meets the HD1 Height District limit 	<ul style="list-style-type: none"> Permits 9.250 million square feet of development in Potomac Yard including 3.700 million square feet in North Potomac Yard (CDD #19) Occupies open space and requires amendments to CDD #10 and CDD #19 	<ul style="list-style-type: none"> Permits 9.250 million square feet of development in Potomac Yard including 3.700 million square feet in North Potomac Yard (CDD #19) Occupies open space and requires amendments to CDD #10 and CDD #19 	<ul style="list-style-type: none"> Permits 9.250 million square feet of development in Potomac Yard including 3.700 million square feet in North Potomac Yard (CDD #19) Occupies open space and requires amendments to CDD #10 and CDD #19
Consistency with Local and NPS Plans	<ul style="list-style-type: none"> Not consistent with City of Alexandria plans and regional transportation plans, as it does not include a Metrorail station at Potomac Yard Not applicable to GWMP plans and governing laws 	<ul style="list-style-type: none"> Consistent with City of Alexandria plans Consistent with regional transportation plans Not applicable to GWMP plans and governing laws Project Statement of Findings for Floodplains and Wetlands published to comply with NPS Director's Orders 	<ul style="list-style-type: none"> Not consistent with station location in North Potomac Yard Small Area Plan Consistent with regional transportation plans Not applicable to GWMP plans and governing laws 	<ul style="list-style-type: none"> Not consistent with City of Alexandria plans Consistent with regional transportation plans Not applicable to GWMP plans and governing laws 	<ul style="list-style-type: none"> Not consistent with City of Alexandria plans Consistent with regional transportation plans Not applicable to GWMP plans and governing laws

Resource	Impacts				
	No Build Alternative	Preferred Alternative	Build Alternative A	B-CSX Design Option	Build Alternative D
Neighborhoods and Environmental Justice					
Neighborhoods, Demographics, and Community Resources	None	<ul style="list-style-type: none"> • Improved mobility with access to Metrorail • Increased economic activity due to Metrorail access • Visual impacts to views from Potomac Yard and Potomac Greens 	<ul style="list-style-type: none"> • Improved mobility with access to Metrorail • Increased economic activity due to Metrorail access • Visual impacts to views from Potomac Yard and Potomac Greens 	<ul style="list-style-type: none"> • Improved mobility with access to Metrorail • Increased economic activity due to Metrorail access • Visual impacts to views from Potomac Yard and Potomac Greens 	<ul style="list-style-type: none"> • Improved mobility with access to Metrorail • Increased economic activity due to Metrorail access • Visual impacts to views from Potomac Yard Potomac Greens
Environmental Justice	None	Benefit to communities from greater access to transit	Benefit to communities from greater access to transit	Benefit to communities from greater access to transit	Benefit to communities from greater access to transit

Resource	Impacts				
	No Build Alternative	Preferred Alternative	Build Alternative A	B-CSX Design Option	Build Alternative D
Visual Resources					
<p>Short-term (2020) Impacts to Visual Resources</p> <p><i>(Build Alternatives compared to the No Build Alternative)</i></p>	None	<ul style="list-style-type: none"> • Visual impacts to GWMP reduce visual quality for six out of nine viewsheds and the Continuous Corridor: <ul style="list-style-type: none"> - One from Very High to Moderate - Two from High to Moderately High - One from Moderately High to Moderate - Two from Moderate to Moderately Low - Continuous Corridor from Very High to High • Visual impacts to Potomac Yard/ Potomac Greens reduce visual quality for two out of three viewsheds: <ul style="list-style-type: none"> - Two from Moderate to Moderately Low 	<ul style="list-style-type: none"> • Visual impacts to GWMP reduce visual quality for two viewsheds: <ul style="list-style-type: none"> - One from High to Moderately High - One from Moderately High to Moderate • Visual impacts to Potomac Yard/ Potomac Greens reduce visual quality for three viewsheds: <ul style="list-style-type: none"> - Two from Moderate to Moderately Low - One from Moderate to Low 	<ul style="list-style-type: none"> • Visual impacts to GWMP reduce visual quality for three viewsheds and the Continuous Corridor: <ul style="list-style-type: none"> - Two from Very High to Moderately High - One from Very High to High - Continuous Corridor from Very High to High 	<ul style="list-style-type: none"> • Visual impacts to the GWMP reduce visual quality for three viewsheds and the Continuous Corridor by 2016: <ul style="list-style-type: none"> - Two from Very High to Low - One from High to Moderately High - Continuous Corridor from Very High to High • Visual impacts to Potomac Yard/ Potomac Greens reduce visual quality by 2040 for three viewsheds: <ul style="list-style-type: none"> - Two from Moderate to Very Low - One from Moderate to Moderately Low

Resource	Impacts				
	No Build Alternative	Preferred Alternative	Build Alternative A	B-CSX Design Option	Build Alternative D
Visual Resources (cont'd)					
<p>Long-term (2040) Impacts to Visual Resources</p> <p><i>(Build Alternatives compared to the No Build Alternative)</i></p>	None	<ul style="list-style-type: none"> • Visual impacts to the GWMP reduce visual quality for six out of nine viewsheds and the Continuous Corridor: <ul style="list-style-type: none"> - One from Very High to Moderately High - Two from High to Moderately High - One from Moderately High to Moderate - Two from Moderate to Moderately Low - Continuous Corridor from Very High to High • Visual impacts to Potomac Yard/ Potomac Greens reduce visual quality for two out of three viewsheds: <ul style="list-style-type: none"> - One from Moderately Low to Low - One from Moderate to Moderately Low 	<ul style="list-style-type: none"> • Visual impacts to GWMP reduce visual quality for one viewshed from Moderate to Moderately Low. • Visual impacts to Potomac Yard/ Potomac Greens reduce visual quality for two viewsheds: <ul style="list-style-type: none"> - One from Moderately Low to Very Low - One from Moderate to Moderately Low 	<ul style="list-style-type: none"> • Visual impacts to the GWMP reduce visual quality for three viewsheds and the Continuous Corridor: <ul style="list-style-type: none"> - Two from Very High to Moderately High - One from Very High to High - Continuous Corridor from Very High to High • Visual impacts to view from Potomac Yard due to pedestrian bridges 	<ul style="list-style-type: none"> • Visual impacts to the GWMP reduce visual quality for two viewsheds and the Continuous Corridor: <ul style="list-style-type: none"> - Two from Very High to Moderate - Continuous Corridor from High to Moderately High • Visual impacts to Potomac Yard/ Potomac Greens reduce visual quality for two viewsheds: <ul style="list-style-type: none"> - One from Moderately Low to Very Low - One from Moderate to Very Low
Cultural Resources					
Adverse Effects on GWMP/MVMH (FTA preliminary determination)	No	Yes	Yes	Yes	Yes

Resource	Impacts				
	No Build Alternative	Preferred Alternative	Build Alternative A	B-CSX Design Option	Build Alternative D
Cultural Resources (cont'd)					
Construction area on MVMH/GWMP/NCR Land (requires permit from NPS)	None	0.58 acre	<u>Option 1</u> 0.30 acre <u>Option 2</u> None	None	2.40 acres
Construction area on Greens Scenic Area easement (requires release of easement)	None	2.86 - 3.09 acres	<i>GSAE-specific construction impacts not detailed in DEIS</i>	<i>GSAE-specific construction impacts not detailed in DEIS</i>	<i>GSAE-specific construction impacts not detailed in DEIS</i>
Permanent Transfer of MVMH/GWMP/PNCR Land	None	0.16 – 0.33 acre	None	None	1.43 acres
Permanent Transfer of Greens Scenic Area Easement Land	None	1.71 – 1.94 acres	None	None	None
Visual Impacts	None	Temporary and permanent impacts diminish GWMP/MVMH landscape architecture	Temporary and permanent impacts diminish GWMP/MVMH landscape architecture	Temporary and permanent impacts diminish GWMP/MVMH landscape architecture	Temporary and permanent impacts diminish GWMP/MVMH landscape architecture
Number of Trees removed in areas of original GWMP/MVMH Design	None	10 to 15 trees	<u>Option 1</u> 5 to 10 trees <u>Option 2</u> None	None	70 to 75 trees
Acres of Trees and associated vegetation removed on GWMP/MVMH/Greens Scenic Area Easement Land	None	0.84 – 1.11 acres	<u>Option 1</u> 0.48 acre <u>Option 2</u> 0.09 acre	None	3.54 acres
Archaeological Sites Affected	None Known	No adverse effect	<u>Option 1</u> 2 sites <u>Option 2</u> None known	None known	1 site

Resource	Impacts				
	No Build Alternative	Preferred Alternative	Build Alternative A	B-CSX Design Option	Build Alternative D
Parklands					
Impacts to Parks	None	<ul style="list-style-type: none"> City of Alexandria: 3.00 - 3.23 acres (includes 1.71 - 1.94 acres of Greens Scenic Area easement administered by NPS) Federal (NPS): 0.16 - 0.33 acre 	<ul style="list-style-type: none"> City of Alexandria: 1.16 acres (Metrorail Reservation area excluded from impacts) Federal (NPS): none 	<ul style="list-style-type: none"> City of Alexandria: 3.86 acres Federal (NPS): none 	<ul style="list-style-type: none"> City of Alexandria: 5.38 acres Federal (NPS): 1.43 acres
Air Quality					
Impacts to Air Quality	None	None	None	None	None
Noise & 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)
Station Noise (announcements and door chimes)	Yes (announcements from train)	Yes	Yes (in close proximity to residences)	Yes	Yes
Exceed FTA Vibration Criteria	None	None	6 sites	None	7 sites
Exceed WMATA Vibration Criteria	None	None	1 site	None	None
Water Resources					
Increase in Impervious Surface	None	2.22 acres	1.82 acres	Decrease of 0.02 acre	9.24 acres
U.S. Army Corps of Engineers Regulated Wetlands	None	1.22 – 1.56 acres	0.02 acre	None	0.52 acre

Resource	Impacts				
	No Build Alternative	Preferred Alternative	Build Alternative A	B-CSX Design Option	Build Alternative D
Water Resources (cont'd)					
NPS Regulated Wetlands	None	1.13 – 1.45 acres	0.02 acre	None	0.50 acre
100-year Floodplain Impacts	None	<u>GWMP Land</u> 0.05 – 0.19 acre <u>GSAE Land</u> 1.26 – 1.48 acres <u>Other Land</u> 0.17 – 0.22 acre <u>Total Land</u> 1.48 – 1.89 acres	None	None	<u>GWMP Land</u> 0.77 acre <u>GSAE Land</u> 0 acres <u>Other Land</u> 0.13 acre <u>Total Land</u> 0.90 acre
500-year Floodplain Impacts (excludes 100-yr floodplain)	None	0.95 – 0.98 acre	0.41 acre	None	0.41 acre
Resource Protection Areas (<i>GSAE=Greens Scenic Area easement administered by NPS</i>)	None	<u>GWMP Land</u> 0.10 – 0.23 acre <u>GSAE Land</u> 1.71 – 1.94 acres <u>Other Land</u> 1.58 – 1.63 acres <u>Total Land</u> 3.39 – 3.80 acres	<u>GWMP Land</u> 0 acres <u>GSAE Land</u> 0 acres <u>Other Land</u> 0.41 acre <u>Total Land</u> 0.41 acre	<u>GWMP Land</u> 0 acres <u>GSAE Land</u> 0 acres <u>Other Land</u> 1.12 acres <u>Total Land</u> 1.12 acres	<u>GWMP Land</u> 1.12 acres <u>GSAE Land</u> 0 acres <u>Other Land</u> 0.95 acre <u>Total Land</u> 2.07 acres
Ecosystems and Endangered Species					
Protected Species	None	None	None	None	None
Ecologically Sensitive Areas	None	None	None	None	None
Natural Habitat Impacts	None	2.58 – 3.02 acres	0.03 acre	0.18 acre	1.76 acres
Sustainability					
Sustainability Policy Impacts	None	None	None	None	None

Resource	Impacts				
	No Build Alternative	Preferred Alternative	Build Alternative A	B-CSX Design Option	Build Alternative D
Hazardous and Contaminated Materials					
Hazardous and Contaminated Materials Impacts	None	None	None	None	None
Safety and Security					
Safety and Security Impacts	None	None	None	None	None
Utilities					
Utilities Impacts	None	Impacts to stormwater and water utilities	Impacts to stormwater and water utilities	Impacts to stormwater, water, sanitary, petroleum pipeline, and Metrorail related utilities	Impacts to stormwater, water, sanitary, petroleum pipeline, and Metrorail related utilities
Secondary and Cumulative Effects					
Secondary	Additional traffic and visual effects from new development	Additional traffic and visual effects from new development	Additional traffic and visual effects from new development	Additional traffic and visual effects from new development	Additional traffic and visual effects from new development
Cumulative	Additional traffic and visual effects from new development	Cumulative traffic, visual, and floodplain effects from present and future development	Cumulative traffic, visual, and floodplain effects from present and future development	Cumulative traffic, visual, and floodplain effects from present and future development	Cumulative traffic, visual, and floodplain effects from present and future development
Construction Impacts (<i>permanent impacts for each resource listed above</i>)					
Metrorail Operations	None	Affects Metrorail operations including weekend and evening off-peak shutdowns	Affects Metrorail operations including weekend and evening off-peak shutdowns	Affects Metrorail operations including weekend and evening off-peak shutdowns	Affects Metrorail operations including weekend and evening off-peak shutdowns
CSXT ROW and Operations	None	Pre-planned outages on CSXT track	Pre-planned outages on CSXT track	<ul style="list-style-type: none"> • Extensive pre-planned outages on CSXT track • Requires completion of CSXT ROW before construction of WMATA alignment 	Pre-planned outages on CSXT track

Resource	Impacts				
	No Build Alternative	Preferred Alternative	Build Alternative A	B-CSX Design Option	Build Alternative D
Construction Impacts (cont'd)					
Public Roadways and Private Driveways	None	<ul style="list-style-type: none"> • Lane closures, use of flagmen, sidewalk closures, wear and tear due to construction activities • Construction access from Potomac Greens Drive, Carpenter Road, and Potomac Avenue during approved times 	<ul style="list-style-type: none"> • Lane closures, use of flagmen, sidewalk closures, wear and tear due to construction activities • Construction access from Potomac Greens Drive, Potomac Avenue during approved times 	<ul style="list-style-type: none"> • Lane closures, use of flagmen, sidewalk closures, wear and tear due to construction activities • Construction access from Potomac Greens Drive, Potomac Avenue during approved times 	<ul style="list-style-type: none"> • Lane closures, use of flagmen, sidewalk closures, wear and tear due to construction activities • Construction access from GWMP, Potomac Greens Drive, Potomac Avenue during approved times
Greens Scenic Area Easement Impacts	None	2.86 – 3.09 acres	<u>Option 1</u> 0.25 acre <u>Option 2</u> 0.13 acre	None	0.02 acre
Impacts to Children's Health and Safety <i>(Issue identified based on design refinement of the Preferred Alternative)</i>	None	Temporary closure of one public and one private playground	n/a	n/a	n/a

Resource	Impacts				
	No Build Alternative	Preferred Alternative	Build Alternative A	B-CSX Design Option	Build Alternative D
Construction Impacts (cont'd)					
Visual Resources <i>(Acreages reported are for acres of treed area and associated vegetation removed)</i>	No trees on GWMP or Greens Scenic Area easement removed	<ul style="list-style-type: none"> Removal of trees on GWMP/MVMH/Greens Scenic Area Easement Land: 0.97 – 1.24 acres Visible construction equipment and materials 	<ul style="list-style-type: none"> Removal of 0.30 acre of trees on GWMP/MVMH Land for Option 1 Removal of trees on Greens Scenic Area easement: <ul style="list-style-type: none"> <u>Option 1</u> 0.18 acre <u>Option 2</u> 0.09 acre Visible construction equipment and materials 	<ul style="list-style-type: none"> No trees on GWMP or Greens Scenic Area easement removed Visible construction equipment and materials 	<ul style="list-style-type: none"> Removal of 2.40 acres of trees on GWMP/MVMH Land No removal of trees on Greens Scenic Area easement Visible construction equipment and materials
Cultural Resources	None	Temporary impacts to cultural resources described above in permanent impacts	Temporary impacts to cultural resources described above in permanent impacts	Temporary impacts to cultural resources described above in permanent impacts	Temporary impacts to cultural resources described above in permanent impacts
Parklands	None	<ul style="list-style-type: none"> City of Alexandria: 10.24 - 10.47 acres (includes 2.86 - 3.09 acres of Greens Scenic Area easement administered by NPS) Federal (NPS): 0.25 - 0.42 acre of GWMP parkland 	<u>Option 1</u> <ul style="list-style-type: none"> City of Alexandria: 5.49 acres Federal (NPS): 0.30 acre; access along 1.7 miles of GWMP roadway <u>Option 2</u> <ul style="list-style-type: none"> City of Alexandria: 4.80 acres (Metrorail Reservation area excluded from impacts) Federal (NPS): none 	<ul style="list-style-type: none"> City of Alexandria: 0.97 acre Federal (NPS): none 	<ul style="list-style-type: none"> City of Alexandria: 5.53 acres Federal (NPS): 2.40 acres; access along 1.7 miles of GWMP roadway

Resource	Impacts				
	No Build Alternative	Preferred Alternative	Build Alternative A	B-CSX Design Option	Build Alternative D
Construction Impacts (cont'd)					
Air Quality	None	Direct emissions from construction equipment, increased emissions from motor vehicles, and fugitive dust emissions	Direct emissions from construction equipment, increased emissions from motor vehicles, and fugitive dust emissions	Direct emissions from construction equipment, increased emissions from motor vehicles, and fugitive dust emissions	Direct emissions from construction equipment, increased emissions from motor vehicles, and fugitive dust emissions
Noise and Vibration	None	Affects only the closest residences and commercial properties in the vicinity of station and new track	Affects only the closest residences and commercial properties in the vicinity of station	Affects only the closest residences and commercial properties in the vicinity of station and new track	Affects only the closest residences and commercial properties in the vicinity of station and new track
Water Quality	None	Potential effects as the result of erosion and sedimentation occurring at the construction site and washing into surface waterways	Potential effects as the result of erosion and sedimentation occurring at the construction site and washing into surface waterways	Potential effects as the result of erosion and sedimentation occurring at the construction site and washing into surface waterways	Potential effects as the result of erosion and sedimentation occurring at the construction site and washing into surface waterways
U.S. Army Corps of Engineers Regulated Wetlands	None	2.88 – 3.22 acres	<u>Option 1</u> 0.30 acre <u>Option 2</u> 0.01 acre	None	0.41 acre
NPS Regulated Wetlands	None	2.92 – 3.24 acres	<u>Option 1</u> 0.35 acre <u>Option 2</u> 0.01 acre	None	0.48 acre
100-year Floodplain Impacts	None	3.03 – 3.44 acres	<u>Option 1</u> 0.53 acre <u>Option 2</u> None	None	1.22 acres

Resource	Impacts				
	No Build Alternative	Preferred Alternative	Build Alternative A	B-CSX Design Option	Build Alternative D
Construction Impacts (cont'd)					
Resource Protection Areas	None	5.35 – 5.76 acres	<u>Option 1</u> 1.75 acres <u>Option 2</u> 0.49 acre	0.58 acre	2.40 acres
Hazardous and Contaminated Materials	None	Potential to encounter contaminated materials	Potential to encounter contaminated materials	Potential to encounter contaminated materials	Potential to encounter contaminated materials