

# Appendix B5:

### Maryland Avenue SW to L'Enfant Interlocking Clearance Assessment

# Long Bridge Project Environmental Impact Statement (EIS)

Maryland Avenue SW to L'Enfant Interlocking Clearance Assessment

September 6, 2018







### Long Bridge Project EIS Maryland Avenue SW to L'Enfant Interlocking Clearance Assessment

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#### **1.0 Executive Summary**

The Federal Railroad Administration (FRA), jointly with the District Department of Transportation (DDOT), is preparing an Environmental Impact Statement (EIS) in accordance with the National Environmental Policy Act (NEPA) for the Long Bridge Project (Project).<sup>1</sup> The Project consists of proposed improvements to the Long Bridge and related railroad infrastructure located between the RO Interlocking near Long Bridge Park in Arlington, Virginia, and the L'Enfant (LE) Interlocking near 10th Street SW in the District (collectively, the Long Bridge Corridor, as shown on the Location Map in **Appendix A** of this report).

The existing two-track Long Bridge Corridor is owned and operated by CSX Transportation (CSXT), a Class I freight railroad, and serves freight (CSXT), intercity passenger (Amtrak), and commuter rail (VRE). Maryland Area Regional Commuter (MARC) rail, which currently terminates at Union Station in the District, has plans to expand into the corridor. Norfolk Southern, also a Class I freight railroad, has trackage rights on the Long Bridge, but does not currently exercise those rights. CSXT, Amtrak, VRE, MARC, and Norfolk Southern are railroad stakeholders of the Project.

Throughout the southern limits of the Long Bridge Corridor, 15 feet track spacing is being proposed with 9 feet or greater lateral clearance to structures to meet minimum design standards as defined by the corridor owner and operator, CSXT. Between Maine Avenue SW and L'Enfant Interlocking, several bridges and retaining walls present significant obstacles to meeting these standards and would require extensive structural modifications to the bridges, buildings, and walls with major impacts to local roads, business, and public and private properties.

The purpose of this report is to provide an assessment of the existing and proposed horizontal within this segment of the project to determine the feasibility of various four-track alignment options between the north end of Maine Avenue and L'Enfant Interlocking using the Plate-H clearance envelope (See **Figure 1-2**). The placement of the tracks for each option are referenced with respect to the four spans under the Maryland Avenue SW overbuild as identified in **Figure 1-1**.

The existing conditions and five options evaluated are as follows:

- Existing Conditions two mainline tracks spaced at 13 feet on center in Span 3.
- **Option 1** four tracks spaced at 15 feet on center with two each in Span 2 and 3.
- **Option 2** four tracks at 13 feet on center with one track in Span 2 and three tracks in Span 3.
- Option 3 two tracks spaced at 12.5 feet in Span 2 and two tracks spaced at 15 feet in Span 3.
- **Option 4** one track each in Span 1 and 2 with two tracks spaced at 15 feet in Span 3.
- **Option 5** two tracks spaced at 13 feet in Span 2 and two tracks spaced at 15 feet in Span 3.

Lateral clearance assessments along with potential structural implications were assessed at Maryland Avenue SW, 12th Street SW, 12th Street Expressway, and L'Enfant Plaza.

<sup>&</sup>lt;sup>1</sup> Note that "RO" is the proper name of this interlocking. It is not an acronym.

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#### Figure 1-1 | Existing Maryland Avenue Bridge (looking north)

During the completion of this analysis, multiple meetings were held with CSXT, Amtrak, VRE, and the Virginia Division of Rail & Public Transportation (DRPT) to discuss the assessment approach and initial results. During these discussions, CSXT requested their minimum 15 feet track spacing design standard be maintained for freight tracks. However, CSXT, Amtrak, VRE, and DRPT operators all agreed and requested the analysis to evaluate 13 feet spacing for passenger tracks. In addition, CSXT, Amtrak, and VRE all indicated that a minimum of 8.5 feet lateral clearance should be maintained.

The clearance assessment report and summary matrix discuss the analysis of the five options that the have been evaluated. Challenges include the construction durations, impacts to adjacent structures, and the escalated project cost that would result from each of the other four options in the report and matrix. Based on the five design options for the Maryland Avenue area, Option 2 (13-feet track spacing and a minimum of 8.5-feet horizontal clearances) meets the project's requirements to fit four tracks underneath and adjacent to existing buildings, occupied buildings, and retaining walls with minimal or no significant obstacles. The Option 2 dimensions outlined in the report have been identified as the minimum acceptable geometry by current operators and support letters have been received from Amtrak, VRE, and DRPT, which are included in the attached Report appendix. Additionally, proceeding with any other option than Option 2 presents a significant risk to public finance for the project.

Additional support information to advance the design exception request for Option 2 track spacing and minimum horizontal clearances over this segment of the project is detailed below:

- Reference Section 2.6 Horizontal Geometry of the Project Basis of Design (BOD) Report.
- Applying BOD criteria and implementing Option 1 would result in extensive impacts to railroad operations, adjacent property owners, and adjacent public and private transportation and utility infrastructure resulting in construction costs and durations well beyond the scope of this project, which would most likely result in a termination of the project as currently envisioned.
- Option 2 provides track spacing and clearances that meet existing conditions and result in no structural modifications required for the bridges or walls from Maryland Ave SW through the L'Enfant Interlocking segment of the project.
- Benefits of exception include significantly reduced impacts and costs while meeting the Project's Purpose and Need criteria within available funding thresholds.
- Graphical representation of each option are provided in the plan sheets as an appendix to the report



• Order-of-Magnitude cost savings between Option 1 and 2 for structural modifications to bridges and walls is estimated at \$250,000,000 and is provided in **Table 1-1**. This high-level planning estimate is for comparison purposes only without any detailed engineering completed or property owner input received and has been prepared using an analogous estimating method comparing square foot costs and percentages of past projects to determine an estimated order-of-magnitude cost. Due to the lack of design at this stage, care should be taken to properly understand the potential variability of these costs.

**Table 1-1** provides a summary of the track spacing, lateral clearances, and impacts associated with each option and the subsequent sections of this report to follow describe the existing conditions and proposed impacts in more detail. Conceptual plans are located in **Appendix B** of this report to further depict the existing and proposed conditions for the various options. Based on maintaining the minimum 13 feet track spacing and 8.5 feet lateral clearance thresholds, Options 3 and 4 fall below these criterion as shown in **Table 1-1**.



#### Table 1-1 Clearance Assessment Matrix

guration	Number of tracks in each span below MD Avenue SW Overbuild Bridge (see diagram this sheet)		Track Spacing		Track Lateral Spacing Clearance		eral rance	General Notes	Construction Duration for Structural Components	Order of Magnitude Estimate
Confi	Span 1	Span 2	Span 3	Freight (ft)	Passenger (ft)	Freight (ft)	Passenger (ft)		(only) (see Note 1)	(for structural improvements) (see note 2)
Existing Condition	0	1	2	1	13	8	.5	Existing track conditions	NA	NA
Option 1	0	2	2	1	15	9	.0	<ul> <li>Track spacing and lateral clearance at preferred minimums for all operators</li> <li>Relocate approximately 720 ft. length of west and center piers along MD Avenue SW</li> <li>Replace approximately 720 ft. of MD Ave bridge superstructure spans on each side of piers being relocated</li> <li>Closes Maryland Avenue SW (private road) for approximately 6 months</li> <li>Maryland Avenue SW (private road) lane closures for approximately 30 months</li> <li>Replace 12th St SW bridge &amp; 12th St Expressway bridge using phased construction one lane at a time</li> <li>Replace approximately 200 ft. of retaining walls from MD Avenue SW to L'Enfant</li> <li>Significant access impacts to 25+ businesses along street frontage, many without alternate public access</li> <li>Relocate approximately 75 ft. of retaining wall at Portals V</li> <li>Extended road closures and mobility impacts for all users on MD Ave SW, 12th St SW, 12th St Expressway</li> <li>Anticipated major multi-year mobility impacts to surrounding street networks for all users</li> <li>Major impacts to rail operations during construction</li> </ul>	66 months	\$250M
Option 2	0	1	3	1	13	8	.5	<ul> <li>Track spacing and lateral clearance acceptable to passenger operators.</li> <li>No impacts to Maryland Avenue SW, 12th St SW bridge or 12th St Expressway bridge</li> <li>No access limitations to businesses along street frontage</li> <li>Minor impact to Portals V property at retaining wall</li> <li>No anticipated surrounding street network impacts</li> <li>No impacts to rail operations during construction</li> </ul>	0 months	\$0
Option 3	0	2	2	15	12.5	9.0	8.0	<ul> <li>Track spacing and lateral clearance undesirable to all operators</li> <li>Relocate approximately 490 ft. length of west and center piers along MD Avenue SW</li> <li>Replace approximately 490 ft. of MD Ave bridge superstructure spans on each side of piers being relocated</li> <li>Replace 12th St SW bridge using phased construction one lane at a time</li> <li>Replace approximately 100 ft. of retaining walls from MD Avenue SW to L'Enfant</li> <li>Significant access impacts to 12+ businesses along street frontage, many without alternate public access</li> <li>Relocate approximately 75 ft. of retaining wall at Portals V</li> <li>Extended road closures and mobility impacts for all users on MD Ave SW &amp; 12th St SW</li> <li>Anticipated multi-year mobility impacts to surrounding street networks for all users</li> </ul>	50 months	\$110M

				<ul> <li>Impacts 4,200 SF of Portal V parking lot &amp; service entrances</li> <li>Moderate impacts to rail operations during construction</li> </ul>	
				*Does not meet minimum 13 ft. spacing or 8.5 ft. clearance	

**Note 1:** Construction duration is estimated for completion of structural work exclusive to the Maryland Avenue SW overbuild, 12th Street SW bridge, 12th Street SW Expressway bridge, and retaining walls only, which in some cases requires extensive sequencing of track, roadway, and bridge activities take place sequentially rather than in parallel to minimize combined traffic network impacts with multiple road closures.

**Note 2:** The order-of-magnitude cost estimates for the structural improvements are for comparison purposes only without any detailed engineering completed or property owner input received and has been prepared using an analogous estimating method comparing square foot costs and percentages of past projects to determine an estimated order-of-magnitude cost. Due to the lack of design at this stage, care should be taken to properly understand the potential variability of these costs for a selected option.

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Maryland Avenue SW to L'Enfant Interlocking Clearance Assessment



#### Table 1-1 Clearance Assessment Matrix

iguration	Number of tracks in each span below MD Avenue SW Overbuild Bridge (see diagram this sheet)		Track Spacing		Lateral Clearance		- General Notes	Construction Duration for Structural Components	Order of Magnitude Estimate (for structural	
Conf	Span 1	Span 2	Span 3	Freight (ft)	Passenger (ft)	Freight (ft)	Passenger (ft)		(only) (see Note 1)	(see note 2)
Option 4	1	1	2	15	NA	9.0	7.25	<ul> <li>Track lateral clearance undesirable to all operators</li> <li>Relocate approximately 400 ft. length of west piers along MD Avenue SW</li> <li>Replace approximately 400 ft. of MD Ave superstructure spans on each side of west pier being relocated</li> <li>Replace 12th St SW bridge &amp; 12th St Expressway bridge using phased construction one lane at a time</li> <li>Replace approximately 200 ft. of retaining walls from MD Avenue SW to L'Enfant</li> <li>Significant access impacts to 12+ businesses along street frontage, many without alternate public access</li> <li>Relocate approximately 100 ft. of retaining wall at Portals V</li> <li>Extended road closures and mobility impacts for all users on MD Ave SW &amp; 12th St SW</li> <li>Anticipated multi-year mobility impacts to surrounding street networks for all users</li> <li>Operates passenger trains below new Portal V terrace</li> <li>Impacts 13,200 SF of Portal V parking lot, requires alternative Portals III and V service road, reconstructs 4,500 SF of Portal V residence entrance, reconstructs Portals III foundation and walls</li> <li>Moderate impacts to rail operations during construction</li> </ul>	48 months	\$100M
Option 5	0	2	2	15	13	9.0	8.5	<ul> <li>Track spacing and lateral clearance acceptable to passenger operators</li> <li>Relocate approximately 700 ft. length of west and center piers</li> <li>Replace approximately 700 ft. of the superstructure spans on each side of the pier segment being relocated</li> <li>Maryland Avenue SW (private road) lane closures for approximately 36 months</li> <li>Replace 12th St SW bridge using phased construction one lane at a time</li> <li>Replace approximately 100 ft. of retaining walls from MD Avenue SW to 12th ST Expressway</li> <li>Significant access impacts to 12+ businesses along street frontage, many without alternate public access</li> <li>Relocate approximately 75 ft. of retaining wall at Portals V</li> <li>Extended road closures and mobility impacts for all users on MD Ave SW &amp; 12th St SW</li> <li>Anticipated major multi-year mobility impacts to surrounding street networks for all users</li> <li>Major ROW impacts Portal III &amp; Portals V buildings, service entrance &amp; docks</li> <li>Significant impacts to Portal V new service entrance and relocation of new terrace support columns</li> <li>Moderate impacts to rail operations during construction</li> </ul>	40 months	\$140M



(stub-end track for storage only)

Existing Maryland Ave SW Bridge Elevation View (looking north) (track direction is south to north)

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Maryland Avenue SW to L'Enfant Interlocking Clearance Assessment



#### 2.0 Existing Conditions

Between Maryland Avenue SW and L'Enfant Interlocking (the "segment"), three tracks exist: Tracks 2, 3, and 4, numbered from east to west. Track 4 is a stub-ended track that terminates at the south end of the Maryland Avenue SW structure, and is used for Virginia Railway Express (VRE) equipment storage. The evaluated segment of railroad passes beneath overhead bridges at Maryland Avenue SW, 12th Street SW, 12th Street Expressway, and L'Enfant Plaza and over an undergrade bridge at 9<sup>th</sup> Street SW. Retaining walls are also in place to support the embankments along both sides of the tracks between 12th Street SW and the L'Enfant Plaza bridge. The retaining wall on the west side of the corridor continues north of the L'Enfant Plaza bridge ending at 9<sup>th</sup> Street SW. There is a 140-foot long gabion wall on the east side of the corridor, north of L'Enfant Plaza. Each of the structures to be assessed are described below.

#### 2.1. Maryland Avenue SW

The Maryland Avenue SW bridge is the largest and most significant of the structures in the segment, having four spans extending over the railroad (see **Figure 1-1**) and is approximately 670-feet in length that runs parallel with the railroad. The structure carries two lanes of traffic from 12<sup>th</sup> Street SW south towards the Mandarin Oriental Hotel and Portals V development, where there is a landscaped traffic circle. Both the traffic lanes and circle are surrounded by parking along the perimeter to serve adjacent properties. There is a landscaped plaza located between the traffic lanes and brick-paved sidewalks and pedestrian access are maintained throughout the surface of the structure.

The bridge is central to The Portals development, which surrounds the traffic circle and the length of the structure. Multiple buildings have storefronts and main entrances along the Maryland Avenue SW bridge, including the Mandarin Oriental Hotel, the United States Department of Agriculture, and several other significant buildings. A new mixed-use building development called Portals V is under construction at the southwest corner of the Maryland Avenue SW traffic circle, where it will also have its main entrance.

Above the railroad track area, the roads, sidewalks, plazas, and planters are built up on the bridge superstructure which is composed of a combination of reinforced concrete slab beam flooring and steel girders. The majority of the superstructure in spans 2 and 3 consists of slab beams that span transversely above the tracks and are simply-supported on reinforced concrete pier bents. Nearest the 12<sup>th</sup> Street SW bridge, continuous steel girders span the tracks to make up a trapezoidal shape, with an approximate length of 37-feet parallel to the railroad tracks. Outside of the track area, in spans 1 and 4, the bridge superstructure is comprised of steel girder framing with a reinforced concrete deck.

Beneath the Maryland Avenue SW bridge, three tracks traverse the structure. Tracks 2 and Track 3 pass under span 3, and Track 4 (storage track) is located under span 2 until it terminates at the south end of the Maryland Avenue SW bridge (see **Figure 2-3**). Crashwalls extend parallel to the tracks, protecting the pier columns from potential train impacts. The governing lateral railroad clearances span transversely between the pier crashwalls. This lateral clearance is evaluated in subsequent sections of this document.

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Figure 2-2 | Maryland Avenue SW Looking Northwest

#### 2.2. 12<sup>th</sup> Street SW

The bridge at 12th Street SW spans the railroad at the northern terminus of Maryland Avenue SW. The bridge carries three lanes of vehicular traffic with a sidewalk on both sides. Additionally, the bridge provides turning access onto Maryland Avenue SW where it adjoins with the Maryland Avenue SW bridge.

The roadway is supported on steel girders composite with the reinforced concrete deck. The two-span continuous structure is supported on concrete abutments and a center concrete pier located between tracks 3 and 4. Each of the substructure units is generally parallel to the tracks.

Consistent with Maryland Avenue SW, Track 2 and Track 3 pass beneath the east span and Track 4 (storage track) beneath the west span. A crashwall is provided around the center pier for protection from train impacts. The limiting lateral clearance between existing walls for additional tracks will be measured between the abutment faces and the pier crashwall.



Figure 2-4 | 12<sup>th</sup> Street SW Looking South



#### 2.3. 12<sup>th</sup> Street Expressway

The 12th Street Expressway passes over the railroad and D Street SW on a two-span, simply-supported steel girder bridge with a composite deck. The bridge also contains a curved section that leads the roadway to a ramp down to 12th Street SW. A sidewalk and center island median are provided, although pedestrian access does not exist.

The bridge carrying the 12th Street Expressway varies from the preceding bridges in that all three tracks cross beneath a single span, with no piers obstructing the existing clearance envelope. The concrete bridge pier is integrated with the retaining wall along the east side of the tracks. At this bridge, the limiting lateral clearance will be determined between the concrete abutment face and the concrete pier.

Figure 2-5 | 12<sup>th</sup> Street Expressway Looking South



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#### 2.4. L'Enfant Plaza

L'Enfant Plaza crosses the railroad corridor on a single span, simply-supported prestressed adjacent (butted) box beam bridge. The bridge includes two 29-foot-wide sidewalks, two travel lanes, two parking lanes, and a 40-ft median. The fascia of the bridge includes 8.25 feet wide architectural parapets on each side for an overall bridge width of 166.5 feet.

The span over the railroad is supported on an abutment to the west and on a pier to the east. The structure continues southeast as a viaduct structure with a combination of simply-supported and continuous span segments. All three existing tracks cross beneath a single span, with no piers obstructing the existing clearance envelope. A concrete bridge pier is integrated with the retaining wall along the east side of the tracks. At this bridge, the limiting lateral clearance is measured between the concrete abutment face and the concrete pier. The span is approximately 83 feet, however, due to the skew and the stepped face of the abutment, the lateral through clearance for the railroad is 62 feet.

A Washington Metropolitan Area Transit Authority (WMATA) tunnel crosses under the railroad within the limits of L'Enfant Plaza. No impacts to the tunnel are anticipated.



Figure 2-6 | L'Enfant Plaza Looking South



#### 2.5. 9<sup>th</sup> Street SW

The 9<sup>th</sup> Street SW bridge carries the CSXT corridor over the 9<sup>th</sup> Street Expressway. It is a single-span deck girder structure consisting of 21 parallel steel girders with a steel plate deck and a 53.75-foot span. The ballasted deck is approximately 54 feet wide.



Figure 2-7 | 9<sup>th</sup> Street SW Undergrade Bridge Looking South

#### 2.6. Retaining Walls

Extending along both sides of the railroad, the adjacent embankments are supported by retaining walls between 12th Street SW and L'Enfant Plaza, interrupted only at the 12th Street Expressway bridge substructures. North of L'Enfant Plaza, a wall supports the adjacent embankment on the west side of the corridor only. The walls are constructed of concrete and are capped with stone masonry blocks in some locations. The walls generally align with the faces of the bridge abutments at 12<sup>th</sup> Street SW and L'Enfant Plaza.

Along the west side of the track alignment, the walls generally only support earth embankment; however, along the east side of the track alignment, the wall supports D Street SW and a sidewalk. Also, between 12<sup>th</sup> Street Expressway and L'Enfant Plaza, along the east side of the track alignment, the retaining wall is shaped in a sawtooth configuration and includes a concrete staircase up to L'Enfant Plaza. Lateral clearances are measured transversely between the retaining walls on each side of the tracks.





Figure 2-8 Retaining Walls Looking North from L'Enfant Plaza



#### 3.0 Option 1 Lateral Clearance: 15-foot Track Spacing

#### Lateral Clearance Assessment 3.1.

For the proposed track alignments with 15-foot track spacing, Track 1 and Track 2 will pass beneath span 3 (the east span of Maryland Avenue SW), and Track 3 and Track 4 will pass beneath span 2 (the west span). This concept is similar at 12th Street SW, with two tracks passing beneath each of the two spans. At the 12th Street Expressway bridge and L'Enfant Plaza, the proposed configuration is similar to existing, with all tracks passing beneath a single span, but the alignment is widened out to accommodate four tracks spaced at 15 feet.

Existing lateral clearances have been measured and compared to the clearance necessary to fit 15-foot track spacings. The required clearances are based on 15-foot track spacing, with 9-foot minimum from centerline of track to the nearest obstruction in accordance with CSXT design standards. Additional clearance is required in some locations to account for train tilt due to superelevation and carbody inswing/outswing from track curvature. The dimensions for each of the assessed bridges are described as follows:

	Total	Left Clearance	Track Spacing	<b>Right Clearance</b>
	Clearance	(West)		(East)
Span 2 (Existing)	28'-6" typical	10'-11" min.	None	11'-0" min.
Span 2 (Proposed)	36'-0" typical	10'-0" min.	15'-0"	9'-7" min.
Span 3 (Existing)	43'-6" typical	12'-5" min.	13'-0"	8'-6" min.
Span 3 (Proposed)	36'-0" typical	9'-0" min.	15'-0"	10'-4" min.

#### Table 3-1 Maryland Avenue SW Lateral Clearances

#### Table 3-2 12<sup>th</sup> Street SW Lateral Clearances

	Total Clearance	Left Clearance	Track Spacing	Right Clearance (Fast)
Most Span (Existing)	26' 1" min	16' 0" min		0' 11" min
west span (Existing)	20-1 11111.	10-0 11111.		9-11 11111.
West Span (Proposed)	34'-3" min.	9'-11" min.	15'-0"	9'-9" min.
East Span (Existing)	43'-6" typical	23'-6" min.	13'-0"	11'-2" min.
East Span (Proposed)	40'-6" typical	9'-0"	15'-0"	16'-1" min.

#### **Table 3-3** 12<sup>th</sup> Street Expressway Lateral Clearances

	Total Clearance	Left Clearance (West)	Tr	ack Spacin	g	Right Clearance (East)
Single Span (Existing)	59'-9" typical	17'-5" min.	14'-0"	13'-0"		10'-9"
Single Span (Proposed)	63'-3" min.	9'-6"	15'-0"	15'-0"	15'-0"	10'-4" min.



#### Table 3-4 L'Enfant Plaza Lateral Clearances

	Total Clearance	Left Clearance (West)	Track Spacing		Right Clearance (East)	
Single Span (Existing)	62'-8" min.	22'-0" min.	14'-0"	13'-0"		13'-8" min.
Single Span (Proposed)	62'-8" min.	8'-10"	15'-0"	15'-0"	15'-0"	8'-7" min.

Each of the overhead bridges, except L'Enfant Plaza, contains insufficient lateral clearances in their existing configurations to allow 15-foot track spacing. As a result, the bridges at Maryland Avenue SW,  $12^{th}$  Street SW, and  $12^{th}$  Street Expressway require modifications to increase the existing clearances.

#### 3.2. Required Structural Modifications

To accommodate 15-foot track spacing and 9-foot lateral clearance between Maryland Avenue SW and L'Enfant Interlocking, significant structural changes and bridge reconstruction are necessary. The required structural modifications are described in the following sections.

#### 3.2.1. Maryland Avenue SW

At the Maryland Avenue SW bridge, span 2 (the existing west span) has inadequate lateral clearance between the pier crash walls to fit two tracks spaced at 15 feet. The least invasive solution to modifying the clearance is to relocate the existing middle pier between proposed Track 2 and Track 3. By shifting the pier location 7.5 feet to the east, two track alignments can be made to fit through span 2 and two tracks through span 3, for a total of four tracks. Due to the configuration of the superstructure within the concrete plank beams area, relocating the bridge piers requires the superstructure of both adjacent spans to be removed and replaced to span to the new pier location. This has significant implications to the Maryland Avenue SW plaza and roadway. All the southbound lanes and one lane of the traffic circle would be temporarily closed to replace the superstructure, and the plaza would have to be demolished and rebuilt upon completion.

Additionally, at the northwest corner of the structure, the end four columns and crashwall are skewed towards the tracks (to the east). To fit the proposed tracks, the piers must be moved to the west and rotated parallel to the tracks. The superstructure at this area consists of continuous steel girders and the relocation of the northwest piers would require a detailed structural analysis to determine if the existing superstructure could be field modified or if replacement is necessary. This would likely require full replacement of the concrete bridge deck to modify the reinforcing steel layouts to accommodate the new location for negative bending over the piers. To accommodate this work, it is anticipated that all lanes in each direction must be closed during construction. The plazas would have to be completely removed in this area and rebuilt after construction of the superstructure is completed.

#### 3.2.2. 12<sup>th</sup> Street SW

To accommodate the proposed 15-foot track spacing at 12<sup>th</sup> Street SW, the existing bridge pier requires relocation. A relocation of 8.67 feet to the east results in sufficient clearance for the proposed Track 3 and 4 alignments in the west span. A detailed structural analysis can be performed on the two-span continuous girders to determine if the existing superstructure can remain with modification; however, the proposed pier location would be near the existing girder splices. This significantly complicates



reconstructing the existing steel girders for reuse as the splice area would be supporting bearing loads and carrying increased negative moments. Similar to Maryland Avenue SW, this will likely require a full replacement of the concrete bridge deck to modify the reinforcing steel layouts to accommodate the new location for negative bending over the piers. As such, the existing superstructure will likely require replacement and it is anticipated that access to Maryland Avenue SW would be eliminated for an extended period of time to perform this work.

#### **3.2.3.** 12<sup>th</sup> Street Expressway

At the 12<sup>th</sup> Street Expressway, the three existing tracks pass under a single span of the bridge. This span has insufficient clearance to fit four proposed tracks at 15-foot spacing and 9-foot desired lateral clearance. To increase the clearance, the west abutment requires relocation further west, at a distance up to 10-feet away. As a result of relocating the substructure units and lengthening the structure, the entire superstructure must be replaced for the span over the track area.

#### 3.2.4. L'Enfant Plaza

No modification of the L'Enfant Plaza overhead bridge is proposed. The existing span can accommodate 8.83 feet lateral clearances with four tangent tracks at 15-foot track centers. Although slightly under the target 9-foot clearance, it is believed the existing bridge can remain.

#### 3.2.5. 9<sup>th</sup> Street SW

While 9<sup>th</sup> Street SW is beyond the limits of this project, to accommodate the increased track centers, the east side of the 9<sup>th</sup> Street SW bridge requires widening. Modifications to lengthen the abutment and add deck-girders would be required to widen the ballasted deck approximately 6 feet.

In addition to lengthening the abutment, modified wingwalls are required, which will impact the adjacent General Services Building parking lot. It is believed that the existing roadway profile under the bridge does not require modification.

#### 3.2.6. Retaining Walls

The retaining walls require reconfiguration to provide the required clearances for the proposed track alignments. While the overall wall-to-wall clearance is sufficient for 15-foot track spacings, the locations of the walls are governed by the track alignments and the proposed abutment and pier configurations. As such, the two retaining walls along the west side of the track alignment between 12<sup>th</sup> Street SW and L'Enfant Plaza (interrupted at 12<sup>th</sup> Street Expressway) require relocation to accommodate the new track alignments and necessitate the complete removal of the existing walls and construction of new ones in the proposed location.

Similarly, the wider track spacing may require modifications to the existing 7<sup>th</sup> Street SW wingwall at the southeast corner of the bridge (geographic location is southwest). The track centers begin to widen from the existing 13 feet and will require lengthening or raising this wingwall. No changes to the 7<sup>th</sup> Street SW undergrade bridge are anticipated.



#### 3.3. Structural Staging Considerations

As a result of widening throughout the segment to achieve horizontal clearances for the 15-foot track centers, each of the structures require some significant modifications. An approximate construction duration of sixty-six months is anticipated to complete the necessary structural modifications between Maryland Avenue SW and L'Enfant Plaza. Construction is expected to maintain two-track railroad operations, ensure railroad safety and protection of the traveling public, and minimize impacts to roadways and adjacent properties as much as possible. The expected staging of the structural work is described in the following section and corresponds to the overall track construction staging.

During construction for Option 1, extended duration lane closures and track outages are necessary; however, two tracks may be maintained during construction with the exception of overnight track tie-in work and overhead activities such as girder erection. Several construction stages will necessitate the closure of Maryland Avenue SW to vehicular access entirely. A Critical Path Method (CPM) construction schedule is included in **Appendix C** of this report and a summary of the major work activities is provided below.

### **3.3.1.** Relocate West Retaining Wall and West Abutment at 12<sup>th</sup> Street Expressway

#### Significant Roadway and Railroad Outages

- 24 months phased reconstruction of 12th Street Expressway bridge to relocate west abutment further west and lengthen superstructure span
- Maintain two through lanes and one turning lane on 12th Street Expressway during construction
- 6 months 12th Street Expressway ramp closed
- Minimum 12 months Track 4 out of service (existing Tracks 2 and 3 in service)

#### Replace 12th Street Expressway

- 1. Close portion of bridge and divert traffic to alternate lanes
- 2. Remove segment of bridge superstructure
- 3. Remove existing Track 4 from service (service remains on Tracks 2 and 3)
- 4. Demolish portion of west abutment and retaining wall between 12th St Expressway and L'Enfant Plaza
- 5. Construct new abutment and retaining wall segments
- 6. Construct new bridge superstructure span segment over tracks
- 7. Repeat phases until completion, reopen bridge to traffic

#### 3.3.2. Relocate Segments of Maryland Avenue SW Center and West Piers

#### Significant Roadway and Railroad Outages

- 24 months phased reconstruction of 12<sup>th</sup> Street SW to relocate abutment and pier
- 9-12 months Maryland Avenue SW closed to traffic for north end pier/superstructure work
- 6-9 months existing Track 4 out of service (existing Tracks 2 and 3 in service)
- 6 months existing Track 3 out of service (existing Tracks 2 and 4 in service)
- Note Track 4 becomes temporary mainline



#### Relocate Northwest Pier at Maryland Avenue SW

- 1. Close portion 12th Street SW and Maryland Avenue SW to traffic (pedestrian access to remain on Maryland Avenue SW south of work area)
- 2. Remove portion of 12th Street SW bridge superstructure, both spans (reuse not feasible)
- 3. Remove bridge superstructure over north end of Maryland Avenue SW (reuse not feasible)
- 4. Remove existing Track 4 from service (service to remain on existing Tracks 2 and 3)
- 5. Demolish northwest portion of pier at Maryland Avenue SW
- 6. Construct new, realigned northwest pier and superstructure at Maryland Avenue SW
- 7. Restore service to existing Track 4 and remove service from existing Track 3

Relocate Middle Pier at Maryland Avenue SW and 12th Street SW

- 1. Demolish middle pier at north end of Maryland Avenue SW and pier at 12th Street SW
- 2. Construct new piers in proposed locations for both bridges
- 3. Restore service to all existing tracks
- 4. Reconstruct bridge superstructures
- 5. Reopen portion of 12th Street SW and Maryland Avenue SW to vehicles and pedestrians

#### 3.3.3. Structural Stage 3 – Relocate Middle Pier at Maryland Avenue SW

#### Significant Roadway and Railroad Outages

- 12-18 months Maryland Avenue SW southbound lanes closed to traffic and pedestrians
- 24-30 months existing Track 3 out of service (existing Tracks 2 and 4 in service)

#### Relocate Middle Pier along Maryland Avenue SW

- 1. Modify northbound lanes of Maryland Avenue SW for bidirectional traffic
- 2. Close Maryland Avenue SW southbound lanes to traffic and pedestrians
- 3. Remove existing superstructure over tracks between traffic circle and 12th Street SW
- 4. Remove existing Track 3 from service
- 5. Remove existing middle pier between traffic circle and 12th Street SW
- 6. Construct new middle pier in proposed location
- 7. Reconstruct bridge superstructure
- 8. Reopen southbound lanes of Maryland Avenue SW to vehicles and pedestrians

#### Relocate Middle Pier beneath Traffic Circle at Maryland Avenue SW

- 1. Reduce traffic circle to one lane of traffic access
- 2. Remove existing superstructure over tracks within traffic circle
- 3. Remove remainder of existing middle pier
- 4. Construct new middle pier in proposed location
- 5. Reconstruct bridge superstructure
- 6. Reopen second lane of Maryland Avenue SW on traffic circle for vehicles and pedestrians

Repeat above steps for additional phases of bridge replacement while minimizing railroad and roadway lane closures and associated transportation network impacts.

As discussed in the conceptual staging sequences above, the proposed bridge and retaining wall modifications require multiple stages with varying impacts to railroad operations, vehicular traffic, and pedestrian access. The reconstruction of the 12th Street Expressway and the retaining walls requires



12th Street Expressway to be reduced down to a single lane at times. At 12th Street SW and Maryland Avenue SW, various stages require temporary lane adjustments, reconfigurations, and complete closures. Access to the properties along Maryland Avenue SW and the traffic circle will be significantly reduced during several stages of construction for as long as 12 months.

#### 3.4. Right-of-Way Impacts Assessment

Additional right-of-way is required to achieve the 15-foot track center option. Approximate limits of additional right-of-way are shown in **Table 3-5**.

Side of Alignment	Between	Length (*)	Width (**)	Owner
West (Left)	Maine Avenue SW and Maryland Avenue SW	175	10	Portals V
East (Right)	Maine Avenue SW and Maryland Avenue SW	50	10	Portals V
West (Left)	12 <sup>th</sup> Street SW and 12 <sup>th</sup> Street Expressway	365	10	DDOT
West (Left)	12 <sup>th</sup> Street Expressway and L'Enfant Plaza	60	10	USA
East (Right)	9 <sup>th</sup> Street SW to 7 <sup>th</sup> Street SW	160	10	USA

 Table 3-5
 Approximate Limits of Additional Right-of-Way

(\*) – Length Measured Along Tracks (in feet)

(\*\*) – Width Measured Perpendicular to Tracks (in feet)



#### 4.0 Option 2 Lateral Clearance: 13-Foot Track Spacing

#### 4.1. Lateral Clearance Assessment

The track alignment with 13-foot track spacing was conceptualized to minimize impacts and reconstruction requirements to the existing bridges and retaining walls, and provide 8.5-foot minimum lateral clearance. The configuration includes Tracks 1, 2, and 3 located in span 3 and Track 4 located in span 2. The existing and proposed lateral track clearances are summarized in **Table 4-1**, **Table 4-2**, and **Table 4-3**.

	Total Clearance	Left Clearance (West)	Track S	pacing	Right Clearance (East)
Span 2 (Existing)	28'-6" typical	10'-11" min.	None	None	11'-0" min.
Span 2 (Proposed)	28'-6" typical	8'-11" min.	13'-0"	None	13'-6" min.
Span 3 (Existing)	43'-6" typical	12'-5" min.	13'-0"	None	8'-6" min.
Span 3 (Proposed)	43'-6" typical	8'-6" min.	13'-0"	13'-0"	8'-6" min.

#### Table 4-1 Maryland Avenue SW Lateral Clearances

#### Table 4-2 12<sup>th</sup> Street SW Lateral Clearances

	Total Clearance	Left Clearance (West)	Track Spacing		Right Clearance (East)
West Span (Existing)	26'-1" min.	16'-0" min.	None	None	9'-11" min.
West Span (Proposed)	26'-1" min.	17'-11" min.	13'-0"	None	8'-6" min.
East Span (Existing)	43'-6" typical	23'-6" min.	13'-0"	None	11'-2" min.
East Span (Proposed)	43'-6" typical	9'-8" min.	13'-0"	13'-0"	13'-1" min.

#### Table 4-3 12<sup>th</sup> Street Expressway Lateral Clearances

	Total Clearance	Left Clearance (West)	Track Spacing		Right Clearance (East)	
Single Span (Existing)	59'-9" typical	17'-5" min.	14'-0"	13'-0"		10'-9"
Single Span (Proposed)	59'-9" typical	9'-5" min.	13'-0"	13'-0"	13'-0"	10'-11"

#### 4.2. Required Structural Modifications

The proposed 13-foot track spacings fit within the existing lateral clearances at all locations between Maryland Avenue SW and L'Enfant Interlocking. There is no structural work anticipated and therefore the construction duration is 0 months. There is some work that would be required to the retaining wall along the Portals V property, however, that work will be completed outside of the current track operations and is not included in the construction duration.



#### 4.3. Right-of-Way Impacts Assessment

For the 13-foot track spacing concept, the proposed right-of-way matches the existing conditions at all but one location. Along the west side of the alignment, just south of the Maryland Avenue SW bridge, the Portals V wall will be impacted and may require modifications to accommodate Track 4. This small area of right-of-way is needed for the proposed track alignment. Beyond this location, no further assessment is required between Maryland Avenue SW and L'Enfant Interlocking.

#### Table 4-4 Approximate Limits of Additional Right-of-Way

Side of Alignment	Between	Length (in feet)	Width (in feet)	Owner
West	Maine Avenue SW and Maryland Avenue SW	200	10	Portals V



#### 5.0 Option 3 Lateral Clearance: 15-Foot Track Spacing for Tracks 1 & 2, 12.5-Foot Track Spacing for Tracks 3 & 4

#### 5.1. Lateral Clearance Assessment

For Option 3, the proposed track alignment includes providing two tracks at 15-foot freight track spacing with 9-foot horizontal clearance in Span 3 and two tracks at 12.5-foot passenger track spacing with 8.0-foot horizontal clearance in Span 2. Both the track spacing and lateral clearance falls below the baseline minimums of 13-foot spacing and 8.5-foot clearance established by operators. There is also a significant amount of structural work anticipated for this option, including extensive pier relocation, superstructure replacement and modifications, and reconstructing a retaining wall. The construction duration is estimated to be 50 months. Plan sheets depicting clearance results as well as estimated construction schedules are provided in the Appendix to this report. Although the freight spacing meets CSXT's criteria, both the passenger track spacing and horizontal clearance are less than minimum thresholds and therefore no further analysis of this option is discussed in this report.

#### 6.0 Option 4 Lateral Clearance: 15-Foot Track Spacing for Tracks 1 & 2, Varied Spacing & Clearance for Tracks 3 & 4

For Option 4, the proposed track alignment includes providing two tracks at 15-foot freight track spacing with 9-foot horizontal clearance in Span 3 and one track in Span 2 and one track in Span 1 with as little as 7.25-foot horizontal clearance. Similar to Option 3, both the track spacing and lateral clearance falls below the baseline minimums of 13-foot spacing and 8.5-foot clearance established by operators. There is again a significant amount of structural work anticipated for this option, including pier replacement, superstructure replacement, retaining wall reconstruction, and relocation of the Portals service entrance. The construction duration is estimated to be 49 months. Plan sheets depicting clearance results as well as estimated construction schedules are provided in the Appendix to this report. Although the freight spacing meets CSXT's criteria, both the passenger track spacing and horizontal clearance are undesirable and therefore further vetting of this option has been eliminated.



#### 7.0 Option 5 Lateral Clearance: 15-Foot Track Spacing for Tracks 1 & 2, 13-Foot Track Spacing for Tracks 3 & 4

#### 7.1. Lateral Clearance Assessment

For Option 5, two separate track spacings have been evaluated, 15-foot spacing for freight and 13-foot spacing for passenger. The 15-foot track alignment includes Tracks 1 and 2 passing beneath span 3 (the east span) of Maryland Avenue SW and continuing through the east span of 12th Street SW towards L'Enfant Plaza. Tracks 3 and 4 will maintain 13-foot track centers, passing beneath span 2 (the west span) of Maryland Avenue SW and continuing through the west span of 12th Street SW.

The existing lateral clearances are measured and compared to the clearance necessary to fit the proposed 13-foot and 15-foot track spacings. To meet minimum lateral clearance requirements for CSXT, VRE and Amtrak, the proposed alignments for Track 1 and Track 2 will primarily be used for freight traffic while the proposed alignments for Track 3 and Track 4 will primarily be use for passenger traffic. The required clearances are based on: the freight tracks having a 15-foot track spacing and 9-foot minimum from centerline of track to the nearest obstruction in accordance with CSXT design standards; and the passenger tracks having a 13-foot track spacing in accordance with Amtrak and VRE preferences along with 8'-6" minimum from centerline of track to the nearest obstruction. Additional clearance is required in some locations to account for train tilt due to superelevation and car body inswing/outswing from track curvature, which has been accounted for in assessing available minimum clearances in this report. The dimensions for each of the assessed bridges are described as follows:

	Total Clearance (min.)	Left Clearance (West)	Track Spacing	Right Clearance (East)
Span 2 (Existing)	19'-6"	9'-3" min.	None	10'-3" min.
Span 2 (Proposed)	30'-0"	8'-6" min.	13'-0"	8'-6" min.
Span 3 (Existing)	43'-0"	21'-6" min.	13'-0"	8'-6" min.
Span 3 (Proposed)	33'-0"	9'-0" min.	15'-0"	9'-0" min.

 Table 5-1
 Maryland Avenue SW Lateral Clearances

#### Table 5-2 12<sup>th</sup> Street SW Lateral Clearances

	Total Clearance (min.)	Left Clearance (West)	Track Spacing	Right Clearance (East)
West Span (Existing)	24'-6"	14'-6" min.	None	10'-0" min.
West Span (Proposed)	23'-9"	1'-7" min.	15'-0"	8'6" min.
East Span (Existing)	48-9"	24'-3" min.	13'-0"	11'-6" min.
East Span (Proposed)	48'-9"	20'-3" min.	15'-0"	13'-6" min.



#### Table 7-3 12<sup>th</sup> Street Expressway Lateral Clearances

	Total Clearance (min.)	Left Clearance (West)	Track Spacing	Right Clearance (East)
Single Span (Existing)	58'-9"	22'-0" min.	13'-0"	10'-9"
Single Span (Proposed)	68'-6"	8'-6"	15'-0"	9'-0" min.

#### Table 5-4 L'Enfant Plaza Lateral Clearances

	Total Clearance	Left Clearance (West)	Track Spacing	Right Clearance (East)
Single Span (Existing)	47'-6"	28'-9" min.	13'-0"	18'-9" min.
Single Span (Proposed)	66'-3"	11'-6"	15'-0"	9'-9" min.

Each of the overhead bridges, except L'Enfant Plaza, contain insufficient lateral clearances in their existing configurations to allow the minimum track spacing. As a result, the bridges at Maryland Avenue SW, 12<sup>th</sup> Street SW, and 12<sup>th</sup> Street Expressway require modifications to increase the existing clearances and establish minimum track spacing.

#### 7.2. Required Structural Modifications

To accommodate 15-foot freight track spacing with 9-feet later clearance and 13-foot passenger track spacing with 8.5-feet later clearance between Maryland Avenue SW and L'Enfant Interlocking, significant structural changes and bridge reconstruction are necessary. The required structural modifications are described in the following sections.

#### 7.2.1. Maryland Avenue SW

At the Maryland Avenue SW bridge, the existing spans have inadequate lateral clearance between the pier crash walls to fit two tracks spaced at 13 feet in Span 2. The proposed solution to achieve the desired clearance is to relocate 700 to 800 feet of the existing piers under the bridge. The majority of the work is to relocate Pier 1 further west, towards the Portals development, by approximately 3-feet, with some additional relocation required at pier 2. The relocation of the bridge piers will require reconstruction of the superstructure spans on each side of the proposed piers, however, it is assumed that Span 1 or the westernmost span under the traffic circle can be left in place with approximately 20 feet of the concrete deck superstructure removed to allow the ends of the steel beams to be modified to accommodate pier relocation. The simple span concrete superstructure that makes up span 2 will require full replacement with longer beams.

The pier and superstructure work has significant implications to the Maryland Avenue SW plaza and roadway and will require the southbound lanes and one lane of the traffic circle be temporarily closed for 12-24 months. The plaza will have to be demolished and rebuilt upon completion.

Additionally, at the northwest corner of Maryland Avenue SW, the end columns and crashwall are skewed to the east, as noted in other options. To accommodate the proposed tracks, the piers must be



moved to the west and aligned with the remainder of the new pier locations further south so they will be parallel to the tracks. The superstructure at this end is comprised of a continuous steel girder superstructure over three spans. The relocation of the northwest pier requires a detailed structural analysis to determine if the existing superstructure could be field modified to handle the modified design loading. This would as a minimum, likely require full replacement of the concrete bridge deck to modify the reinforcing steel layouts to accommodate the new location of negative bending over the piers. To accommodate this work, it is anticipated that all lanes in each direction must be closed during construction and this work would be completed using accelerated bridge construction. The plazas would have to be completely removed in this area and rebuilt after construction of the superstructure is completed.

#### 7.2.2. 12<sup>th</sup> Street SW

The existing west bridge abutment requires relocation further to the west to accommodate the track spacing. A relocation of 8.67 feet results in sufficient clearance for the proposed track alignments. The girders are two-span continuous over the center pier. A detailed structural analysis can be performed to determine if the existing superstructure may remain with modification; however, the proposed pier location would be near the existing steel girder splices, and significant steel strengthening will be required as a minimum. This significantly complicates reconstructing the existing steel girders for reuse as the splice area would support bearing loads and carry increased negative moment. Similar to Maryland Avenue SW, this will likely require full replacement of the concrete bridge deck to modify the reinforcing steel layouts to accommodate the new location for negative bending over the piers. As such, the existing superstructure will more than likely require replacement, thus resulting in potentially higher loading and reconstruction of the east abutment. It is anticipated that access to Maryland Avenue SW would be eliminated for an extended period of time to perform this work.

#### 7.2.3. 12<sup>th</sup> Street Expressway

At the 12<sup>th</sup> Street Expressway, all the existing tracks pass under a single span of the bridge. This span has insufficient clearance to fit the proposed 13-foot and 15-foot track spacings. To increase the clearance, the west abutment must be relocated further west. As a result of relocating the substructure units, the entire superstructure must be replaced for the span over the track area.

#### 7.2.4. L'Enfant Plaza

No modification of the L'Enfant Plaza overhead bridge is proposed. The existing span can accommodate 8.83 feet lateral clearances with four tangent tracks at 15-foot track centers. Although slightly under the target 9-foot clearance, it is believed the existing bridge can remain.

#### 7.2.5. Retaining Walls

In addition to modifying the bridges, the retaining walls need to be reconfigured and moved further west to accommodate the required alignments and clearances. The portions of the retaining walls along the west side of the track alignment from Maryland Avenue SW through 12<sup>th</sup> Street SW and 12<sup>th</sup> Street Expressway must be relocated. The relocation will necessitate removal of portions of the existing walls and construction of new ones in the new locations. The anticipated removal and reconstruction of these retaining walls is approximately 100-feet in length.



Similarly, the proposed track spacing require modifications to the existing retaining walls at Portals V. The anticipated relocation of the retaining walls within this area is approximately 75-feet in length.

#### 7.3. Structural Staging Considerations

As a result of clearance widening throughout the track alignment, each of the structures require some significant modifications. An approximate construction duration of 40 months is anticipated to complete the structural modifications between Maryland Avenue SW and L'Enfant Plaza. During this time, extended duration lane closures and track outages are necessary; however, two tracks may be maintained during construction with the exception of overnight track tie-in work. Several construction stages will necessitate the closure of 12th Street SW and Maryland Avenue SW to vehicular access entirely.

The construction stages required are very similar to Option 1 for the 15-foot track centers, with the exception that a majority of the pier replacement is along Pier 1, which is further west of Tracks 1 and 2. However, the work is adjacent to the Portals III and Portals V developments and will include impacts to the supporting columns for the new Portals V building terrace.

#### 7.4. Right-of-Way Impacts Assessment

Additional right-of-way is required to achieve the 13-foot and 15-foot track center option. Approximate limits of additional right-of-way are shown in **Table 4-5**.

Side of Alignment	Between	Length (*)	Width (**)	Owner
West (Left)	Maine Avenue SW and Maryland Avenue SW	175	15	Portals V
West(Left)	Maryland Avenue SW	700	10	Portals III
East (Right)	Maine Avenue SW and Maryland Avenue SW	50	10	Portals V
West (Left)	12 <sup>th</sup> Street SW and 12 <sup>th</sup> Street Expressway	375	10	DDOT
West (Left)	12 <sup>th</sup> Street Expressway and L'Enfant Plaza	60	10	USA
East (Right)	9 <sup>th</sup> Street SW to 7 <sup>th</sup> Street SW	160	10	USA

 Table 7-5
 Approximate Limits of Additional Right-of-Way

(\*) – Length Measured Along Tracks (in feet)

(\*\*) - Width Measured Perpendicular to Tracks (in feet)



#### 8.0 Vertical Clearance Assessment

A recent clearance improvement project increased vertical clearances through the project area to permit operation of Plate H equipment (double-stacked intermodal containers, see **Figure 1-2**)) on existing Track 2 and Track 3 only (span 3), which was primarily achieved by lowering the track. The minimum clearance of 21.14 feet will be used. All four tracks will be made capable of accommodating Plate H equipment.

#### 9.0 Additional Considerations

#### 9.1. Drainage

An existing CSXT-owned drainage system was installed as part of the recent clearance improvement project, which increased vertical clearances through the project area to permit operation of Plate H equipment (double-stacked intermodal containers). As part of that project, a new collector system was installed to bring water from the cut section to a city sewer located between 14<sup>th</sup> Street SW and Maryland Avenue SW, near the intersection of Maine Avenue SW. In order to increase the number of tracks in the cut section to four, this system will have to be modified to accommodate the new track centers. Although the design would be different for each option, both the 13-foot and 15-foot track centers will require similar modifications of this storm sewer system. The drainage system does not appear to be a differentiator between the two track-center options; once a track spacing is selected, this element will be further evaluated.

#### 9.2. Communication and Signal Facilities

The overall four-track alignment for the Long Bridge requires reconfiguration of the existing L'Enfant (LE) Interlocking. Both track-center options will require a similar modification, and these are not seen as differentiators between the two options. The existing signal locations can remain (northbound home signals south of Maryland Avenue SW and southbound home signals north of 9<sup>th</sup> Street SW), but the signals will have to be relocated to accommodate the greater number of tracks. If required, additional space appears to be available within the right-of-way on the east side of the corridor, north of and under L'Enfant Plaza.

Existing signal and communications lines running through the corridor may need to be relocated for either option.



# Long Bridge Project

# Environmental Impact Statement (EIS)

## Maryland Avenue SW to L'Enfant Interlocking Clearance Assessment

Appendix A - Location Map







Location Map



# Long Bridge Project

## Environmental Impact Statement (EIS)

## Maryland Avenue SW to L'Enfant Interlocking Clearance Assessment

Appendix B - Clearance Assessment Plans

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# DISTRICT OF COLUMBIA **DEPARTMENT OF TRANSPORTATION**

#### PLANS OF PROPOSED

# LONG BRIDGE PROJECT EIS MARYLAND AVENUE SW TO L'ENFANT INTERLOCKING CLEARANCE ASSESSMENT



**KEY MAP** 



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1. SECTIONS ARE LOOKING NORTH.

- VERTICAL CLEARANCES ARE APPROXIMATE AND ARE MEASURED FROM TOP OF RAIL TO BOTTOM OF SUPERSTRUCTURE.
- PROPOSED TRACKS IN SPAN 2 TO BE LOWERED TO MATCH THE EXISTING CSXT CLEARANCES IN SPAN 3.

SEPT



		REG STATE	PR	OJECT	SHEET NO.	TOTAL SHEETS
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€ EXIST. PIER	€ B 51'- SPAN € TRACK 2	RG. EXIS 7"	L. ABUTMENT			
15'-0" VARIES	VARIES 1	5'-0"	VARIES	-		
5'-6"     MIN	18'-5" MIN.	_	13'-8" MIN.			
3'-6"			<u>                                     </u>			_
	¥_I⊬	AUK	٦			
<u> DPTION 4 - 12T</u>	<u>h street view</u>					
€ PROPOSED A VARIES SPAN 1 € EXIST. PIER TRACK 3 - 1 13'-0" VARIES 14'-3' MIN. REMOVE EXIST. PIER 1 0PTION 5 - 12 N.	PIER - C B S S S S S S S S S S S S S S S S S S S	RG. EXIS 2'-11" PAPN 2 ACK 2 -	L. ABUTMENT ← € TRACK 1 VARIES 13'-6" MIN.			
				CES		
	ALIGNMENT	TRACK	1 TRACK 2	TRACK 3	TRACK	4
	EXISTING		22.40'	22.42'	19.25	,
	15' TRACK SPACING	22.40'	22.40'	22.42'	22.40	,
	13' TRACK SPACING	22.40'	22.40'	22.42'	22.40	,
0 10 20 SCALE: 1" = 10'-0" PTEMBER 6, 2018	D.C. DEPART INFRASTRUCTURE PF PROJECT LONG BRIDG MARYLAND AVEI INTERLOCKING CLE TYPICAL TR	MENT ROJECT MANA E PROJ NUE TC ARANCE	OF TRANS MANAGEME GEMENT I ECT EIS L'ENFANT ASSESSM	SPORTATI NT ADMIN DIVISION 	ON IISTRATI IISTRATI IISTRATI INED BY CED BY IN BY INISION CHIE	ON 
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	ALIGNMENT	TRACK 1	TRACK 2	TRACK	3 TRACK	4
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10 20	D.C. DEPAR	IMENT (	OF TRAN	SPORT	ATION	
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# Long Bridge Project

## Environmental Impact Statement (EIS)

## Maryland Avenue SW to L'Enfant Interlocking Clearance Assessment

Appendix C - CPM Construction Schedules



#### **Summary of Options**

The schedules for Options 1, 3, 4, and 5 are provided in this appendix and are based on the following assumptions:

- **Option 1:** Providing 15 ft freight / 15 ft passenger track spacing with 9 ft freight / 9 ft passenger lateral clearance for a **60-month** construction duration.
- **Option 2:** Providing 13 ft freight / 13 ft passenger track spacing with 8.5 ft freight / 9 ft passenger lateral clearance for a **0-month** construction duration (no schedule included).
- **Option 3:** Providing 15 ft freight / 12.5 ft passenger track spacing with 9 ft freight / 8 ft passenger lateral clearance for a **50-month** construction duration.
- **Option 4:** Providing 15 ft freight / NA ft passenger track spacing with 9 ft freight / 7.25 ft passenger lateral clearance for a **49-month** construction duration.
- **Option 5:** Providing 15 ft freight/ 13 ft passenger track spacing with 9 ft freight / 8.5 ft passenger lateral clearance for a **40-month** construction duration.
  - There is potential that additional work will be needed in Option 5 due to increased span lengths and loading, but it cannot be determined prior to additional engineering and final design.

### Option 1 Lateral Clearance: 15 ft Track Spacing

Ol	ption 1: All Tracks 15 ft Spacing								(	Classic S	chedule	Layout													Connecting N	orth and South	Through ou	JEC   Ir Nation's Copit
Activ	vity Name	Planned	Planned	Original		20	)22			2	023			2	2024			2	025			20	026			20	27	
		Start	Finish	Duration	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q	2	Q3
6	Option 1: All Tracks 15 ft Spacing	04-Apr-22	07-Apr-27	956d																						• 07	-Apr-2	7,MDOP
	📕 STAKEHOLDER COORDINATION	04-Apr-22	02-Apr-27	953d		<b>Y</b>		_											-							• 02	Apr-27	,MDOP
	RAILROADCOORDINATION	04-Apr-22	02-Apr-27	953d						: : :			: : :			: : :	; ; ;				: : :		: : :	: : :	; ; ;	R/	JLRO/	ADCOOR
	MARYLAND AVE PHASE 1	04-Apr-22	09-Dec-22	175d		<b>∀</b>			09-Dec-22	2, MDOPT	1.PH1 M	ARYLAND	AVEPHAS	E1														
	INSTALL TRAFFIC CONTROL	04-Apr-22	05-Apr-22	2d		INSTAI	L TRA	FFICCONTR	ROL																			
	TRACK ADJUSTMENTS	04-Apr-22	08-Apr-22	5d		TRAC	KADJI	STMENTS												1								
	REMOVE SIREEISCAPE	06-Apr-22	07-Apr-22	2d		REMO	VE ST	REETSCAP	Е																			
	SAWCUT AND REMOVE DECK	07-Apr-22	05-May-22	20d		SAV	WCUTA	NDREMOV	/E DECK																			
	REMOVE BEAMS	05-May-22	12-May-22	5d		RE	MOVE	BEAMS																				
	PIER DEMO	12-May-22	31-May-22	13d			PIERDE	МО																				
	INSTALL MICROPILES (LOW OVERHEAD)	31-May-22	29-Jun-22	21d			MICI	ROPILĖ (LO	W OVERHI	AD)										1								
	PILE CAP INSTALLATION	29-Jun-22	07-Jul-22	6d			PILE	E CAP INSTA	LLATION																			
	CRASHWALL CONSTRUCTION	13-Jul-22	03-Aug-22	15d				CRASHWAL	LCONSTRU	UCTION																		
	COLUMN CONSTRUCTION	03-Aug-22	18-Aug-22	11d				COLUMN	CONSTRUC	TION																		
	CAP CONSTRUCTION	19-Aug-22	09-Sep-22	15d				CAP CO	ONSTRUCT	ION																		
	INSTALL NEW BEAMS	12-Sep-22	30-Sep-22	15d				🗆 INSTA	LL NEW BI	AMS																		
	PLACE NEW DECK	03-Oct-22	06-Dec-22	45d					PLACE NI	EW DECK																		
	INSTALL STREETSCAPE	07-Dec-22	08-Dec-22	2d					INSTALLS	STREETS	CAPE																	
	REMOVE TRAFFIC CONTROL	09-Dec-22	09-Dec-22	1d					REM TRA	AFFICCO	NTROL																	
	MARYLAND AVE PHASE 2	09-Dec-22	15-Aug-23	107d					1		▼	15-Aug-23,N	IDOPT1.PF	MARY	LANDAVI	E PHASE 2	2											
	INSTALL TRAFFICCONTROL	09-Dec-22	13-Dec-22	2d					INSTALL	TRAFFIC	CONTRO	DL		!!!-	!!!							++						
	REMOVE STREETSCAPE	13-Dec-22	15-Dec-22	2d					REMOVI	STREET	SCAPE																	
	TRACK ADJUSTMENTS	13-Dec-22	20-Dec-22	5d					TRACKA	DJUSTM	ENTS																	
	SAWCUT AND REMOVE DECK	15-Dec-22	12-Jan-23	20d					□ SAWO	UTAND	REMOVE	E DECK																
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	PIER DEMO	19-Jan-23	07-Feb-23	13d	·!!   		· · · · · · ·		PIE	RDEMO					!!!													
	INSTALL MICROPILES (LOW OVERHEAD)	07-Feb-23	08-Mar-23	21d						MICROP	ILE (LOW	V OVERHEA	D)															
	PILE CAP INSTALLATION	08-Mar-23	16-Mar-23	6d						PILE CA	P INSTAL	LATION																
	CRASHWALL CONSTRUCTION	22-Mar-23	12-Apr-23	15d							SHWALL	CONSTRUC	TION															
	COLUMN CONSTRUCTION	12-Apr-23	27-Apr-23	11d	· · ·			· · · ·		CO	LUMNC	ONSTRUCT	ION						· · · ·									
	CAP CONSTRUCTION	28-Apr-23	18-May-23	15d							CAP CON	NSTRUCTIO	N															
	INSTALL NEW BEAMS	19-May-23	08-Jun-23	15d							INSTAL	L NEW BEA	MS															
	PLACE NEW DECK	09-Jun-23	10-Aug-23	45d							P	PLACE NEW	DECK															
	INSTALL STREETSCAPE	11-Aug-23	14-Aug-23	2d								INSTALL ST	REETSCA	PE														
	REMOVE TRAFFIC CONTROL	15-Aug-23	15-Aug-23	1d						<u>.</u>	[; ; ;] ;;	REM TRAF	FICCONTR	OL							ļ	¦						
	MARYLAND AVE PHASE 3	15-Aug-23	22-Jul-24	172d							▼				▼ 22-J	ul-24,MDC	PT1.BR	MARYLAN	DAVE PH	ASE 3								
	INSTALL TRAFFIC CONTROL	15-Aug-23	17-Aug-23	2d								INSTALL TI	AFFICCON	ITROL														
	REMOVE STREETSCAPE	17-Aug-23	21-Aug-23	2d								REMOVE S	TREETSCA	APE														
	TRACK ADJUSTMENTS	17-Aug-23	24-Aug-23	5d							0	TRACKAD	USTMENT	S														
	SAWCUTAND REMOVE DECK	21-Aug-23	18-Sep-23	20d				· · · ·	· · · ·		□□□□	□ SAWCU	TANDREN	IOVE D	ECK				· · · ·			· · · ·						
	REMOVE BEAMS	18-Sep-23	25-Sep-23	5d								C REMO	E BEAMS															
	PIER DEMO	25-Sep-23	12-Oct-23	13d								D PIER	DEMO															
	INSTALL MICROPILES (LOW OVERHEAD)	12-Oct-23	10-Nov-23	21d								Ш М	CROPILE (	LOWO	VERHEAD													
	PILE CAP INSTALLATION	10-Nov-23	20-Nov-23	6d								P	ILE CAP IN	STALLA	TION													
	CRASHWALL CONSTRUCTION	24-Nov-23	15-Dec-23	15d									CRASHW	ALLCO	ISTRUCTION	DN						++						
	COLUMN CONSTRUCTION	18-Mar-24	01-Apr-24	11d										COLU	MNCONS	RUÇTION	1											
	(NewBar) Actual Work		Critical Rem	aining Work						Pag	ge 1 of 3	3					TASK f	lter: All A	tivities									
	Actual Level of Effort Remaining Wo	ork 🔶	<ul> <li>Milestone</li> </ul>	-																					(	Oracle	e Corp	oration



### Option 1 Lateral Clearance: 15 ft Track Spacing

Option 1: All Tracks 15 ft Spacing								(	Classic Sc	hedule L	ayout								
Activity Name	Planned Start	Planned Finish	Original Duration		2	022	1		20	23				2024	-1		20	25	
			Duration	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
	02-Apr-24	22-Apr-24	15d																
	23-Apr-24	13-May-24	15d											NSTALL NI	EWBEAMS	S			
PLACE NEW DECK	14-May-24	17-Jul-24	45d											PLA	CENEW D	ECK			
INSTALL STREETSCAPE	18-Jul-24	19-Jul-24	2d											I INSI	ALLSTRE	EISCAPE			
REMOVE TRAFFIC CONTROL	22-Jul-24	22-Jul-24	ld											I REN	1 TRAFFIC	CONTROL	<u> </u>		253
MARYLAND AVE COMPLEIESHUTDOWN	22-Jui-24	27-Jun-25	1/40															2/-Jun	-25,MDC
INSTALL TRAFFIC CONTROL	22-Jul-24	24-Jul-24	2d											I INS	TALL TRAI	FFICCONTR	<b>XOL</b>		
REMOVE STREETSCAPE	24-Jul-24	26-Jul-24	2d											REN	MOVE ST	REETSCAP	Е		
TRACK ADJUSTMENTS	24-Jul-24	31-Jul-24	5d											I TR	ACKADJUS	STMENTS			
SAWCUT AND REMOVE DECK	26-Jul-24	23-Aug-24	20d											🗖 🗖	SAWCUTA	NDREMO	VE DECK		
REMOVE BEAMS	23-Aug-24	30-Aug-24	5d											<b>B</b> 1	REMOVE I	BEAMS			
PIER DEMO	30-Aug-24	18-Sep-24	13d												PIERDE	МО			
INSTALL MICROPILES (LOW OVERHEAD)	18-Sep-24	17-Oct-24	21d												🗖 MICF	ROPILE (LO	W OVER	HEAD)	
PILE CAP INSTALLATION	17-Oct-24	25-Oct-24	6d												D PILE	CAP INST	ALLATION	4	
CRASHWALL CONSTRUCTION	31-Oct-24	21-Nov-24	15d						++	++					🗖 C	RASHWAL	LCONST	<b>VUCTIO</b>	Ň
COLUMN CONSTRUCTION	22-Nov-24	09-Dec-24	11d													COLUMN	CONSTRU	ICTION	
CAP CONSTRUCTION	10-Dec-24	31-Mar-25	15d														CAPCC	INSTRUC	CTION
INSTALL NEW BEAMS	01-Apr-25	21-Apr-25	15d													1 I I I	INST.	ALL NEV	VBEAM
PLACE NEW DECK	22-Apr-25	24-Jun-25	45d															PLAC!	E NEW C
INSTALL STREETSCAPE	25-Jun-25	26-Jun-25	2d						++									INSTA	LL STRE
REMOVE TRAFFIC CONTROL	27-Jun-25	27-Jun-25	1d														i i i j	REM	TRAFFIC
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	27-Jun-25	02-Jul-25	3d														:		FEICPHA
DECK AND BEAM REMOVAL NORTHEND PHASE 1	02-Jul-25	06-Aug-25	25d																ECKAN
TRACK ADJUST PHASE 1	03-Jul-25	10-Jul-25	5d								· · · · · · · · · · · · · · · · · · ·			!!					CKADI
PIFRWORK PHASE 1	07-Aug-25	16-Oct-25	50d																
	16-Oct-25	21-Oct-25	34																
	21-Oct-25	25-Nov-25	25d																
BARRIER WORK PHASE 1	11-Nov-25	25-Nov-25	10d																
TRACK ADJUST PHASE 2	26-Nov-25	03-Dec-25	54								444							· · · · · · · · · · · · · · · · · · ·	
TRAFFIC PHASE 2	03-Dec-25	05 Dec 25	34														: : : :		
DECK AND DE AM DEMOVAL NORTHEND DHASE 2	03-Dec-25	12 Jan 26	254																
DIER WORK PHASE 2	16-Mar-26	22-May-26	504																
	22 May 26	22-Way-20	2.4																
	22-Way-20	01 Jul 26	254								44							· · · · · · · · · · · · · · · · · · ·	
	01 Jul 26	15 Jul 26	104																
TRACK ADJUST PHASE 2	16 Jul 26	22 Jul 26	54																
TRACK ADJUST PHASE 3	22 Jul 26	22-Jul-20	24																
	22-Jul-20	27-Jul-20																	
DECK AND BEAM REMOVALNORTHEND PHASE 3	28-Jul-26	31-Aug-26	25d								444								
PIER WORK PHASE 3	01-Sep-26	09-Nov-26	50d																
INSTALL BEAMS PHASE3	10-Nov-26	12-Nov-26	3d																
DECKWORKPHASE3	13-Nov-26	18-Mar-27	25d																
BARRIER WORK PHASE 3	18-Mar-27	30-Mar-27	8d																
REMOVE TRAFFIC CONTROL	02-Apr-27	07-Apr-27	3d								· · · · · · · · · · · · · · · · · · ·							· · · · ·	
12TH EXPRESSWAY REHABILITATION	04-Apr-22	21-May-24	412d											21-May-24,	MDOPT1.1	12E 12TH	EXPRESS	WAYRE	HABILI
TRAFFIC PHASE 1	04-Apr-22	06-Apr-22	3d		TRAF	FICPHASE	E1												
(NewBar) Actual Work Actual Level of Effort Remaining Wo	rk 🔶 🦷	<ul><li>Critical Rema</li><li>Milestone</li></ul>	ining Work						Pag	e 2 of 3						TASK filt	er: All Act	tivities	



		20	26	c	onnecting North c	and South Through 2027	our Nation's Capito
	Q1	Q2	Q3	Q4	Q1	Q2	Q3
PT1	DR MA	RYLAND	VE COM	PLETE SF	UTDOWN		
ECI	K						
ETS	SCAPE						
CO	NTROL						
						🛡 07-Apr	27,MDOP
SE	1						
BE	AM REM	OVAL NO	RTHEND	H1			
STI	PH 1						
ER	WORK P	HASE 1					
STA	ALL BEAN	AS PH 1					
D	ECKWOI	RKPH1					
B	ARRIERV	VORKPH	1	!!			· · · · · · · · · · · · · · · · · · ·
ן דו	RACKAL	JUSTPH	2				
			MPEMOV		HENIDDH	2	
			FRWORK	PHASE	ILLINDFII	2	
		11	NSTALL BI	EAMS PH	2		
			DECKV	VORKPH	2		
			BARR	IERWOR	KPH2		
			TRAC	KADJUS	ГРН 3		
			TRAI	FICPHAS	3E 3		
				ECKANE	BEAM RI	MOVALI	NORTHEN
				PIE PIE	RWORK	PHASE 3	
				IN	TALL BE	AMS PH 3	
						DECK W	ORK PH 3
						BARRI	
ΔΤ	ION				     	KEMO\	E IRAFFI
11							
					©C	Dracle Co	rporation

### Option 1 Lateral Clearance: 15 ft Track Spacing

Option 1: All Tracks 15 ft Spacing						(	Classic Sched	ile Layout														Connecting North	and South Through	JJECI th our Nation's Copit
Activity Name Planned	Planned	Original		20	022		2023				20	24			20	)25				2026			2027	
Start	Finish	Duration	Q1	Q2	Q3 Q4	Q1	Q2	Q3 Q4	1	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3
DECK AND BEAM REMOVAL NORTHEND PHASE 1 07-Apr-22	27-Apr-22	15d		DEC	KANDBEAM RE	MOVAL NOI	RTHENDPH 1																	
SOE INSTALLATION PHASE 1 28-Apr-22	08-Jun-22	30d			SOE INSTALLATI	ON PH 1																		
ABUTMENT REMOVAL PHASE 1 09-Jun-22	22-Jun-22	10d			ABUTMENTRE	MOVAL PH	1																	
PILE INSTALLATION PHASE 1 23-Jun-22	13-Jul-22	15d		[	🛑 🛛 PILE INSTALL	ATION PH1	·																	
RETAINING WALL DEMO 23-Jun-22	29-Jun-22	5d		(	RETAINING WA	LLDEMO																		
FOOTING CONSTRUCTION PHASE 1 14-Jul-22	27-Jul-22	10d			■ FOOTINGCO	NSTRUCTIC	ONPH 1																	
RETWALL PILE INSTALLATION 14-Jul-22	20-Jul-22	5d			RETWALLP	LEINSTALL	ATION																	
STEM CONSTRUCTION PHASE 1 28-Jul-22	24-Aug-22	20d			STEM CO	ONSTRUCT	IONPH 1																	
RETWALL FTG CONSTRUCTION 28-Jul-22	03-Aug-22	5d			I RETWALL	FTGCONST	FRUCTION																	
BACKWALL CONSTRUCTION PHASE 1 25-Aug-22	07-Sep-22	10d			■ BACKW	VALLCONST	FRUCTIONPH											1 1 1						
RETAINING WALL CONSTRUCTION 25-Aug-22	31-Aug-22	5d				NG WALLO	ONSTRUCTIO	J																
BACKFILL PHASE 1 08-Sep-22	15-Sep-22	6d			BACK	FILL PHASE	E1																	
INSTALL BEAMS PHASE 1 16-Sep-22	20-Sep-22	3d			INSTA	LLBEAMS	PH1																	
DECK WORK PHASEI 21-Sep-22	25-Oct-22	25d			DI	ECK WORK	PH 1																	
BARRIER WORK PHASE 1 26-Oct-22	08-Nov-22	10d				BARRIERW	ORKPH1																	
TRAFFIC PHASE 2 09-Nov-22	11-Nov-22	3d				RAFFICPH	ASE 2																	
DECK AND BEAM REMOVAL NORTHEND PHASE 2 14-Nov-22	02-Dec-22	15d				DECKAN	DBEAM REMO	VALNORT	HEND	PH 2														
SOE INSTALLATION PHASE 2 05-Dec-22	30-Dec-22	20d				SOE IN	STALL ATION	PH2																
ABUTMENT REMOVAL PHASE 2 02-Jan-23	13-Jan-23	10d	•			ABU	IMENTREMO	ALPH2																
PILE INSTALLATION PHASE 2 20-Mar-23	07-Apr-23	15d					PILE INST	LLATION P	H 2															
FOOTING CONSTRUCTION PHASE 2 07-Apr-23	21-Apr-23	10d					FOOTING	CONSTRUC	TIONE	PH 2														
STEMCONSTRUCTION PHASE 2 21-Apr-23	19-May-23	20d					STEM	CONSTRUC	TIONE	Э́Η2														
BACKWALL CONSTRUCTION PHASE 2 19-May-23	02-Jun-23	10d						KWALLCO	ISTRU	CTIONPH	2													
BACKFILL PHASE 2 02-Jun-23	12-Jun-23	6d				$ \frac{1}{1} \frac{1}{1} \frac{1}{1} \frac{1}{1}$	BAC	KFILL PHAS	E 2		7					L L	<u>+</u> <u>+</u> <u>+</u> <u>+</u> <u>+</u> <u>+</u> <u>+</u>	++-+- ! ! ! !						
INSTALL BEAMS PHASE 2 12-Jun-23	15-Jun-23	3d					INS	TALLBEAN	/SPH2	2														
DECKWORK PHASE2 15-Jun-23	20-Jul-23	25d						DECK WOI	RKPH2	2														
BARRIER WORK PHASE 2 20-Jul-23	03-Aug-23	10d						BARRIER	WORI	KPH2														
REMOVE TRAFFIC 03-Aug-23	08-Aug-23	3d						REMOVI	TRAI	TFIC														
TRAFFIC PHASE3 03-Aug-23	08-Aug-23	3d		+		$ \frac{1}{1} \frac{1}{1} \frac{1}{1} \frac{1}{1}$	$\frac{1}{1}$ $\frac{1}{1}$ $\frac{1}{1}$ $\frac{1}{1}$ $\frac{1}{1}$	TRAFFIC	PHAS	E3							$\frac{1}{1}$ $\frac{1}{1}$ $\frac{1}{1}$		- + - + + -					
DECK AND BEAM REMOVAL NORTHEND PHASE 3 08-Aug-23	29-Aug-23	15d							NDBI	EAM REM	OVALN	JORTHEN	DPH 3											
SOE INSTALLATION PHASE 3 29-Aug-23	26-Sep-23	20d							UNST/		VPH 3													
ABUTMENT REMOVAL PHASE 3 26-Sep-23	10-Oct-23	10d							NTM	ENTREMO	WAL PF	13												
PILE INSTALLATION PHASE 3 10-Oct-23	31-Oct-23	15d								ISTALLAT	TON PH	3												
FOOTING CONSTRUCTION PHASE 3 31-Oct-23	14-Nov-23	10d				$ \frac{1}{1} \frac{1}{1} \frac{1}{1} \frac{1}{1}$	·		FOOT	TINGCONS	STRUCT	IONPH3					<u>+</u> <u>+</u> <u>+</u>							
STEMCONSTRUCTION PHASE 3 14-Nov-23	12-Dec-23	20d								TEMCONS	STRUCT	TIONPH3												
BACKWALL CONSTRUCTION PHASE 3 12-Dec-23	26-Dec-23	10d								BACKWAI		STRUCTIC	NPH 3											
BACKFILL PHASE 3 18-Mar-24	25-Mar-24	6d									BACKER	LLPHASE	3											
INSTALL BEAMS PHASE 3 25-Mar-24	28-Mar-24	3d								l n	NSTALL	BEAMS	PH3											
DECKWORKPHASE3 28-Mar-24	02-May-24	25d										K WORK	PH 3											
BARRIER WORK PHASE 3 02-May-24	16-May-24	10d										RRIERW	ORKPH	3										
TRAFFIC PHASE 3 16-May-24	· 21-May-24	3d										AFFICPH	ASE 3											
	, · · )				· · · · · · ·				<u> </u>						· · ·			· · ·	_ , , , ,				· · ·	
(NewBar)     Actual Work       Actual Level of Effort     Remaining Work	Critical Remainin     Milestone	ng Work					Page 3	of 3						TASK fil	ter: All Ac	tivities						C	Oracle Co	prporation

(NewBar) Actual Work Critical Remaining Work	Page 3 of 3	TASK filter: All Activities



#### Option 3 Lateral Clearance: 15 ft. Track Spacing for Tracks 1& 2, 12.5 ft. Track Spacing for Tracks 3 & 4

ctivity Name	Plannad	Diannad	Omining1		202	2				2022				024					2025		Connecting No	rth and South Three	ugh our Nation's t
aivity Name	Start	Finish	Duration		202	2	04	01	02	2023	04	01		024	01		01	02	2025		04		.026
Ontion 3: 15 Et Freight 12 Et Passenger.	04-Apr-22	02-Jun-26	800d	<b></b>	Q2	Q3	Q4	QI	Q2	Q3	Q4	QI	Q2	03	Q4		QI	Q2	Q3		Q4	U QI	Q2
STAKEHOLDER COORDINATION	04-Apr-22	02-Jun-26	800d																				
	04 Apr 22	02 tun 20	2001																				
	04-Apr-22	02-Jun-20	1754					00 0 221												1 1			
MARYLAND AVE PHASE I	04-Api-22	09-Det-22	1750					09-Dec-22,	MDOP15.PH1	MAKILANL	JAVEPHASEI												
INSTALL TRAFFIC CONTROL	04-Apr-22	05-Apr-22	2d	I INS	STALL TR	AFFICCONTI	ROĽ						·	· · · · · · · · · · · · · · · · · · ·		 	 	· · · · · · · · · · · · · · · · · · ·		ļ		ļļļ	
TRACK ADJUSTMENTS	04-Apr-22	08-Apr-22	5d		АСКАДЛ	JSTMENTS																	
REMOVE STREETSCAPE	06-Apr-22	07-Apr-22	2d	I RE	EMOVE	STREETSCAP	Έ																
SAWCUT AND REMOVE DECK	07-Apr-22	05-May-22	20d		SAWCU	TANDREMO	VE DECK																
REMOVE BEAMS	05-May-22	12-May-22	5d		REMO	VE BEAMS																	
PIER DEMO	12-May-22	31-May-22	13d		🔲 PIEI	RDEMO								÷			¦	· · · · · · · · · · · · · · · · · · ·				ļļļ	
INSTALL MICROPILES (LOW OVERHEAD)	31-May-22	29-Jun-22	21d			MICROPILE	(LOW OVE	ERHEAD)															
PILE CAP INSTALLATION	29-Jun-22	07-Jul-22	6d			PILE CAP IN	ISTALLATI	ON															
CRASHWALL CONSTRUCTION	13-Jul-22	03-Aug-22	15d			CRASH	WALLCON	ISTRUCTION	N														
COLUMN CONSTRUCTION	03-Aug-22	18-Aug-22	11d			COLI	JMNCONS	TRUCTION															
CAP CONSTRUCTION	19-Aug-22	09-Sep-22	15d			- C	AP CONSTI	RUCTION															
INSTALL NEW BEAMS	12-Sep-22	30-Sep-22	15d				INSTALL	NEWBEAN	IS														
PLACE NEW DECK	03-Oct-22	06-Dec-22	45d				1 1	PLACE NE	W DECK														
INSTALL STREETSCAPE	07-Dec-22	08-Dec-22	2d				1	INSTALL S	TREETSCAPE														
REMOVE TRAFFIC CONTROL	09-Dec-22	09-Dec-22	1d					REM TRA	FFICCONTROL														
The MARYLAND AVE PHASE 2	09-Dec-22	15-Aug-23	177d				•			▼ 1	5-Aug-23,MDO	PT3.PR MAR	YLANDAVE P	HASE 2									
INSTALL TRAFFIC CONTROL	09-Dec-22	13-Dec-22	2d					INSTALL 7	RAFFICCONT	ROL	· l l l · · · · · · · · · · · · · · · · · · ·					· · · · · · · ·	L L		· - 4 J				
REMOVE STREETSCAPE	13-Dec-22	15-Dec-22	2d				1	REMOVE	STREETSCAP	Е													
TRACK ADJUSTMENTS	13-Dec-22	20-Dec-22	5d					I TRACKAI	DJUSTMENTS														
SAWCUT AND REMOVE DECK	15-Dec-22	12-Jan-23	20d					SAW	UTANDREM	OVE DECK													
REMOVE BEAMS	12-Jan-23	19-Jan-23	5d					REM	IOVE BEAMS														
PIER DEMO	19-Jan-23	07-Feb-23	13d					🗖 Pl	ERDEMO								L L I I I I						
INSTALL MICROPILES (LOW OVERHEAD)	07-Feb-23	08-Mar-23	21d						MICROPIL	E (LOW OVE	RHEAD)												
PILE CAP INSTALLATION	08-Mar-23	16-Mar-23	6d						PILE CAP I	INSTALLATIO	N												
CRASHWALL CONSTRUCTION	22-Mar-23	12-Apr-23	15d						CRAS	HWALLCONS	STRUCTION												
COLUMN CONSTRUCTION	12-Apr-23	27-Apr-23	11d						COI	LUMNCONST	RUCTION												
CAP CONSTRUCTION	27-Apr-23	18-May-23	15d	· · · · · · · · · · ·				!!!-	C.	AP CONSTRU	JCTION						6 16 1 1 1 1	L L					
INSTALLNEW BEAMS	18-Mav-23	08-Jun-23	15d							INSTALL N	EWBEAMS												
PLACE NEW DECK	08-Jun-23	10-Aug-23	45d							PI	ACE NEW DE	СК											
INSTALL STREETSCAPE	10-Aug-23	14-Aug-23	2d							1	NSTALL STREE	ETSCAPE											
REMOVE TRAFFIC CONTROL	14-Aug-23	15-Aug-23	 1d							R	EM TRAFFICO	CONTROL											
MARYLAND AVE COMPLETE SHUTDOWN	15-Aug-23	22-Jul-24	172d							▼+				<b>▼</b> 22-Jul	-24,MDOPT	3.DR MA	RYLAN	DAVE COM	IPLETĖ SH	UTDOW	Ń		
	15 Arra 22	17 Aug 22	10							• I	NSTALL TRAF	FICCONTROL											
	15-Aug-23	17-Aug-23	2d								REMOVE STRI	EETSCAPE											
	17-Aug-23	21-Aug-23	2d								TRACKADIUS	- FMENTS											
IRACK ADJUSTMENTS	17-Aug-23	24-Aug-23	5d								SAWCUTA	NDREMOVE	DECK										
SAWCUT AND REMOVE DECK	21-Aug-23	18-Sep-23	20d	· · · · · · · · · · · · · · · · · · ·					· · · · · · · · · · · · · · · · · · ·		REMOVE	BEAMS					 	· · · · · · · · · · · · · · · · · · ·				· · · · · · · · · · · · · · · · · · ·	
KEMUVE BEAMS	18-Sep-23	25-Sep-23	5d									EMO											
	25-Sep-23	12-Oct-23	13d									CROPILE	WOVERHEAD	)									
INSTALL MICROPILES (LOW OVERHEAD)	12-Oct-23	10-Nov-23	21d									LECAPINST	LIATION										
PILE CAP INSTALLATION	10-Nov-23	20-Nov-23	6d										LCONSTRUCT	TION									
	24-Nov-23	15-Dec-23	15d						·				COUIMN	CONSTRUCT	TION		, I       					·	
- CYALLINAN CYANIS'T DI CYTTAN	⊥ 18-Mar-24	UI-Apr-24	11d		1 I I I I		1 1			i	1 I I I I	1 I I I				i i		i i i	1 1	1	1.1.1	1 1	



#### Option 3 Lateral Clearance: 15 ft. Track Spacing for Tracks 1& 2, 12.5 ft. Track Spacing for Tracks 3 & 4

Option 3: 15 Ft Freight, 12.5 Ft Passenger							Classic S	chedule La	yout								
Activity Name	Planned	Planned	Original		2022			2	023	-			202	.4			
	Start	Finish	Duration	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1		Q2	Q3		Q4	
CAP CONSTRUCTION	02-Apr-24	22-Apr-24	15d										CAP CON	ISTRUCTI	.ON		
INSTALLNEW BEAMS	23-Apr-24	13-May-24	15d										INSTA	LLNEW	BEAMS	3	
PLACE NEW DECK	14-May-24	17-Jul-24	45d											PLAC	E NEW	DECK	
INSTALL STREETSCAPE	18-Jul-24	19-Jul-24	2d											I INST/	ALL STI	REETS(	CAPI
REMOVE TRAFFIC CONTROL	22-Jul-24	22-Jul-24	1d											REM	TRAFF	ICCON	ITRO
12TH STREET DECK REMOVE AND REPLACE	22-Jul-24	02-Jun-26	346d											Vi i		1	
TRAFFIC PHASE1	22-Jul-24	25-Jul-24	3d											TRA	FFICPI	HASE 1	
DECK AND BEAM REMOVAL NORTHEND PHASE 1	25-Jul-24	29-Aug-24	25d												DECK	ANDBI	EAM
TRACK ADJUST PHASE 1	26-Jul-24	01-Aug-24	5d											TR.	АСКАГ	JUSTP	нi
PIERWORK PHASE 1	30-Aug-24	12-Nov-24	50d	- T T	· · · · · · · · · · · · · · · · · · ·		······			· · · · · · · · · · · · · · · · · · ·						PP	ERW
INSTALL BEAMS PHASE 1	12-Nov-24	15-Nov-24	3d													I IN	ISTAI
DECK WORK PHASE 1	15-Nov-24	20-Dec-24	25d													1	D
BARRIER WORK PHASE 1	06-Dec-24	20-Dec-24	10d												į	i i <b>r</b>	В
TRACK ADJUST PHASE 2	17-Mar-25	21-Mar-25	5d														
TRAFFIC PHASE2	21-Mar-25	26-Mar-25	3d				·····										
DECK AND BEAM REMOVAL NORTHEND PHASE 2	26-Mar-25	30-Apr-25	25d														
PIER WORK PHASE 2	01-May-25	11-Jul-25	50d												1	1	
INSTALL BEAMS PH ASE 2	11-Jul-25	16-Jul-25	3d														
DECK WORK PHASE2	16-Jul-25	20-Aug-25	25d														
BARRIER WORK PHASE 2	20-Aug-25	03-Sep-25	10d -				······								;		
TRACK ADJUST PHASE 3	04-Sep-25	11-Sep-25	5d														
TRAFFIC PHASE 3	11-Sep-25	16-Sep-25	3d														
DECK AND BEAM REMOVAL NORTHEND PHASE 3	17-Sep-25	22-Oct-25	25d												-		
PIER WORK PHASE 3	23-Oct-25	03-Apr-26	50d														
INSTALL BEAMS PHASE 3	06-Apr-26	08-Apr-26	3d										;;-				
DECK WORK PHASE3	09-Apr-26	13-May-26	25d														
BARRIER WORK PHASE 3	13-May-26	25-May-26	8d														
REMOVE TRAFFIC CONTROL	28-May-26	02-Jun-26	3d														
12TH EXPRESSWAY REHABILITATION	04-Apr-22	21-May-24	412d	<b>—</b>									<b>V</b> 21-M	lay-24.MT	DOPT3.1	12E 1	2THE
TRAFFIC PHASE 1	04-Apr-22	06-Apr-22		TRAFF	CPHASE 1											÷;	
DECK AND BEAM REMOVAL NORTHEND PHASE 1	07-Apr-22	27-Apr-22	15d		KANDRFAMI	REMOVAL NOR	THENDPH 1										
SOE INSTALLATION PHASE 1	28-Apr-22	08-Jun-22	30d		SOF INSTAL	LATION PH 1									1	1	
ABUTMENT REMOVAL PHASE 1	09-Jun-22	22-Jun-22	10d			NTREMOVAL P	<b>й</b> 1										
PILE INSTALLATION PHASE 1	23-Jun-22	13-Jul-22	15d			STALLATION PL	¥1 ! ! !										
RETAINING WALL DEMO	23-Jun-22	29-Jun-22				G WALLDEMO											
FOOTING CONSTRUCTION PHASE 1	14-Jul-22	27-Jul-22	10d			TNGCÓNSTRU	TIONPH 1										
RETWALL PILE INSTALLATION	14-Jul-22	20-Jul-22	5d												1	1	
STEM CONSTRUCTION PHASE 1	28-Jul-22	24-Aug-22	20d			TEM CONSTRI	ICTIONPH 1										
RET WALL FTG CONSTRUCTION	28-Jul-22	03-Aug-22	5d			WALL FTGCO	NSTRUCTION										
BACKWALL CONSTRUCTION PHASE 1	25-Aug-22	07-Sep-22				BACKWALLC	NSTRUCTION	NIDH 1								÷	
RETAINING WALL CONSTRUCTION	25-Aug-22	31-Aug-22	5d			RETAINING WA	LICONSTRU	TION									
BACKFILL PHASE 1	08-Sep-22	15-Sep-22	6d				HASE 1										
INSTALL BEAMS PHASE 1	16-Sep-22	20-Sep-22	3d				AMS DH 1										
DECK WORK PHASE1	21-Sep-22	25-Oct-22	25d				ע ערע אַרער								1		
BARRIER WORK PHASE 1	26-Oct-22	08-Nov-22	10d				NOW LUIS	нı									
TRAFFIC PHASE2	09-Nov-22		3d				FICDHACE										
						IKAI	TICTIADE 2										
		_		1								I					
(NewBar) Actual Work		Critical Rem	aining Work				Pag	ge 2 of 3					TASK	ñlter: All	Activiti	es	
Actual Level of Effort Remaining Work	k 🗣 🤚	Milestone															





	2	025	Connecting Nor	th and South Through	our Nation's Capite 26
Q1	Q2	Q3	Q4	Q1	Q2
REMOVAL	NORTHENI	OPH 1			
ORK PHAS	SE 1				
LBEAMS	PH1				
ECK WOR	KPH 1				
ARRIERW	ORKPHI				
	TPACKAD.	USIPH2 HASE2	·		
	DECK	ANDBEAM R	EMOVAL NO	RTHENDPH	12
	Diper	PIERWO	RK PHASE2		
		INSTAL	L BEAMS PH	2	
		DE	CKWORKPH	2	
		E E	ARRIERWOI	KPH2	
			TRAĊKADJU	STPH 3	
			TRAFFICPHA	SE3	
			DECKA	NDBEAM 1	REMOVAL
			· · · · · · · · · · · · · · · · · · ·	++	PIER
XPRE\$SW/	AYREHABIL	ITATION			
			·	÷	
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		+	·	+++	
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#### Option 3 Lateral Clearance: 15 ft. Track Spacing for Tracks 1& 2, 12.5 ft. Track Spacing for Tracks 3 & 4

Option 3: 15 Ft Freight, 12.5 Ft Passenger								Classic	c Schedule Lay	/out					
ctivity Name	Planned Start	Planned Finish	Original Duration	-	2022	2			20	)23			202	24	
	Start	1 111311	Duration	Q2	2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
DECK AND BEAM REMOVAL NORTHEND PHASE 2	14-Nov-22	02-Dec-22	15d					DECKANDE	BEAM REMOVA	LNORTHEND	PH 2				
SOE INSTALLATION PHASE 2	05-Dec-22	30-Dec-22	20d					SOE INS	TALL ATIONPH	2					
ABUTMENT REMOVAL PHASE 2	02-Jan-23	13-Jan-23	10d					ABUT	MENTREMOVA	LPH2					
PILE INSTALLATION PHASE 2	20-Mar-23	07-Apr-23	15d						PILE INST	ALLATION PH	2				
FOOTING CONSTRUCTION PHASE 2	07-Apr-23	21-Apr-23	10d						FOOTIN	GCONSTRUC	FIONPH 2				
STEM CONSTRUCTION PHASE 2	21-Apr-23	19-May-23	20d						STI	EM CONSTRU	CTIONPH 2				
BACKWALL CONSTRUCTION PHASE 2	19-May-23	02-Jun-23	10d						🗖 В	ACKWALLCO	NSTRUCTION	VPH 2			
BACKFILL PHASE 2	02-Jun-23	12-Jun-23	6d							BACKFILL PI	IASE 2				
INSTALL BEAMS PHASE 2	12-Jun-23	15-Jun-23	3d							INSTALL BEA	MS PH2				
DECK WORK PHASE2	15-Jun-23	20-Jul-23	25d							DECK W	ORK PH 2				
BARRIER WORK PHASE 2	20-Jul-23	03-Aug-23	10d							BARR	IERWORKPH	12			
REMOVE TRAFFIC CONTROL	03-Aug-23	08-Aug-23	3d							C REMO	VE TRAFFIC				
TRAFFIC PHASE 3	03-Aug-23	08-Aug-23	3d							TRAF	ICPHASE 3				
DECK AND BEAM REMOVAL NORTHEND PHASE 3	08-Aug-23	29-Aug-23	15d							🗖 DE	CKANDBEA	M REMOVAL 1	VORTHENDP	H 3	
SOE INSTALLATION PHASE 3	29-Aug-23	26-Sep-23	20d								SOE INSTAI	LATIONPH 3			
ABUTMENT REMOVAL PHASE 3	26-Sep-23	10-Oct-23	10d								ABUTME	NTREMOVAL	PH3		
PILE INSTALLATION PH ASE3	10-Oct-23	31-Oct-23	15d								🔲 PILE IN	ISTALLATION	PH3		
FOOTING CONSTRUCTION PHASE 3	31-Oct-23	14-Nov-23	10d								FOO	TINGCONSTR	UCTIONPH3		
STEMCONSTRUCTION PHASE 3	14-Nov-23	12-Dec-23	20d								, 🗖 S	STEMCONSTR	RUCTIONPH:	·····	
BACKWALL CONSTRUCTION PHASE 3	12-Dec-23	26-Dec-23	10d									BACKWALL	CONSTRUCT	IONPH 3	
BACKFILL PHASE 3	18-Mar-24	25-Mar-24	6d										BACKFILL P	HASE 3	
INSTALL BEAMS PHASE3	25-Mar-24	28-Mar-24	3d										INSTALL BE	AMS PH 3	
DECK WORK PHASE 3	28-Mar-24	02-May-24	25d										DECK V	WORK PH 3	
BARRIER WORK PHASE 3	02-May-24	16-May-24	10d -										🗖 BARI	RIERWORKP	PH3
TRAFFIC PHASE 3	16-May-24	21-May-24	3d										TRAI	FICPHASE	

(NewBar) Actual Level of Effort	Actual Work     Critical Remaining Work       Remaining Work <ul> <li>Milestone</li> </ul>	Page 3 of 3	TASK filter: All Activities





		2025		C	Connecting Nor	th and South Th	2026	Nation's Capito
Q1	Q2		Q3		Q4	Q1		Q2
	 	$\frac{1}{1}$ $\frac{1}{1}$						
		++					+ +	
					C	Oracle	Corp	oration

#### Option 3 Lateral Clearance: 15 ft Track Spacing for Tracks 1& 2 NA ft Track Spacing for Tracks 3 & 4

Option 4: 15 Ft Freight, Varied Passenger							Cla	assic Schedule I	ayout										Connecting N	orth and South Thr	CUJEC
Activity Name	Planned	Planned	Original		2022				2023	-		20	)24	1			202	.5	1		2026
				Q2		Q3 Q4	Q	Q1 Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	(	Q2	Q3	Q4	Q1	Q2
Coption 4: 15 Ft Freight, Varied Passeng	er <sup>04-Apr-22</sup>	06-May-26	/81d																		
RAILROAD COORDINATION	04-Apr-22	06-May-26	781d										· · ·								
📕 MD AVE PIER RELOCATION	04-Apr-22	06-Jul-22	65d		06-	-Jul-22,MDOPT4.PF	R MDAVI	E PIER RELOCAT	ION												
INSTALL TRAFFICC ONTROL	04-Apr-22	06-Apr-22	3d	INSTA	LL TRAFF	FICCONTROL															
INSTALL MICROPILES (LOW OVERHEAD)	07-Apr-22	11-May-22	25d	<b>—</b> N	/ICROPIL	E (LOW OVERHEA	AD)														
PILE CAP INSTALLATION	05-May-22	25-May-22	15d		PILE CAI	PINSTALLATION															
CRASHWALL CONSTRUCTION	19-May-22	15-Jun-22	20d		CRAS	HWALL CONSTRU	JCTION														
PIERCA PCONSTRUCTION	07-Jun-22	06-Jul-22	20d		PIE	ERCAP CONSTRUC	CTION														
COLUMN CONSTRUCTION	16-Jun-22	05-Jul-22	14d			DLUMNCONSTRUC	CTION														
MARYLAND AVE DECK PHASE 1	06-Jul-22	16-Nov-22	94d			▼ 1	16-Nov-22,N	MDOPT4.BR MAI	RYLANDAVE	DECK PH 1											
INSTALL NEW BEARING STIFFNERS	06-Jul-22	14-Sep-22	50d			INSTALL!	NEW BEAF	RINGSTIFFNERS													
INSTALL TRAFFIC CONTROL	06-Jul-22	07-Jul-22	2d			STALL TRAFFICCO	ONTROL														
REMOVE STREETSCAPE	08-Jul-22	11-Jul-22	2d		∎ RI	EMOVE STREETS	CAPE														
SAWCUT AND REMOVE DECK	11-Jul-22	01-Aug-22	15d			SAWCUTANDRI	emove di	ECK													
REMOVE BEAMS	01-Aug-22	15-Aug-22	10d			REMOVE BEA	MS							: : : 							
ADJUST JOINT AT EXIST DECK	15-Aug-22	22-Aug-22	5d			ADJUSTJOIN	TATEXIST	DECK													
PIER DEMO	15-Aug-22	31-Aug-22	12d			PIERDEMO															
CUT AND REMOVE BEAM ENDS	16-Aug-22	31-Aug-22	12d			CUTANDRE	EMOVE BE	EAM ENDS													
INSTALL NEW BEAMS	01-Sep-22	22-Sep-22	15d			INSTALL	NEWBEA	MS													
INSTALL EXISTING BEAMS ON NEW CAP	14-Sep-22	19-Oct-22	25d			INST.	ALL EXIST	FINGBEAMS ONN	IEW CAP		· · · · · · · · · · · · · · · · · · ·	· · · · · · · · · · · · · · · · · · ·	· · · · · · · · · · · · · · · · · · ·	¦     ++		· · · · · · · · · · · · · · · · · · ·					¦
PLACE NEW DECK	20-Oct-22	10-Nov-22	15d			📛 bi	LACE NEV	V DECK													
REINSTALL STREETSCAPE	11-Nov-22	14-Nov-22	2d			∎ R	ENSTALL	STREETSCAPE													
REMOVE TRAFFIC CONTROL	15-Nov-22	2 16-Nov-22	2d			11	REMOVE	TRAFFICCONTRO	DL												
MARYLAND AVE DECK PHASE 2	17-Nov-22	13-Apr-23	35d					13-Apr	-23,MDOPT4.I	DR MARYLAN	IDAVE DEÇK F	PH2									
INSTALL TRAFFIC CONTROL	17-Nov-22	18-Nov-22	2d				NSTALL T	RAFFICCONTROI					· · · ·								· · · · · · · · · · · · · · · · · · ·
REMOVE STREETSCAPE	21-Nov-22	22-Nov-22	2d			1	REMOVE	STREETSCAPE													
SAWCUT AND REMOVE DECK	22-Nov-22	13-Dec-22	15d				SAWC	UTANDREMOVE	DECK												
REMOVE BEAMS	13-Dec-22	27-Dec-22	10d				REM	IOVE BEAMS													
CUT AND REMOVE BEAM ENDS	27-Dec-22	12-Jan-23	12d				CU CU	JTANDREMOVE	BEAM ENDS												
ADJUST JOINT AT EXIST DECK	27-Dec-22	03-Jan-23	5d				• ADJ	USTJOINTATEX	STDECK				· · · · · · · · · · · · · · · · · · ·								
PIER DEMO	27-Dec-22	12-Jan-23	12d				📮 PIEF	RDEMO													
INSTALL NEW BEAMS	12-Jan-23	02-Feb-23	15d					INSTALL NEWB	EAMS												
PLACE NEW DECK	20-Mar-23	07-Apr-23	15d					PLACE	NEW DECK												
REINSTALL STREETSCAPE	07-Apr-23	11-Apr-23	2d					I REINS	TALL STREET	SCAPE											
REMOVE TRAFFIC CONTROL	11-Apr-23	13-Apr-23	2d					REMO	VE TRAFFICO	ONTROL		· · · · · · · · · · · · · · · · · · ·	· · · · · · · · · · · · · · · · · · ·	· · · · · · · · · · · · · · · · · · ·							· · · · · · · · · · · · · · · · · · ·
MARYLAND AVE SHUTDOWN	14-Apr-23	27-Jul-23	/5d						27-Ju	1-23,MDOPT4.S	SD MARYLAN	NDAVE SHUTI	DOWN								
INSTALL TRAFFIC CONTROL	14-Apr-23	17-Apr-23	2d					INSTA	LL TRAFFICC	ONTROL											
REMOVE STREETSCAPE	18-Apr-23	19-Apr-23	2d						OVE STREET	SCAPE											
SAWCUT AND REMOVE DECK	19-Apr-23	10-May-23	15d					■ SA	WCUTANDR	EMOVE DECK											
REMOVE BEAMS	10-May-23	24-May-23	10d						REMOVE BEA	MS	· · · · · · · · · · · · · · · · · · ·	· · · ·	i i i I I I I	· · · · · · · · · · · · · · · · · · ·			++-				i i i •
ADJUST JOINT AT EXIST DECK	24-May-23	31-May-23	5d						ADJUSTJOIN	TATEXISTDE	CK										
	24-May-23	09-Jun-23	12d						PIERDEMO												
CUT AND REMOVE BEAM ENDS	25-May-23	09-Jun-23	12d						CUTANDRE	EMOVE BEAM	I ENDS										
INSTALLNEW BEAMS	12-Jun-23	30-Jun-23	15d						INSTALL	NEWBEAMS											
PLACE NEW DECK	03-Jul-23	21-Jul-23	15d						PLAC	E NEW DECK		· · · · · · · · · · · · · · · · · · ·									· · · · · · · · · · · · · · · · · · ·
EINSTALL STREETSCAPE	24-Jul-23	25-Jul-23	2d		1 1		1 1		¦ I REIN	STALLSTREE	ETSCAPE	<u> </u>			1 1 1			1 1			
INSTALLNEW BEAMS     INSTALL STREETSCAPE     (NewBar)     Actual Work     Actual Level of Effort	12-Jun-23 03-Jul-23 24-Jul-23	30-Jun-23       21-Jul-23       25-Jul-23       Critical Rema       Milestone	15d 15d 2d					Page 1 of 3	I REIN	NEW BEAMS E NEW DECK STALLSTREE	ETSCAPE	TASK	C filter: All Ac	tivities						) Orac	cle (

#### Option 3 Lateral Clearance: 15 ft. Track Spacing for Tracks 1& 2, NA ft. Track Spacing for Tracks 3 & 4

O	ption 4: 15 Ft Freight, Varied Passenger								Classic	Schedule	Layout													Connecting North c	and South Through	JJEC
Activ	vity Name	Planned	Planned	Original		2022					2023						2024					2025			20	26
		Start	Finish	Duration	Q2	2	Q3	Q4	Q1	Q2		Q3	Q4	ŀ	Q1	Q2		Q3	Q4	Q1	Q2	Q3		Q4	Q1	Q2
	REMOVE TRAFFIC CONTROL	26-Jul-23	27-Jul-23	2d							i I	REMO	OVE TRA	FFICCONT	ROL											
	12 <sup>TH</sup> STREET DECK REMOVE AND REPLACE	08-May-24	4 06-May-26	378d																						
	TRAFFIC PHASE 1	08-May-24	13-May-24	3d												0 7	RAFFIC	PHASE 1								
	DECK AND BEAM REMOVAL NORTHEND PHASE 1	13-May-24	03-Jun-24	15d							i.						DECK	ANDBEAM R	REMOVAI	NORTH	ENDPH 1					
	SOE INSTALL ATION PHASE 1	03-Jun-24	08-Jul-24	25d													s s	OE INSTALL	ATIONPH	1						
	ABUTMENT REMOVAL PHASE 1	08-Jul-24	22-Jul-24	10d							1							ABŲTMENT	REMOVA	LPH1				1 I I I I I I I I		
	PILE INSTALLATION PHASE 1	22-Jul-24	12-Aug-24	15d														PILE INST	TALLATIC	NPH1						
	FOOTING CONSTRUCTION PHASE 1	12-Aug-24	26-Aug-24	10d							-							□ FOOTI	NGCONS	TRUCTIC	ONPH 1					
	STEM CONSTRUCTION PHASE 1	26-Aug-24	23-Sep-24	20d							ł							ST	EMCONS	TRUCTIO	ONPH1					
	BACKWALL CONSTRUCTION PHASE 1	23-Sep-24	07-Oct-24	10d														E	BACKWA	LLCONST	RUCTIONPH					
	BACKFILL PHASE 1	07-Oct-24	15-Oct-24	6d															BACKFIL	L PHASE	1					
	INSTALL BEAMS PHASE 1	15-Oct-24	18-Oct-24	3d															INSTALI	BEAMS	PH 1					
	DECK WORK PHASE 1	18-Oct-24	22-Nov-24	25d							ł								DE	ckwori	KPH1			1 I I I I I I I I		
	BARRIER WORK PHASE 1	22-Nov-24	06-Dec-24	10d															□в	ARRIER	WORKPH1					
	TRAFFIC PHASE 2	06-Dec-24	11-Dec-24	3d		1						]								RAFFIC	PHASE 2					
	DECK AND BEAM REMOVAL NORTHEND PHASE 2	11-Dec-24	01-Jan-25	15d																DECK	ANDBEAM RE	MÓVAĽNO	ORTHEND	/PH 2		
	SOE INSTALLATION PHASE2	01-Jan-25	29-Jan-25	20d																so so	E INSTALL AT	IONPH 2				
	ABUTMENT REMOVAL PHASE 2	29-Jan-25	12-Feb-25	10d																	ABUTMENTRE	MOVAL PI	H2			
	PILE INSTALLATION PHASE 2	12-Feb-25	05-Mar-25	15d																	PILE INSTAL	LATION PI	12			
	FOOTING CONSTRUCTION PHASE 2	17-Mar-25	28-Mar-25	10d													;;	····;···;	 		□ FOOTIN	GCONSTRI	UCTIONPI	H2		
	STEM CONSTRUCTION PHASE 2	28-Mar-25	25-Apr-25	20d																	STE	MCONSTR	UCTIONP	H2		
	BACKWALL CONSTRUCTION PHASE 2	25-Apr-25	09-May-25	10d																	□ BA	ACKWALLO	CONSTRU	CTIONPH 2		
	BACKFILL PHASE 2	09-May-25	19-May-25	6d																		BACKFILL F	PHASE 2			
	INSTALL BEAMS PHASE 2	19-May-25	22-May-25	3d							ł											NSTALLB	EAMSPH	2		
	DECKWORK PHASE 2	22-May-25	26-Jun-25	25d	· + +			+				+			+ +			· +			····¦···¦···;	DFCK	WORKPH	12		
	BARRIER WORK PHASE 2	27-Jun-25	11-Jul-25	10d																		BAF	RIERWO	RKPH2		
	REMOVE TRAFFIC CONTROL	11-Jul-25	16-Jul-25	3d							÷												MOVETR	AFFIC		
	TRAFFIC PHASE 3	11-Jul-25	16-Jul-25	3d																			AFFICPH A	ASE 3		
	DECK AND BEAM REMOVAL NORTHEND PHASE 3	16-Jul-25	06-Aug-25	15d							i.												DECKANI	BEAMRE		JORTHEN
	SOE INSTALLATION PHASE 3	06-Aug-25	03-Sep-25	204																				VISTALI AT		
	ABUTMENT REMOVAL PHASE 3	00-Aug-25	17-Sep-25	10d																				TMENTEI	MOVAL	рша
		17 Sep 25	08 Oct 25	15d																				INTENTIAL		DH3
		08 Oct 25	22 Oct 25	104																					JCCONST	
	STEM CONSTRUCTION PHASE3	22 Oct 25	10 Nov 25	204																					ACONST	NUCTION
		10 Nov 25	19-100-25	104														· · · · · · · · · · · · · · · · · · ·							ACKWAL	CONSTRI
	BACKWALL CONSTRUCTION PHASE 5	19-Nov-25	11 Dec 25	64																				עם יים - הם <mark>ה</mark>	ACKWAL	
	DACKFILL FHASE 5	11 Dec 25	16 Dec 25	2.4																				ם ש ת ∎	ACKFILL	TIASE S
		11-Dec-25	10-Dec-25	25.1																				<b>ч</b> пл	NO PALL D	
	DECK WORK PHASE 3	10-Iviar-20	1/-Apr-20	250																						
	BARRIER WORK PHASE 3	17-Apr-20	01-May-20																							
	REMOVE TRAFFIC CONTROL PHASE 3	01-May-26	06-May-26	30																TYPEFOC						<b>•</b> 1
	12TH EXPRESS WORK	04-Apr-22	08-May-24	403d	Ĺ											▼ U	8-May-24	,MDOP14.12	2E 121HI ; ;	EXPRESS	S WORK					
	TRAFFIC PHASE 1	04-Apr-22	06-Apr-22	3d	TRA	FFICPHA	SE 1																			
	DECK AND BEAM REMOVALNOR THEND PHASE 1	07-Apr-22	27-Apr-22	15d	D	ECKAND	BEAM REN	IOVAL NOI	RTHENDPH	1	1															
	SOE INSTALLATION PHASE 1	28-Apr-22	01-Jun-22	25d		SOE I	STALLATI	ION PH 1				; ; ;			; ; ; <del>;</del>		; ; ;;;		; ; 							
	ABUTMENT REMOVAL PHASE 1	02-Jun-22	15-Jun-22	10d		ABU	TMENTRE	MOVAL PH	61																	
	PILE INSTALLATION PHASE 1	16-Jun-22	06-Jul-22	15d		; 📫 P	ILE INSTAI	LATION PH	61															<u></u>		
	(NewBar) Actual Work		Critical Rem	naining Work					I	Page 2 of 3						Т	ASK filter	r: All Activitio	es							
	Actual Level of Effort Remaining Wor	rk 🔶	<ul> <li>Milestone</li> </ul>						-	0 0														© C	Dracle Co	rporation



### Option 3 Lateral Clearance: 15 ft. Track Spacing for Tracks 1& 2, NA ft. Track Spacing for Tracks 3 & 4

Option 4: 15 Ft Freight, Varied Passenger							Classic	Schedule La	ayout									Connecting Norf	and South Through	JJECI s our Nation's Copil
Activity Name Plann	ed I	Planned	Original		2022			-	2023	-			2024	-		-	2025		202	26
Start	1	Finish	Duration	Q2	Q3	3 Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	 Q4	Q1	Q2
RETAINING WALL REMOVAL 16-Ju	n-22	22-Jun-22	5d		RETAIN	NING WALLREN	MOVAL													
FOOTING CONSTRUCTION PHASE 1 07-Ju	1-22 2	20-Jul-22	10d		FOC	DTING CONSTRU	UCTIONPH 1													
RETAINING WALL PILES 07-Ju	I-22	15-Jul-22	7d		🛛 REI	FAINING WALLI	PILES	1												
STEM CONSTRUCTION PHASE 1 21-Jul	-22	17-Aug-22	20d			STEMCONST	RUCTIONPH1													
RETAINING WALL FOOTING CONSTRUCTION 21-Ju	-22 (	03-Aug-22	10d		<b>I</b> F	RETAINING WAI	LLFOOTINGCON	ISTRUCTION	1											
RETAINING WALL CONSTRUCTION 18-Au	ig-22	08-Sep-22	15d			RETAINING	G WALLCONSTR	RUCTION												
BACKWALL CONSTRUCTION PHASE 1 08-Se	p-22	22-Sep-22	10d			BACKW	ALLCONSTRUC	TIONPH 1												
BACKFILL PHASE 1 22-Se	p-22	30-Sep-22	6d			BACKF	ILL PHASE 1													
INSTALL BEAMS PHASE 1 30-Se	p-22 (	05-Oct-22	3d			INSTA	LL BEAMS PH	1												
DECK WORK PHASE 1 05-04	:t-22 (	09-Nov-22	25d			D D	ECKWORKPH	1												
BARRIER WORK PHASE 1 09-No	ov-22 2	23-Nov-22	10d				BARRIERWOR	KPH1												
TRAFFIC PHASE 2 23-No	ov-22 2	28-Nov-22	3d			0	TRAFFICPHA	SE2												
DECK AND BEAM REMOVAL NORTHEND PHASE 2 28-No	v-22 19	9-Dec-22	15d				DECKANDI	BEAM REMO	OVAL NORTH	ENDPH 2										
SOE INSTALLATION PHASE 2 19-De	ec-22	16-Jan-23	20d				SOE IN	STALL ATION	NPH 2											
ABUTMENT REMOVAL PHASE 2 16-Ja	n-23 3	30-Jan-23	10d				🗖 ABU	<b>FMENTREM</b>	OVAL PH2											
PILE INSTALLATION PHASE 2 30-Ja	n-23	20-Feb-23	15d				🗖 PI	LE INSTALLA	ATION PH2											
FOOTING CONSTRUCTION PHASE 2 20-M	ar-23 3	31-Mar-23	10d					FOOTING	GÇONŞTRŲC	FIONPH 2										
STEM CONSTRUCTION PHASE 2 31-Ma	ar-23 2	28-Apr-23	20d					STEN	MCONSTRUC	TIONPH2										
BACKWALL CONSTRUCTION PHASE 2 28-AF	or-23	12-May-23	10d					🗖 BA	CKWALLCON	ISTRUCTION	PH2									
BACKFILL PHASE 2 12-Ma	ay-23	22-May-23	6d					<b>D</b> B	BACKFILL PHA	SE 2										
INSTALL BEAMS PHASE 22-M	ay-23 2	25-May-23	3d					I I	NSTALLBEA	MSPH2										
DECKWORK PHASE 2 25-M	ay-23	29-Jun-23	25d						DECKWO	ORKPH2										
BARRIER WORK PHASE 2 30-Ju	n-23	13-Jul-23	10d						BARRI	ERWORKPH	12									
REMOVE TRAFFIC CONTROL 13-Ju	I-23 I	18-Jul-23	3d						REMO	VE TRAFFIC								 		
TRAFFIC PHASE 3 13-Ju	I-23	18-Jul-23	3d						TRAFF	ICPHASE3										
DECK AND BEAM REMOVAL NORTHEND PHASE 3 18-Jul	-23 08	3-Aug-23	15d						DEC	KANDBEA	M REMOVAL	NORTHEND	PH 3							
SOE INSTALLATION PHASE 3 08-Au	1g-23	05-Sep-23	20d							SOE INSTAL	LATIONPH	s								
ABUTMENT REMOVAL PHASE 3 05-Se	p-23	19-Sep-23	10d							ABUTMEN	VTREMOVAL	PH3								
PILE INSTALLATION PHASE 3 19-Se	p-23	10-Oct-23	15d							🗖 PILE IN	STALLATION	VPH3						 		
FOOTING CONSTRUCTION PHASE 3 10-00	t-23 2	24-Oct-23	10d							FOO	TINGCONST	RUCTIONPH								
STEM CONSTRUCTION PHASE 3 24-00	t-23 2	21-Nov-23	20d								TEMCONS	RUCTIONPH	3							
BACKWALL CONSTRUCTION PHASE 3 21-No	ov-23 (	05-Dec-23	10d								BACKWAL	LCONSTRUCT	IONPH 3							
BACKFILL PHASE 3 05-De	ec-23	13-Dec-23	6d								BACKFILI	PHASE 3								
INSTALL BEAMS PHASE 3 13-De	x-23	18-Dec-23	3d	+ +							INSTALL	BEAMS PH3		· - <del>:</del> <del>:</del> : - :				 		
DECK WORK PHASE 3 18-M	ar-24 1	19-Apr-24	25d									DECI	WORK PH 3							
BARRIER WORK PHASE 3 19-A	or-24 (	03-May-24	10d									🗖 BA	RRIERWORK	PH3						
REMOVE TRAFFIC CONTROL PHASE3 03-M	ay-24 (	08-May-24	3d									TR	AFFICPHASE	3						
(NewBar)     Actual Work       Actual Level of Effort     Remaining Work	<b>—</b>	Critical Remain Milestone	ning Work				Р	age 3 of 3				ТА	SK filter: All A	ctivities				 ©	Oracle Co	rporation



5: 15 ft Freight, 13 ft Passenger Spacing		Classic Schedule Layout	PROJ
Vame	Planned Planned Original	2022 2023 2024 2025	secting North and South Through our No 2026
	Start Finish Duration	A M J Jul A S Oct N D J F M A M J Jul A S Oct N D J F M A M J Jul A S Oct N D J F M A M J Jul A S Oct N D J F M A M J Jul A S Oct N	N D J F M A
Option 5: 15 ft Freight, 13 ft Passenger Spacing	2 04-Apr-22 27-Mar-26 753d		
RAILROAD COORDINATION	04-Apr-22 27-Mar-26 753d		
MD AVE PIER RELOCATION	04-Apr-22 31-May-23 228d	▼ 3I-May-23,MDOPT5R.PR MDAVE PIERRELOCATION	
INSTALL TRAFFIC CONTROL	04-Apr-22 06-Apr-22 3d	INSTALL TRAFFICCONTROL	
INSTALL MICROPILES (LOW OVERHEAD)	07-Apr-22 31-Aug-22 105d		
PILECAP INSTALLATION	11-Aug-22 14-Sep-22 25d		
	25-Aug-22 16-Nov-22 60d		
	20-Oct-22 16-Dec-22 42d		
	01_Dec-22 31_May-23 60d		
	06-Apr-23 13-Sep-23 115d	▼ 13-Sep.23 MDOPT5R RR MARYLANDAVEDECKPH1	
INSTALL NEW BEAKINGSTIFFNERS	00-Apr-23 14-Jun-23 50d	INSTALL NEW BEARINGS HENOT	
INSTALL IKAFFIC CONTROL	01-Jun-23 02-Jun-23 2d	I INSTALL IKAHICUUNIKUL	
	05-Jun-25 00-Jun-25 2d		
SAWCUT AND REMOVE DECK  NOTALL EXISTENCE DE ANG ON DEVICED	UO-JUN-25         2/-JUN-25         15d           14         Lm         22         20         27		
INSTALL EXISTING BEAMS ON NEW CAP	14-Jun-25 19-Jul-25 25d		
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ADJUST JOINT AT EXISTING DECK	11-Jul-23 18-Jul-23 5d		
	11-Jul-23 27-Jul-23 12d		
UI AND REMOVE BEAM ENDS	12-Jul-23 2/-Jul-23 12d		
	28-Jul-23 1/-Aug-23 15d		
PLACE NEW DECK	18-Aug-23 07-Sep-23 15d		
DEMONE TRAFEIC CONTROL	08-Sep-25 11-Sep-25 2d	EINSTALL STREET SCAPE	
	12-Sep-25 13-Sep-25 2d		
MARYLANDAVE DECK PHASE 2	14-Sep-25 27-Dec-25 62d	▼ 27-Dec-23,NtDOP15R;DR MARYLANDAVE DECKPH 2	
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REMOVE STREETSCAPE	18-Sep-23 19-Sep-23 2d	I REMOVE STREETSÇAPE	
SAWCUT AND REMOVE DECK	19-Sep-23 10-Oct-23 15d	SAWCUTANDREMOVE DECK	
REMOVE BEAMS	10-Oct-23 24-Oct-23 10d	REMOVE BEAMS	
ADJUST JOINT AT EXISTING DECK	24-Oct-23 31-Oct-23 5d	ADJUSTJOINTATEXISTDECK	
PIER DEMO	24-Oct-23 09-Nov-23 12d		
CUT AND REMOVE BEAM ENDS	25-Oct-23 09-Nov-23 12d	CUTANDREMOVE BEAM ENDS	
INSTALLNEW BEAMS	10-Nov-23 30-Nov-23 15d	INSTALL NEW BEAMS	
PLACE NEW DECK	30-Nov-23 21-Dec-23 15d	PLACE NEW, DECK	
REINSTALL STREETSCAPE	21-Dec-23 25-Dec-23 2d	■ REINSTALL STREETSCAPE	
	25-Dec-23 27-Dec-23 2d		
MARYLAND AVE DECK PHASE 3	27-Dec-23 02-May-24 34d	▼ 02-May-24,MDOPT5R.PD MARYLANDAVE DECK PH 3	
INSTALL TRAFFIC CONTROL	27-Dec-23 29-Dec-23 2d	INSTALL TRAFFICCONTROL	
REMOVE STREETSCAPE	29-Dec-23 02-Jan-24 2d	REMOVE STREETSCAPE	
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REMOVE BEAMS	23-Jan-24 06-Feb-24 10d	REMOVE BEAMS	
CUT AND REMOVE BEAM ENDS	06-Feb-24 22-Feb-24 12d	CUTANDREMOVE BEAM ENDS	
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PIER DEMO	06-Feb-24 22-Feb-24 12d	PIERDEMO	
INSTALL NEW BEAMS	18-Mar-24 05-Apr-24 15d	INSTALL NEW BEAMS	
PLACE NEW DECK	08-Apr-24 26-Apr-24 15d	PLACE NEW DECK	
REINSTALL STREETSCAPE	29-Apr-24 30-Apr-24 2d	REINSTALLSTREETSCAPE	
REINSTALL STREETSCAPE (NewBar) Actual Work Actual Level of Effort Remaining Work	29-Apr-24     30-Apr-24     2d       Critical Remaining Work       rk     ♦     Milestone	Page 1 of 3     REINSTALL STREETSCAPE	-

### Option 5 Lateral Clearance: 15 ft. Track Spacing for Tracks 1& 2, 13 ft. Track Spacing for Tracks 3 & 4

Option 5- Freight Tracks 15' spacing Passenger 13' spacin	ng												Class	ic Sc	hedu	le La	iyout															
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MARYLAND AVE SHUTDOWN	03-May-24	16-Aug-24	/4d																						ł				16-A	ug-24	,MDC	OPISE
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BARRIER WORK PHASE 1	30-Dec-24	13-Jan-25	10d																													
TRAFFIC PHASE2	13-Jan-25	16-Jan-25	3d	÷																			<del>i</del>		;;- 							
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DECKWORK PHASE 2	17-Mar-25	18-Apr-25	25d				1																							1		
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RETAINING WALL REMOVAL	16-Jun-22	22-Jun-22	5d				RET	AININ	GWA		EMO	VAL																	1			
FOOTING CONSTRUCTION PHASE 1	07-Jul-22	20-Jul-22	10d					TOOT		; ONST		FION	IPH 1					1							1					1		
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STEM CONSTRUCTION PHASE 1	21-Jul-22	17-Aug-22	20d					S	TEM	CON	STRU	JCTIO	ONPE	n		ł														1		
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BACKWALL CONSTRUCTION PHASE 1	08-Sep-22	22-Sep-22	10d				· · ·		B	ACK	WALI	LCON	<b>VSTR</b>	UCTIC	ONPH	1																
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### Option 5 Lateral Clearance: 15 ft. Track Spacing for Tracks 1& 2, 13 ft. Track Spacing for Tracks 3 & 4

Option 5- Freight Tracks 15' spacing Passenger 13' space	ing		-			Clas	ssic Schedule	e Layout									Co	nnecting North a	nd South Throu	gh our Nation's Copit
Activity Name	Planned	Planned Finish	Original Duration		2022			2023			2	2024				2025			2	026
	05.0-+ 22	00 Nov 22	25.1	MA	M J Ju	II A S Oct N D J F		1 J Jul	A S Oct N D	JFM	A M	J Jul A	S Oct N	J F M	A M	J Jul A	S Oct	N D	JF	M Apr M
DECK WORK PHASE 1	05-Oct-22	09-Nov-22	250																	
BARRIER WORK PHASE I	09-Nov-22	23-Nov-22	2.1				WORKPHI													
IRAFFIC PHASE 2	23-Nov-22	28-Nov-22	30				HASE 2							 						
DECK AND BEAM REMOVAL NORTHEND PHASE 2	2 28-INOV-22	19-Dec-22	20.1				ANDBEAM RE		OKTHENDPH 2											
SOE INSTALLATION PHASE 2	19-Dec-22	10-Jan-23	200			50														
ABUIMENI REMOVAL PHASE 2	10-Jan-23	30-Jan-23	100					EMOVALP	HZ											
PILE INSTALLATION PHASE2	20-Mar-23	07-Apr-23	104					UNSTALLA	IIUNPH 2											
FOUTING CONSTRUCTION PHASE 2	0/-Apr-23	21-Apr-25	204				FO		NSTRUCTIONPH 2					 						
STEMCONSTRUCTION PHASE 2	21-Apr-25	19-Iviay-23	200						UNSTRUCTIONPH 2											
BACKWALL CONSTRUCTION PHASE 2	19-May-23	12 Jun 22	6.1						VALLCONSTRUCTIO	NPH 2										
BACKFILL PHASE 2	12 Jun-23	12-Jun-23	2.1					BACK	ALL PHASE 2											
INSTALL BEAMS PHASE 2	12-Jun-23	13-Jun-23	25.1					INS1/	ALL'BEAMS PH2											
DECK WORK PHASE 2	15-Jun-23	20-Jul-23	250						DECK WORK PH 2					 						
BARRIER WORK PHASE 2	20-Jul-25	03-Aug-23	2.1							H2										
TRAFFIC	03-Aug-23	08-Aug-23	2.1						REMOVE TRAFFIC											
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FOULING CONSTRUCTION PHASE 3	31-Oct-23	14-INOV-23	20.1						FOC	TINGCONST	RUCHONP	13								
SIEMCONSTRUCTION PHASE 3	14-INOV-23	12-Dec-23	200								CONSTRUCTION									
BACKWALL CONSTRUCTION PHASE 5	12-Dec-25	20-Dec-25	64							BACKWAL	DACKER	DUAGE 2		 						
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	23-War 24	02 May 24	254								DEC									
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DARKIEK WORK THASE 3	16 May 24	21 May 24	34										KKPID SE 2							
ADDITIONAL PIER ABUTMENT DECK	22_May_24	11-Oct-24	1004									AITICFIIA				CV				
(NewBar)     Actual Work       Actual Level of Effort     Remaining Work	ork 🔶	<ul><li>Critical Rema</li><li>Milestone</li></ul>	ining Work				Page 3 of	3			TAS	K filter: All	Activities	 				© C	Pracle C	orporation

(NewBar) Actual Work Critical Remaining Work	Page 3 of 3	TASK filter: All Activities
Actual Level of Effort Remaining Work   Milestone		





# Long Bridge Project

## **Environmental Impact Statement (EIS)**

## Maryland Avenue SW to L'Enfant Interlocking Clearance Assessment

**Appendix D - Operator Support Letters** 



August 7, 2018

Mr. Tod Echler Chief Engineer CSXT Corporation CSX Transportation Building 500 Water Street Jacksonville, FL 32202

Dear Mr. Echler:

Amtrak supports the construction of a new Potomac River Crossing Bridge linking the District of Columbia and Virginia. Amtrak is working with the Virginia Department of Rail and Public Transportation on this matter. The purpose of this letter is to inform you that Amtrak has no objection to 13 ft. track centers as part of the approaches to the bridge.

If you have any questions, please feel free to contact me at <u>verrelr@amtrak.com</u> or 215-349-1907.

Sincerely,

Raymond Verrele, Jr. Assistant Vice President -Engineering and Design

cc: Michael McLaughlin, DRPT



**COMMONWEALTH of VIRGINIA** 

Jennifer L. Mitchell Director DEPARTMENT OF RAIL AND PUBLIC TRANSPORTATION 600 EAST MAIN STREET, SUITE 2102 RICHMOND, VA 23219-2416 (804) 786-4440 FAX (804) 225-3752 Virginia Relay Center 800-828-1120 (TDD)

August 10, 2018

Mr. Tod Echler Chief Engineer CSXT Corporation CSX Transportation Building 500 Water Street Jacksonville, FL 32202

Dear Mr. Echler,

The Virginia Department of Rail and Public Transportation (DRPT) is a committed partner in the Long Bridge Environmental Impact Statement (EIS) currently being conducted jointly by the Federal Railroad Administration (FRA) and District Department of Transportation (DDOT). The Commonwealth and CSX have each committed \$15 million dollars in funding for the final design of the preferred alternative once the EIS is complete. DRPT is also currently leading other projects in the rail corridor that will help realize the potential of an expanded Long Bridge.

As a good steward of public revenue, DRPT must consider the most cost-efficient method to deliver the largest public benefit to citizens of the Commonwealth, as well as ensure continued safe and efficient freight and passenger rail operations across the Potomac River. DRPT must also consider the opportunity to limit project impacts to adjacent property and existing transportation and utility infrastructure whenever possible to ensure that both the cost and construction schedule are minimized.

DRPT has reviewed the results of an engineering feasibility analysis conducted by DDOT and has concluded that maintaining 15-foot track centers north of the main bridge span over the Potomac will result in significantly higher construction impacts to property and infrastructure adjacent to the rail corridor, resulting in significantly higher project costs and an extended construction schedule. To avoid unnecessary project impacts, DRPT supports the use of 13-foot track centers and asks that CSX consider this exception to their 15-foot track center standard.

The Smartest Distance Between Two Points www.drpt.virginia.gov We greatly appreciate our continued partnership with CSX to improve freight and passenger rail service in the Commonwealth.

Sincerely,

An C. Mitchell

Jennifer Mitchell

Director, Virginia Department of Rail and Public Transportation

Cc: Michael McLaughlin, DRPT Chief of Rail Emily Stock, DRPT Manager of Rail Planning



VIRGINIA RAILWAY EXPRESS

August 9, 2018

Mr. Tod Echler Assistant Vice President, Engineering CSX Transportation, Inc. 500 Water Street Jacksonville, Florida 32202

#### RE: LONG BRIDGE CORRIDOR IMPROVEMENT PROJECT

Dear Mr. Echler:

The Virginia Railway Express (VRE) is currently engaged in the environmental review and preliminary design of the *Long Bridge Corridor Improvement Project*, in conjunction with CSX Transportation (CSXT), the District Department of Transportation (DDOT), the Virginia Department of Rail and Public Transportation (DRPT), and the National Railroad Passenger Corporation (Amtrak). The Project proposes to add a second bridge across the Potomac River and provide other capacity improvements to the CSXT Baltimore Division RF&P Subdivision between L'Enfant Interlocking in the District of Columbia and RO Interlocking in Arlington County, Virginia, a distance of about 1.4 miles.

The timely completion of the proposed improvements will greatly benefit CSXT, VRE, and Amtrak by adding capacity, resiliency, and redundancy to this operational bottleneck, complementing CSXT's soon-to-be-completed Virginia Avenue Tunnel project. We strongly endorse any steps to expedite implementation and minimize costs without compromising safety. The purpose of this letter is to inform you that VRE has no objections to operating with track centers as close as 13 feet and lateral clearances as close as 8½ feet, should a design exception to that effect be approved by CSXT.

Please feel free to contact me at (703) 838-5439 or RDALTON@VRE.ORG with any questions or concerns.

Sincerely,

MAN SA

Rich Dalton Deputy Chief Executive Officer Virginia Railway Express

cc: R. Marcus, CSXT M. McLaughlin, DRPT R. Verrele, Amtrak A. Chamberlin, DDOT