

# **MONTHLY MONITORING REPORT**

**December 2019**

## **Dulles Corridor Metrorail Project Phase 2 (Wiehle Avenue Station to Ashburn Station)**

**Metropolitan Washington Airports Authority  
Washington, DC**

Draft – January 27, 2020

Final – February 5, 2020

PMOC Contract Number: DTFT60-14-D-00011

Task Order Number: 005, Project Number: DC-27-5331, Work Order No. 04

OPs Referenced: 01, 25

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Length of Time PMOC Assigned to Project: 6.0 years

Length of Time PMOC Lead Assigned to Project: 6.0 years

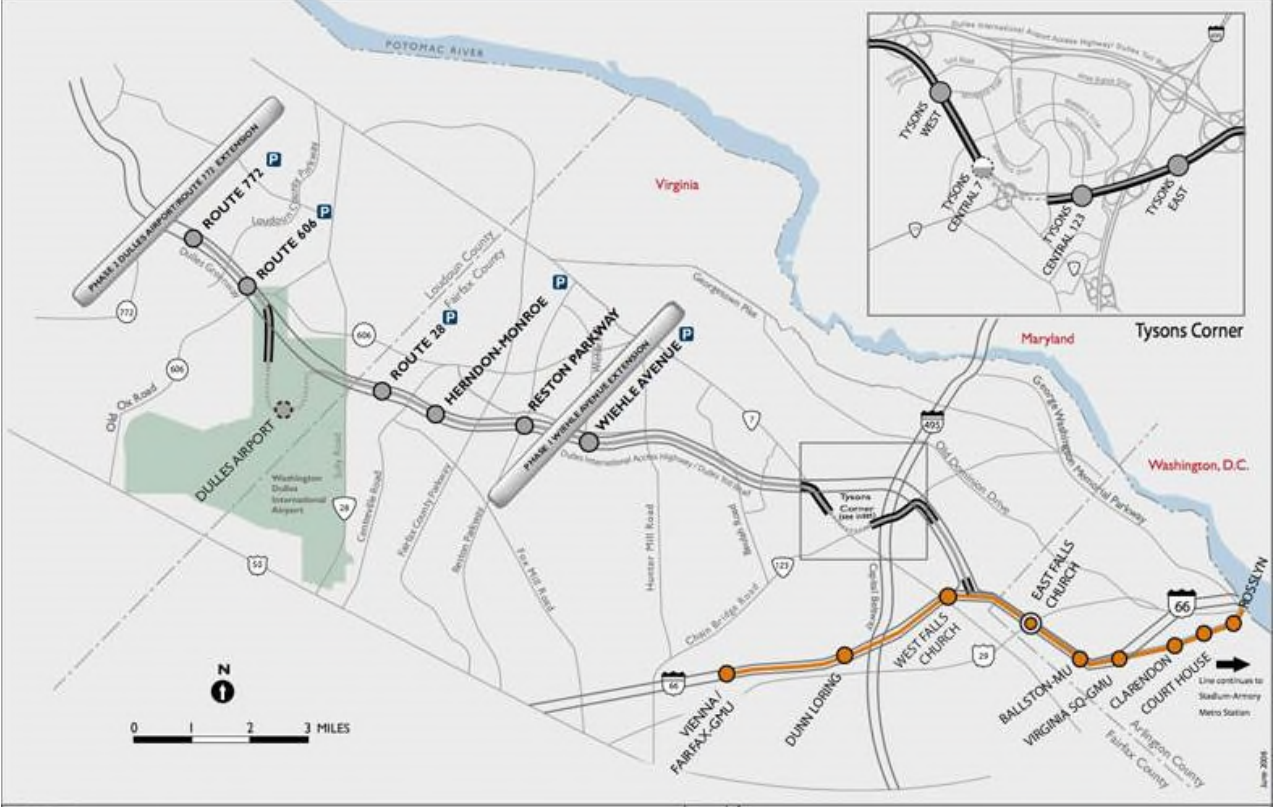
## **EXECUTIVE SUMMARY**

*The Project Management Oversight Contractor (PMOC) met with the Metropolitan Washington Airports Authority (MWAA) on January 8, 2020, for the Monthly Project Update Meetings on Phase 1 and Phase 2 of the Locally Preferred Alternative (LPA) for the Dulles Corridor Metrorail Project. PMOC monthly progress meetings typically occur the second week of each month. This report covers progress from December 1, 2019, through December 31, 2019. Financial and schedule information is current through November 30, 2019.*

### **Project Description**

The Dulles Corridor Metrorail Project (DCMP) Phase 2 is an 11.4-mile extension of Washington Metropolitan Area Transportation Authority (WMATA) heavy rail system from the current terminus at Wiehle Avenue Station through Washington Dulles International Airport ("Dulles Airport") to a terminus in eastern Loudoun County. DCMP Phase 2 includes six new stations: Reston Town Center, Herndon, Innovation Center, Dulles Airport, Loudoun Gateway (Route 606) and Ashburn (Route 772) Stations. Phase 2 also includes a maintenance and storage yard facility near Dulles Airport, wayside facilities (including traction power substations, tiebreaker stations, and stormwater management ponds along the alignment), 5 new parking facilities with a total of 8,900 parking spaces, and sixty-four new railcars. The current Phase 2 project budget is \$2,778,235,564 exclusive of parking facilities and finance costs. Construction of the project is being managed by the Metropolitan Washington Airports Authority (MWAA), who will relinquish operation to WMATA.

Figure 1 – Project Map



Project Status

The project has been under construction since July 2013. Substantial completion of the project was originally scheduled for January 31, 2019. However, on April 27, 2015 MWAA announced that the construction schedule was being extended by 13 months as a result of design modifications to address stormwater management and to enhance the safety and reliability of the project overall, and to include time extensions associated with weather and construction delays. Change Order 066 granted the Package A Contractor, Capital Rail Constructors (CRC), an additional 396 days of excusable delay which pushed the Scheduled Substantial Completion Date (SSCD) to August 7, 2019. Since January 2018, CRC’s schedule submissions have shown a slippage of the substantial completion date. *Several completion dates have been forecast for the project:*

Particular Schedule	Scheduled Substantial Completion Date	Delay
MWAA Project Master Schedule (PMS)	August 7, 2019	
MWAA PMS Risk Adjusted Schedule (See Note 1 below)	April 17, 2020	
CRC’s latest schedule updated November 2019	June 21, 2020	319-day delay
Hensel Phelps schedule updated November 2019	August 4, 2020	591-day delay

*Note 1: MWAA’s PMS dated December 1, 2019, indicates MWAA’s Risk-Adjusted SSCD for CRC is April 17, 2020, resulting in a Revenue Service Date (RSD) of July 16, 2020. MWAA’s PMS is merely a compilation of schedule data from CRC, HP, WMATA, and the counties of Fairfax and Loudoun. MWAA’s PMS does not reflect a reconciliation of the conflicting*

completion dates, and cannot be considered a true project master schedule. MWAA has continually suggested to both contractors how schedule improvements can be made; however, it appears that both contractors continue to posture for future claims, as MWAA's suggestions have not been incorporated and there is continual schedule slippage. ***It is the PMOC's opinion that the RSD will occur late in the fourth quarter of 2020.***

- At the end of November 2019, the project was 89% complete based on expenditures.

## Core Accountability Information

**Table 1**

TIFIA Core Accountability Items			
Project Status		Original at TIFIA Closing	Current Estimate (EAC)
<b>Cost</b>	Cost Estimate	\$2,778,235,564	\$2,778,235,564
<b>Contingency</b>	Unallocated Contingency	\$551,451,179	\$236,592,453
	Total Contingency (allocated plus Unallocated)	\$551,451,179	\$236,592,453
<b>Schedule</b>	Revenue Service Date	January 31, 2019	July 16, 2020

		Amount (\$)	Percent (of total)
<b>Planned Value to Date</b>	Total budgeted cost of work scheduled to date	\$2,386,857,826	94%
<b>Earned Value to Date</b>	Budgeted cost of work completed to date, i.e. actual total value of work earned or done	\$2,308,592,578	91%
<b>Actual Cost</b>	Total cost of work completed to date (actual total expenditures)	\$2,251,603,141	89%

		Amount (\$)	Percent (of total)
<b>Contracts</b>			
	Total contracts awarded to date	\$2,461,280,169	99%
	Total construction contract awarded to date (construction contracts only)	\$1,759,848,490	71%
	Physical construction work completed (amount of construction contract work actually completed)	\$1,636,782,726	93%

Major Issues	Status	Comments / Planned Action
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Stormwater Management changes to Package A	Change resulted in 13 month schedule delay. <i>Construction cost has been negotiated.</i>	<i>All the construction costs have been reported as settled in the amount of \$24 million.</i>
MWAA's extended management costs due to 13-month delay.	Cost yet to be finalized.	MWAA's final audit needs to be completed.
Delays to both Package A and Package B	<i>The contractor's November 2019 schedule update indicates Package A is delayed 319 days to June 21, 2020 and Package B contractor's November 2019 update indicates an SSCD of August 4, 2020 a delay of 591 days, which, if correct, result in a substantial delay to the Revenue Service Date.</i>	<i>MWAA has not accepted either contractor's schedule update for over two years. MWAA continues to work with each contractor to improve the schedules with little success to date. MWAA's Project Master Schedule dated December 1, 2019, indicates a risk-adjusted SSCD of April 17, 2020 and a RSD of July 16, 2020, based on a Monte Carlo schedule risk analysis performed using a project status date of April 1, 2019. MWAA continues to work with CRC and HP to mitigate delays and achieve the earliest possible SSCD and RSD.</i>
Quality of the work related to:		
Station precast panels	<i>The contractor has re-applied sealant and manufacturer has issued the 20 year warranty.</i>	<i>WMATA has not yet accepted the re-application results.</i>
Special trackwork cross level	Measurements have been taken of the special trackwork cross levels, but the analysis is not complete.	<i>MWAA has proceeded with re-tamping the special trackwork at one location to determine if that is the solution.</i>
Excessive fines in the yard ballast	<i>Additional sampling of ballast contamination in the yard was undertaken.</i>	<i>Contractor is to replace the contaminated ballast based on results of the sampling.</i>
WMATA's Quality Issues	On September 6, 2019, WMATA's General Manager and Chief Executive Officer informed MWAA's President and Chief Executive Officer that the deficiencies with regard to the Universal Concrete Product precast panels, the fouled ballast in the yard and the special trackwork cross-level must be resolved before WMATA will accept the facilities.	The WMATA GM's letter was in advance of the WMATA OIG's formal report describing its findings with regard to the overall quality issues with the Project. <i>The OIG's formal report has not yet been submitted.</i> It is the PMOC's opinion that the report may contain additional quality issues that must be remediated prior to WMATA's acceptance of the Project.
<b>Date of Next Quarterly Meeting:</b>		<i>March 9, 2020</i>

## Other Problems/Issues

1. **Stormwater/Early Design Changes** – *The additional construction costs related to the stormwater design changes have been settled at \$24 million.*
2. **Beginning Rail Service** – WMATA has stated they cannot open rail service without the yard. *The November 2019 contractor's schedule update for Package B (Yard and Shops) indicates a substantial completion date of August 4, 2020, which, based on WMATA's position that the Yard is a prerequisite for RSD, will delay the RSD. It is the PMOC's opinion that the contractor is positioning itself for a delay claim at the Project's completion. MWAA requested a recovery schedule from the contractor which indicates a SSCD of February 21, 2020. This schedule is under discussion with the contractor. MWAA performed a Monte Carlo Risk Analysis in April 2019 which determined the risk-adjusted SSCD for Package A to be April 17, 2020, which results in a risk-adjusted Revenue Service Date (RSD) of July 16, 2020. It is MWAA's assessment that the SSCD for Package B will occur so as to not impact the RSD.*
3. **Cracks in Precast Panels** – In July 2018, MWAA identified numerous cracks in precast panels for the exterior walls of the Service and Inspection Building (SIB), Warehouse Building (WHB) and the Transportation Building (TB). WMATA has approved the mock-up of the sealant treatment, and *the design change for the sealant application has been approved. However, the sealant cannot be applied until the ambient temperature is 40° F which makes the SSCD of February 21, 2020, noted in item 2, unlikely.*
4. **Windscreen at Dulles Airport Station** – The bearing pedestals at the Dulles Airport Station exhibited cracking and investigation revealed a lack of confining reinforcement and damaged bearing plate anchors. *The contractor has replaced the bearing pedestals and access has been granted to the Package G contractor for erection of the windscreen. However, completion of the windscreen is now expected during the second quarter of 2020 which could impact the RSD. The Package G contractor is to submit his schedule update.*
5. **Surge Arrestors** – During February 2019, the contractor experienced spurious activation of several surge arrestors in TPSS #15 and TPSS #17. *The devices have been replaced and a monitoring plan has been prepared to observe current flow during future testing.*
6. **Faulty Insulated Joints in the yard** – *Electrical testing of the insulated joints in the maintenance facility yard found electrical current leakage in some of the insulated joints. Testing of the insulated joints continues. The contractor is replacing the faulty insulated joints.*

## Table of Contents

<b>EXECUTIVE SUMMARY .....</b>	<b>2</b>
PROJECT DESCRIPTION .....	2
PROJECT STATUS .....	3
CORE ACCOUNTABILITY INFORMATION .....	4
MAJOR PROBLEMS/ISSUES .....	6
<b>1. PROJECT STATUS.....</b>	<b>8</b>
DESIGN STATUS .....	8
CONSTRUCTION STATUS .....	8
CONSTRUCTION – PACKAGE A .....	9
CONSTRUCTION – PACKAGE B .....	9
PACKAGES G AND P .....	9
PARKING FACILITIES (FORMERLY PACKAGE C) .....	10
REAL ESTATE ACQUISITION .....	11
THIRD PARTY AGREEMENTS .....	13
NATIONAL ENVIRONMENTAL POLICY ACT (NEPA) .....	13
<b>2. PROJECT MANAGEMENT PLAN (PMP) AND SUB-PLANS .....</b>	<b>13</b>
<b>3. PROJECT MANAGEMENT CAPACITY AND CAPABILITY .....</b>	<b>14</b>
PROJECT CONTROLS .....	15
<b>4. PROJECT COST .....</b>	<b>15</b>
FUNDING SOURCES .....	19
TIFIA FUNDING STATUS .....	20
<b>5. PROJECT SCHEDULE .....</b>	<b>20</b>
CRITICAL PATH .....	22
<b>6. QUALITY ASSURANCE/QUALITY CONTROL .....</b>	<b>23</b>
<b>7. SAFETY AND SECURITY .....</b>	<b>24</b>
CONSTRUCTION SAFETY AND SECURITY .....	24
SAFETY AND SECURITY WORKING GROUP (SCWG) .....	26
<b>8. AMERICANS WITH DISABILITIES ACT (ADA) .....</b>	<b>26</b>
<b>9. BUY AMERICA .....</b>	<b>26</b>
<b>10. VEHICLE TECHNOLOGY .....</b>	<b>26</b>
<b>11. PROJECT RISKS .....</b>	<b>27</b>
ACTION ITEMS: ITEMS FOR GRANTEE ACTION .....	28
<b>APPENDICES .....</b>	<b>29</b>
APPENDIX A – LIST OF ACRONYMS .....	29
APPENDIX B – PROJECT OVERVIEW .....	31
APPENDIX C – MWAA SAFETY AND SECURITY CHECKLIST .....	33
APPENDIX D – TOP 10 PROJECT RISKS .....	40
APPENDIX E – PHASE 1 CLOSEOUT .....	41
APPENDIX F – PMOC EVALUATION TEAM .....	42

## MAIN REPORT

### 1. Project Status

#### Design Status

Final design and construction are being performed under Design-Build (DB) contracts for Package A and Package B. The designs of both Package A and Package B are 100% complete. Fairfax and Loudoun Counties are managing the final design of the parking facilities (formerly Package C). The Counties have committed to delivering those elements as a condition of receipt of their TIFIA loans.

#### Construction Status

Status of DCMP Phase 2 construction contracts through November 2019, is as follows:

**Table 2**

Contract	Description	Forecast Substantial Completion	Construction Status
Package A	Rail Line, Station, Systems Contract	06/21/2020*	98% complete
Package B	Maintenance Facility	08/04/2020*	98% complete
Package S	Maintenance Facility Site Preparation	--	<b>Completed</b> in December 2014
Package G	Screen wall at Dulles Station	08/2020	<i>Contractor started installation of the screen wall columns on December 3, 2019.</i>
Package P	Stormwater Ponds	06/2021	<i>Of the 15 ponds, four have been completed with the exception of access way paving and four are under construction.</i>
Package K	Project Closeout		
Herndon Station	Parking Garage	04/2019	100% complete
Innovation Center Station	Parking Garage	04/2019	92% complete
Loudon Gateway Station	Parking Garage	10/9/2019	100% complete
Ashburn (Route 772) North	Parking Garage	--	<b>Completed</b> in January 2018
Ashburn (Route 772) South	Parking Garage	7/25/2019	100% complete

\*Contractor's Projected Date



## **Construction – Package A**

Civil Construction - During December 2019, the Contractor performed spot paving in the areas that were not draining properly. The stormwater management ponds continue to be constructed as access becomes available upon completion of the contractor's adjacent work. Punch list walk-throughs continued for the various agencies including Greenway, VDOT, Dulles Airport, Fairfax County and Loudoun County. The walk-throughs are in preparation for the return of property areas to these agencies prior to substantial completion of the Project.

Stations – Finish and trim work continues in the stations and pavilions. Station cleanup continues as does station elevator and escalator testing and verification.

Systems - Emergency Trip Station panels continue to be adjusted along the alignment to provide sufficient clearance along the emergency walkway. Electricians continue testing and verifying jumpers and bonds on the west at-grade track. Guideway mounted equipment for train control and switch operation continued to be inspected and tested on the at-grade ballasted guideway on the west from the aerial guideway abutments to Ashburn Station. All traction power substation (TPSS) locations have been energized and continue to supply power to the contact rail per the approved systems design. Traction power connections were made to the contact rail and the testing of these connections is being done along the west at-grade guideway in the area where track and switches have been made ready for future dynamic testing. Testing along the guideway from the Reston Town Center Station continued, the guideway east to the Wiehle tie-in was energized with train movement in this area restricted to the need to supply trains from the Phase 1 guideway to the test track. This section of guideway was added to the Phase 2 testing area and the required train movements started as part of the Phase 2 testing. The energized testing area extends throughout the entire guideway from Wiehle Avenue to, and beyond, the Ashburn Station.

## **Construction – Package B**

In December 2019, the contractor continued with mechanical, electrical and plumbing work (tagging, labeling and identification) for all buildings. Pre-functional performance testing progressed at the Service and Inspection Building (SIB). The contractor also advanced the installation and synchronization of the car hoists in the SIB. Punch list work on ballasted track also continued.

## **Packages G and P**

Package G (Dulles Airport Station Screen Wall) contract was awarded to W.M. Schlosser Company on August 15, 2018 and the kick-off meeting was held on August 22, 2018. The design package was submitted to the Authority Having Jurisdiction (AHJ) on March 26, 2019, and the construction permit was issued in May 2019. Schlosser began erection of the screenwall on December 3, 2019. Completion is expected during the third quarter of 2020.

The pre-construction meeting with HGS, LLC for Package P (Six Stormwater Management Ponds) was held on June 14, 2018. The substantial completion date is June 12, 2021. This contract includes two years of maintenance. HGS submitted their baseline schedule on October 5, 2018,

which was accepted with comments. There are three pond packages. *Of the total of fifteen ponds, four are complete except for the paving of the access ways. Four other ponds are under construction. The contractor is ahead of schedule.*

### **Parking Facilities (formerly Package C)**

**Fairfax County** is responsible for two parking facilities: one at the Herndon Station and one at the Innovation Center Station. Final design started in fall 2014. Project completion remains scheduled for April 30, 2019 for the Innovation Center Garage and is April 4, 2019 for the Herndon Station Garage. The project completions were previously revised by Fairfax County to accommodate the announcement by MWAA of a 13- month schedule delay.

The Fairfax County Department of Public Works and Environmental Services is the lead county agency for the design and construction of both parking facilities, and will be responsible for project management and oversight of both projects.

- **Herndon** - Fairfax County received bids for the Herndon Station Parking Garage and awarded the contract to Manhattan Construction; the NTP was issued on October 31, 2016. The Herndon Garage project cost was revised to \$44.5 million from \$56.7 million based on the winning bid. The Garage Bridge Erection (connection between the new and existing garage) was completed on November 26, 2017, and access to the site from Sunrise Valley Road was reopened on that date. Construction is 100% complete with the occupancy permit issued on April 4, 2019, and the garage opened for use on April 8, 2019.
- **Innovation Center** - Notice to proceed was issued to Manhattan Construction on April 3, 2017. A stop work order was issued in August 2018 after three caissons within the garage were found to have excessively settled. A total of thirteen caissons were instrumented and monitored while a redundant foundation system was installed. Remediation for all thirteen caissons was completed in February 2019. Construction resumed on April 1, 2019 with the resumption of pre-cast installation. The consultant's report on the causes of the settlement has been submitted, but has not been shared publicly due to potential litigation. *The garage is at the 92% level of completion and is expected to be completed on January 28, 2020.*

**Loudoun County** is responsible for three parking facilities: one at the Route 606 Station, Loudoun gateway, and two at the Route 772 Station, Ashburn North and Ashburn South.

The RFQ for the Ashburn South and Loudoun Gateway Garages was released on September 1, 2016 consistent with the County's schedule. Loudoun County is also coordinating with MWAA and WMATA regarding the garage fare collection.

- **Route 772 North (Ashburn North)** – The Ashburn North Garage was constructed as a public privatization arrangement between Loudoun County and Comstock, LLP. Construction on the Ashburn North Garage began in January 2017, and the construction was completed in January 2018. The certificate for non-residential occupancy was received and the garage opened at the end of April 2018. The Ashburn North Garage will be initially used for Comstock's commercial use, and will be open for Metrorail users at the start of revenue service. As

stipulated in the Master Agreement, the temporary use will cease 180 days before the Phase 2 revenue service date.

- **Route 772 South (Ashburn South) and Route 606 (Loudoun Gateway)** – On May 2, 2017, the Loudoun County Board of Supervisors authorized the award of the Design Build contract for the design and construction of the Loudoun Gateway Garage (1,965 spaces) and Ashburn South Garage (1,540 spaces) to the S. B. Ballard Construction Company. Contract award was May 4, 2017, and the notice to proceed was issued on June 1, 2017. The 100% design has been approved. The contractual substantial completion date for the Loudoun Gateway Garage is July 26, 2019, and for the Ashburn South Garage, September 28, 2019. MWAA is the Authority Having Jurisdiction (AHJ) for the Ashburn South Garage, and Loudoun County is the AHJ for the Loudoun Gateway Garage. The lease agreement with the Claude Moore Charitable Foundation for direct access to the Ashburn South site was signed on February 5, 2018 providing direct access to the site eliminating the intrusion into the Package Contractor's construction site.

*The construction of the Ashburn South and Loudoun Gateway Garages is 100% complete. Substantial completion of Ashburn South Garage was granted on December 17, 2019. The substantial completion date for the Loudoun Gateway Garage is expected in the latter part of January 2020.*

Loudoun County will prepare documents for a concessionaire to operate and maintain the Ashburn South and Loudoun Gateway Garages.

### **Real Estate Acquisition**

*MWAA's Dulles Corridor Metrorail Extension report indicating the status of the Property Acquisitions through December 2019 is shown in the following table.*

## Figure 2– Property Acquisition Status<sup>1</sup>

<sup>1</sup> Data reported by MWAA at the October 9, 2019 Monthly Update Meeting.

*During December 2019, there were no new property acquisitions. Fifty-three of the fifty-seven properties have been acquired. There has been no impact on construction since rights of entry have been secured for all properties.*

### Property Acquisition Status

Priority	Total Anticipated <sup>1</sup>	PIP <sup>2</sup> Complete	Initial Appraisal Complete <sup>3</sup>	Revised PIP/ Appraisal Pending <sup>4</sup>	Offer Made <sup>5</sup>	Revision in Process	Settlement Reached/ Condemnation Processed <sup>6</sup>	Acquisition Complete <sup>7</sup>
1	9	9	9	0	9	0	8	8
2A	28	28 <sup>8</sup>	28	0	28	0	26	25
2B	20	20 <sup>9</sup>	20	0	20	0	20	20
<b>Total<sup>10</sup></b>	<b>57</b>	<b>57</b>	<b>57</b>	<b>0</b>	<b>57</b>	<b>0</b>	<b>54</b>	<b>53</b>

Right of Entry (ROE) Status:

- Full Access for Construction provided for acquired parcels and Parcels 237/337.
- Full Access to Fairfax County-owned property was provided in 2013 for Parcels 213, 223, 232, 234, and 235.
- Full Access to Loudoun County-owned property was provided in 2016 for Parcels 257 and 258.

<sup>1</sup> Total based on current understanding. One new acquisition added in April 2019 for the Package G temporary construction easement in the parking lot on Parcel 337.

<sup>2</sup> PIP = Property Identification Plan.

<sup>3</sup> Initial appraisals complete for all Priority 1, Priority 2A, and 2B Parcels. The appraisal for Parcel 258 is not needed since it was dedicated to Loudoun County prior to being made available to the Project. Appraisals for the dedicated parcels, Parcels 236, 336, 235, and 257 are not needed since the landowner is not subject to condemnation.

<sup>4</sup> New appraisal for Parcel 237 completed in September 2018.

<sup>5</sup> Offers made for Parcel 207, 220, 214, 238, 240, 237, 231, 262, 254, 275, 276, 253, 256, 320, 264, 271, 251, 266, 261, 228, 249, 255, 260/360, 224, 259, 349, 208, 209, 281, 227, 225, 226, 211/311, 210, 252, 269, 328 (including revision to Parcel 228), 263, 358, 357, 205, 204, 268, 212, 267, 265, 509, and 337. Negotiations ongoing for Parcels 237, 337, and 265. Offers rescinded for Parcels 253 and 271 (acquisition not required). An offer is not required for Parcels 236, 336, 235, and 257. Offers are not required for Parcels 308, 309 and 366, due to the terms of the Memorandums of Agreement related to the Edmund Halley Drive roundabout change. Condemnation package prepared and sent to VDOT for Parcels 207, 220, 320, 260/360, 249, 349, 210, 557, 269, 268 (not filed), 228, 328, and 210 (second owner offer) due to impasse.

<sup>6</sup> Negotiations completed for Parcels 207, 214, 220, 240, 253, 231, 264, 276, 275, 238, 262, 320, 254, 256, 261, 236, 266, 251, 255, 271, 224, 349, 260/360, 235, 257, 258, 208, 209, 263, 225, 227, 357/557, 358, 252, 205, 204, 211/311, 269, 268, 210, 226, 212, 267, and 509.

<sup>7</sup> Completed acquisitions: Parcels 207 (COT), 214, 220 (COT), 240, 231, 264, 276, 275, 238, 262, 320 (COT), 254, 256, 261, 266, 251, 255, 260/360 (COT), 258, 249 (COT), 349 (COT) 224, 263, 225, 269 (COT), 208, 227, 205, 209, 252, 259, 204, 281, 336, 210 (COT), 268, 228/328 (COT), 357/557, 358, 509, 212 and 267, 211/311, 366, 226, and 309. Dedication of ROW for Parcel 308 is **being finalized**. Parcels 253 and 271 offers rescinded; no further action required. Parcels 236, 235, and 257 dedications completed.

<sup>8</sup> Priority 2A PIP status: PIPs have been completed for all Priority 2A parcels..

<sup>9</sup> Priority 2B PIP status: PIPs have been completed for all Priority 2B parcels..

<sup>10</sup> Does not include parcels on which construction will be performed by permit/permission (TRIP II and Fairfax County). Acquisitions/conveyances will be based on as-built conditions and completed prior to Substantial Completion.

### Third Party Agreements

Six Intergovernmental Agreements are required for Phase 2. These agreements describe the roles and responsibilities of MWAA and the parties relative to the Project.

The status of the six agreements is summarized in Table 3 below. *There was no change since the last PMOC report.*

**Table 3**

Agreement	Status	Notes
WMATA – New Agreement	Executed on August 7, 2013	Effective date August 7, 2013
VDOT – Amendment of Phase 1 Agreement	Executed on November 4, 2013	Effective date November 4, 2013
Fairfax County – Amendment of Phase 1 Agreement	Executed on May 28, 2013	Effective date May 28, 2013
Loudoun County	Executed on August 7, 2013	Effective date August 7, 2013
Town of Herndon	Executed on July 9, 2013	Effective date July 9, 2013
TRIP II (Dulles Greenway)	Executed on September 30, 2013	Effective date August 1, 2013
Local Funding Agreement with VDOT for Route 606 improvements	Executed on June 11, 2014	Work was added to the design plans prior to execution of the agreement.

### National Environmental Policy Act (NEPA)

MWAA last updated their Summary Matrix of Environmental Mitigation Measures *and submitted it to FTA on October 30, 2019* for the time period of *July 2019 through September 2019*.

### 2. Project Management Plan (PMP) and Sub-plans

MWAA has submitted the PMP and required sub-plans. Below is the status of each plan received by FTA through *December 31, 2019*.

**PMP Final Version 3.1** covering the Testing and Start-up Phase of the Project was submitted on November 30, 2018 and the PMOC provided comments on January 8, 2019. FTA approved Final PMP Version 3.1 on May 8, 2019.

**Quality Program Plan (QPP), Revision 1**, was approved by FTA on September 23, 2013 and FTA requested that MWAA update it, as needed, as Phase 2 continues to move forward through final design and construction. It is the PMOC's opinion that this document does not need to be updated at this stage of the Project.

**Safety and Security Management Plan (SSMP), Revision 3** dated February 28, 2017 was approved by FTA on August 8, 2017. It is the PMOC's opinion that this document does not need to be updated at this stage of the Project.

**Risk and Contingency Management Plan (RCMP)** - MWAA submitted RCMP, Revision 4.0 on June 27, 2019. The document was approved by the FTA on September 18, 2019.

**WMATA's Rail Fleet Management Plan (RFMP), Revision 5a** was submitted and PMOC provided comments on January 12, 2017. WMATA expected to submit a revised RFMP in early 2018, but has yet to submit the revised RFMP. At the September 27, 2019 WMATA Quarterly Progress Review Meeting, WMATA stated they expected to submit the updated RFMP by the end of the second quarter of Fiscal Year 2021.

### 3. Project Management Capacity and Capability

It is the PMOC's observation that MWAA continues to monitor and control the project in accordance with their procedures.

MWAA reported the estimated number of full-time equivalents for Phase 2 *during December 2019 is 735, an overall decrease of 218 from the November 2019 actual count of 953. The estimated December 2019 numbers are indicated in the table below.*

**Table 4**

MWAA	28
Virginia Department of Rail and Public Transportation (DRPT)	0
Virginia Department of Transportation (VDOT)	4
Washington Metropolitan Area Transportation Authority (WMATA)	56
Project Management Support Services	105
Capital Rail Constructors (CRC) – Package A	445
Hensel Phelps Construction Company (HPCC) – Package B	72
WM Schlosser – Package G	8
HGS – Package P	17
<b>Total</b>	<b>735</b>

## Project Controls

MWAA has developed project management procedures with regard to monitoring and controlling project scope, quality, schedule, cost, contingency management, and safety. It is the PMOC's observation that MWAA continues to monitor and control the project in accordance with their procedures.

- **Compliance** – It is the PMOC's observation that MWAA continues to follow the required statutes, regulations, and agreements.
- **Disadvantaged Business Enterprise (DBE) Goal** – MWAA developed a DBE Project Goal of 25% of the federal participation cost for Phase 2, which the FTA's Region 3 Civil Rights Officer reviewed, and subsequently approved on August 26, 2013.
  - MWAA continues to review and verify Scheduled DBE participation (Contracts Awarded) and Actual DBE participation (Payments). The following table details DBE Goals, DBE contracts awarded and DBE participation achieved through the last assessment on *December 31, 2019*. Dollar values are included for the latest assessment period.

Figure 3

PRIME CONTRACTS	DBE GOAL %	DBE CONTRACTS AWARDED (DBEC/TC)	NEW DBE AWARDS	DBE CONTRACTS AWARDED TOWARD GOAL	DBE GOAL ACHIEVED (DBE Pmts/TC)	DBE PAYMENTS December 2019
PreEng - PRELIMINARY ENGINEERING	0%	15.74%	\$0	100.00%	15.74%	\$0
PMSS - RAIL OFFICE	25%	21.22%	\$0	84.88%	18.34%	\$0
PKG A - DESIGN BUILD CONTRACT	14%	14.79%	\$396,562	105.62%	10.31%	\$658,426
PKG S - SOIL STOCKPILE RELOCATION	14%	37.53%	\$0	150.11%	21.49%	\$0
PSI - SPECIAL INSPECTION SERVICES	25%	18.39%	\$0	122.62%	18.63%	\$112,758
PKG B - RAIL YARD AND MAINTENANCE FACILITY	15%	14.75%	\$0	105.38%	12.60%	\$0
ROW - REAL ESTATE ACQUISITION	25%	21.15%	\$0	84.60%	14.38%	\$0
CHANGE ORDER & CLAIM STATUS	20%	3.92%	\$0	19.60%	3.92%	\$0
PKG G - DESIGN BUILD CONTRACT	15%	20.77%	\$0	103.87%	0.00%	\$0
PKG P - SWM FACILITIES	25%	33.60%	\$0	134.40%	2.26%	\$0
INSURANCE BROKER		0.00%	\$38,747	100.00%	38.28%	\$0
<b>TOTALS</b>			<b>\$ 435,309</b>			<b>\$ 771,184</b>

- **Davis-Bacon Act Verification** – MWAA is reporting Davis-Bacon Act verification activities in the Monthly Progress Report. As of the *December 2019* MWAA Monthly Progress Report, DBA compliance monitoring is ongoing including the review of certified payroll reports and Prime Contractor requests to add additional job classifications and wage rates.

## 4. Project Cost

MWAA's Phase 2 project budget was \$3,126,450,757, including the cost of the parking facilities funded by Fairfax and Loudoun Counties. This figure is in year-of-expenditure dollars and excludes the finance costs. With the commitment from both Fairfax and Loudoun Counties to fund and procure the parking facilities independently, MWAA has revised its Phase 2 project budget to \$2,778,235,564. This is a deduction of \$348,215,193, which includes associated primary and secondary mitigation for the parking facilities. MWAA's report of the SCC budget and expenditure summary for the period ending *November 30, 2019* is shown below in Figure 4.

**Figure 4**

**Dulles Corridor Metrorail Project - Phase 2**

**All Packages Cost Summary by SCC Code, November 2019**

FTA SCC CODE	DESCRIPTION	ORIGINAL BUDGET <sup>1</sup>	BASELINE BUDGET <sup>2</sup>	EXPENDITURE IN NOVEMBER	EXPENDITURE TO DATE <sup>4</sup>	ESTIMATE AT COMPLETION <sup>5</sup>	CONTINGENCY TO DATE
10	Guideway and Track Elements	\$ 344,946,326	\$ 167,928,670	\$ 23,075	\$ 194,040,407	\$ 205,386,934	\$ 8,306,234
20	Stations	\$ 228,424,057	\$ 231,928,000	\$ 637,965	\$ 215,209,235	\$ 235,381,251	\$ 23,629,490
30	Yards, Shops, Administration Buildings	\$ 229,857,097	\$ 213,730,843	\$ 703,662	\$ 224,873,469	\$ 237,237,375	\$ 24,532,532
40	Site Work and Utility Relocation	\$ 394,075,868	\$ 571,790,853	\$ 5,392,237	\$ 679,703,050	\$ 734,558,026	\$ 171,956,347
50	Systems	\$ 193,794,178	\$ 215,516,247	\$ 1,958,496	\$ 189,487,009	\$ 228,899,703	\$ 26,326,877
60	Right of Way Acquisition	\$ 58,523,267	\$ 58,600,000	\$ 106,595	\$ 26,655,784	\$ 57,500,200	\$ -
70	Vehicles	\$ 212,765,000	\$ 213,613,334	\$ -	\$ 134,370,365	\$ 187,489,735	\$ (24,565,599)
80	Professional Services	\$ 564,398,592	\$ 577,387,366	\$ 2,283,133	\$ 587,263,822	\$ 655,189,887	\$ 60,961,917
90	Contingency <sup>3</sup>	\$ 551,451,179	\$ 527,740,251	\$ -	\$ -	\$ 236,592,453	\$ (291,147,798)
<b>TOTAL PROJECT COST</b>		<b>\$ 2,778,235,564</b>	<b>\$ 2,778,235,564</b>	<b>\$ 11,105,163</b>	<b>\$ 2,251,603,141</b>	<b>\$ 2,778,235,564</b>	<b>\$ -</b>

1. Original Budget is based on Table 2-1 "Program Budget Breakdown" of RCMP Rev 1c submitted to FTA in November 2013.

2. Baseline Budget reflects cost loading of Package A baseline schedule approved in February 2014 and redistribution of spare parts budget. Baseline Budget for Packages B and S is adjusted to matched the Contract Price. Baseline Budget for Contingency is adjusted by \$9.8 million increase which is the net of the underrun in Package S and overrun in Package B. Baseline Budget for Contingency is further adjusted by \$33.6 million decrease to fund Packages G and P.

3. All of the contingency resides in SCC 90.

4. Package A expenditure to date includes \$5 million of retainage released in December 2014 and \$14.7 million retainage released in December 2018 with October 2018 payments. Excludes \$9.7 million in Betterments.

5. Estimate at Completion includes Baseline Budget plus any changes funded via contingency drawdown requests and budget transfer requests. Excludes \$11.0 million in Betterments.

*As of November 30, 2019, MWAA reports Contingency Drawdown Requests (CDR) totaling \$314,858,726 have been issued. The CDR includes a contribution to Contingency of \$9,841,233 due to the balance of the under run for Package S and the overrun in Package B. The original contingency budget was reduced by \$33.6 million to fund Package G and Package P. Of the original contingency amount, \$236,592,453 (42.90%) remains available.*

*Expenditures through November 2019 show that both Package A and Package B continue to lag the planned performance levels. Both CRC (Package A) and HP (Package B) have failed to meet their respective Contractual Substantial Completion Dates.*

**Tables 5-8**

**Package A (Rail Line, Stations, & Systems) Cost by SCC – November 2019**

**Dulles Corridor Metrorail Project - Phase 2**

**Package A Project Cost Summary by SCC Code**

FTA SCC CODE	DESCRIPTION	ORIGINAL BUDGET <sup>1</sup>	BASELINE BUDGET <sup>2</sup>	EXPENDITURE IN NOVEMBER	EXPENDITURE TO DATE <sup>3</sup>	ESTIMATE AT COMPLETION <sup>4</sup>	CONTINGENCY TO DATE
10	Guideway and Track Elements	\$ 340,953,449	\$ 163,928,670	\$ 23,075	\$ 194,040,407	\$ 203,986,934	\$ 8,306,234
20	Stations	\$ 224,432,514	\$ 223,697,000	\$ 637,965	\$ 214,529,952	\$ 229,724,401	\$ 23,603,640
30	Yards, Shops, Administration Buildings	\$ 377,285	\$ -	\$ -	\$ -	\$ -	\$ -
40	Site Work and Utility Relocation	\$ 352,759,752	\$ 509,201,330	\$ 5,373,970	\$ 640,024,606	\$ 661,639,108	\$ 155,620,148
50	Systems	\$ 172,044,132	\$ 188,997,000	\$ 1,422,687	\$ 183,616,215	\$ 204,980,456	\$ 26,326,877
60	Right of Way Acquisition	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
70	Vehicles	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
80	Professional Services	\$ 87,209,868	\$ 91,953,000	\$ 14,437	\$ 113,999,388	\$ 117,049,096	\$ 24,646,296
90	Contingency	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
<b>TOTALS</b>		<b>\$ 1,177,777,000</b>	<b>\$ 1,177,777,000</b>	<b>\$ 7,472,134</b>	<b>\$ 1,346,210,568</b>	<b>\$ 1,417,379,995</b>	<b>\$ 238,503,195</b>

1. Original Budget is based on Table 2-1 "Program Budget Breakdown" of RCMP Rev 1c submitted to FTA in November 2013.

2. Baseline Budget reflects cost loading of Package A baseline schedule approved in February 2014 and redistribution of spare parts budget. This reflects the original contract amount.

3. Expenditure to date includes \$5 million of retainage released in December 2014 and \$14.7 million retainage released in December 2018 with October 2018 payments. Excludes \$9.7 million in Betterments.

4. Estimate at Completion includes Baseline Budget plus any changes funded via contingency drawdown requests and budget transfer requests. Excludes \$11.0 million in Betterments.



## Package B (WMATA Yard & Shop Facilities) Cost by SCC – November 2019

### Dulles Corridor Metrorail Project - Phase 2

#### Package B Project Cost Summary by SCC Code

FTA SCC CODE	DESCRIPTION	ORIGINAL BUDGET <sup>1,3</sup>	BASELINE BUDGET <sup>2</sup>	EXPENDITURE IN NOVEMBER	EXPENDITURE TO DATE	ESTIMATE AT COMPLETION <sup>4</sup>	CONTINGENCY TO DATE
10	Guideway and Track Elements	\$ -	\$ -			\$ -	
20	Stations	\$ -	\$ -			\$ -	
30	Yards, Shops, Administration Buildings	\$ 202,977,283	\$ 201,238,645	\$ 703,662	\$ 218,337,639	\$ 226,919,677	\$ 24,035,032
40	Site Work and Utility Relocation	\$ 25,772,661	\$ 23,296,613		\$ 26,618,351	\$ 36,808,374	\$ 13,418,565
50	Systems	\$ -	\$ 2,772,451	\$ 473,148	\$ 2,014,190	\$ 2,772,451	
60	Right of Way Acquisition	\$ -	\$ -			\$ -	
70	Vehicles	\$ -	\$ 1,558,000			\$ -	
80	Professional Services	\$ 20,530,586	\$ 24,123,291	\$ 58,900	\$ 27,990,549	\$ 29,181,510	\$ 5,167,415
90	Contingency	\$ -	\$ -			\$ -	
<b>TOTALS</b>		<b>\$ 249,280,530</b>	<b>\$ 252,989,000</b>	<b>\$ 1,235,710</b>	<b>\$ 274,960,729</b>	<b>\$ 295,682,012</b>	<b>\$ 42,621,012</b>

1. Original Budget is based on Table 2-1 "Program Budget Breakdown" of RCMP Rev 1c submitted to FTA in November 2013.

2. Baseline Budget reflects cost loading of Package B baseline schedule approved in March 2015. This reflects the original contract amount.

3. Original Budget includes \$500,000 for the Route 606 improvements at Rail Yard that is now performed outside Package B.

4. Estimate at Completion includes Baseline Budget plus any changes funded via contingency drawdown requests and budget transfer requests.

## Package G (Dulles Airport Screen Wall) – November 2019

### Dulles Corridor Metrorail Project - Phase 2

#### Package G Project Cost Summary by SCC Code

FTA SCC CODE	DESCRIPTION	ORIGINAL BUDGET <sup>1</sup>	BASELINE BUDGET <sup>2</sup>	EXPENDITURE IN NOVEMBER	EXPENDITURE TO DATE	ESTIMATE AT COMPLETION	CONTINGENCY TO DATE
10	Guideway and Track Elements						
20	Stations		\$ 4,231,000		\$ 679,282	\$ 4,256,850	\$ 25,850
30	Yards, Shops, Administration Buildings						
40	Site Work and Utility Relocation		\$ 1,915,000		\$ 245,291	\$ 1,915,000	
50	Systems						
60	Right of Way Acquisition						
70	Vehicles						
80	Professional Services		\$ 820,000		\$ 779,000	\$ 820,000	
90	Contingency						
<b>TOTALS</b>		<b>\$ -</b>	<b>\$ 6,966,000</b>	<b>\$ -</b>	<b>\$ 1,703,573</b>	<b>\$ 6,991,850</b>	<b>\$ 25,850</b>

1. Original Budget was zero since this package was not part of original packaging for Phase 2

2. Baseline budget was established by drawing down from Phase 2 contingency funds.

## Package P (Six Storm Water Ponds) – November 2019

### Dulles Corridor Metrorail Project - Phase 2

#### Package P Project Cost Summary by SCC Code

FTA SCC CODE	DESCRIPTION	ORIGINAL BUDGET <sup>1</sup>	BASELINE BUDGET <sup>2</sup>	EXPENDITURE IN NOVEMBER	EXPENDITURE TO DATE	ESTIMATE AT COMPLETION	CONTINGENCY TO DATE
10	Guideway and Track Elements						
20	Stations						
30	Yards, Shops, Administration Buildings						
40	Site Work and Utility Relocation		\$ 24,715,161		\$ 6,064,470	\$ 24,938,583	\$ 223,422
50	Systems						
60	Right of Way Acquisition						
70	Vehicles						
80	Professional Services		\$ 1,871,000		\$ 1,393,072	\$ 1,907,000	\$ 36,000
90	Contingency						
<b>TOTALS</b>		<b>\$ -</b>	<b>\$ 26,586,161</b>	<b>\$ -</b>	<b>\$ 7,457,542</b>	<b>\$ 26,845,583</b>	<b>\$ 259,422</b>

1. Original Budget was zero since this package was not part of original packaging for Phase 2

2. Baseline budget was established by drawing down from Phase 2 contingency funds.

*Package “A” Change Orders Summary*

<i>Approved in December 2019</i>	<i>\$18,722,949</i>	
<i>Total Approved as of December 2019</i>		<i>\$250,454,109</i>
<i>In Process in December 2019</i>	<i>\$9,146,700</i>	<i>\$9,146,700</i>
<i>Under Evaluation in December 2019</i>	<i>\$26,835,019</i>	<i>\$26,835,019</i>
<i>Potential Value All Change Orders</i>		<i>\$286,435,828</i>

*Package “B” Change Orders Summary*

<i>Approved in December 2019</i>	<i>\$112,500</i>	
<i>Total Approved as of December 2019</i>		<i>\$42,022,612</i>
<i>In Process in December 2019</i>	<i>\$345,000</i>	<i>\$345,000</i>
<i>Under Evaluation in December 2019</i>	<i>\$14,376</i>	<i>\$14,376</i>
<i>Potential Value All Change Orders</i>		<i>\$42,381,988</i>

*Package “G” Change Orders Summary*

<i>Approved in December 2019</i>	<i>\$0</i>	
<i>Total Approved as of December 2019</i>		<i>\$25,850</i>
<i>In Process in December 2019</i>	<i>\$0</i>	<i>\$0</i>
<i>Under Evaluation in December 2019</i>	<i>\$0</i>	<i>\$0</i>
<i>Potential Value All Change Orders</i>		<i>\$25,850</i>

*Package “P” Change Orders Summary*

<i>Approved in December 2019</i>	<i>\$0</i>	
<i>Total Approved as of December 2019</i>		<i>\$259,422</i>
<i>In Process in December 2019</i>	<i>\$0</i>	<i>\$0</i>
<i>Under Evaluation in December 2019</i>	<i>\$0</i>	<i>\$0</i>
<i>Potential Value All Change Orders</i>		<i>\$259,422</i>

*The Packages A, B, G & P charges against contingency, including the potential values for all change orders, as of December 2019, represent a total of \$329,103,088 or 62.36% of the total Project Contingency of \$527,740,251. This 62.36% of contingency used compares favorably with the overall Project completion of 89%. PMOC believes the remaining contingency is sufficient at this stage of the Project.*

The MWAA table showing total charges against the Project follows.

**Figure 5**

**Dulles Corridor Metrorail Project - Phase 2  
Monthly Cost Report, November 2019**

DESCRIPTION	ORIGINAL BUDGET	BASLINE BUDGET <sup>3 5</sup>	EXPENDITURE TO DATE <sup>4</sup>	ESTIMATE AT COMPLETION <sup>6</sup>	PERCENT OF EAC EXPENDED TO DATE
<b>Design-Build</b>					
Design Build Main Line - Package A	\$ 1,177,777,000	\$ 1,177,777,000	\$ 1,346,210,568	\$ 1,417,379,995	
Commodity Escalation - Package A	\$ 16,000,000	\$ 16,000,000	\$ -	\$ 5,600,000	
Dulles Airport Windscreens - Package G		\$ 6,966,000	\$ 1,703,573	\$ 6,991,850	
Stormwater Management Ponds - Package P		\$ 26,586,161	\$ 7,457,542	\$ 26,845,583	
<b>Subtotal Design-Build Main Line</b>	<b>\$ 1,193,777,000</b>	<b>\$ 1,227,329,161</b>	<b>\$ 1,355,371,683</b>	<b>\$ 1,456,817,428</b>	
Yard - Package B + Yard Soil Preparation - Package S	\$ 269,280,530	\$ 258,939,297	\$ 281,411,043	\$ 302,132,326	
Commodity Escalation - Package B	\$ 4,000,000	\$ 4,000,000	\$ -	\$ 1,328,000	
<b>Subtotal Design-Build Yard</b>	<b>\$ 273,280,530</b>	<b>\$ 262,939,297</b>	<b>\$ 281,411,043</b>	<b>\$ 303,460,326</b>	
<b>Design-Build Contracts Total</b>	<b>\$ 1,467,057,530</b>	<b>\$ 1,490,268,458</b>	<b>\$ 1,636,782,726</b>	<b>\$ 1,760,277,754</b>	<b>93%</b>
<b>Right of Way</b>					
Parcels & Project Management	\$ 58,600,000	\$ 58,600,000	\$ 26,655,784	\$ 57,500,200	
<b>Right Of Way Total</b>	<b>\$ 58,600,000</b>	<b>\$ 58,600,000</b>	<b>\$ 26,655,784</b>	<b>\$ 57,500,200</b>	<b>46%</b>
<b>WMATA Agreement</b>					
Vehicles	\$ 205,868,200	\$ 205,868,200	\$ 133,752,665	\$ 181,302,601	
WMATA Non Revenue Vehicles	\$ 9,250,751	\$ 9,620,781	\$ 1,496,951	\$ 9,620,781	
WMATA Project Management and Other Costs	\$ 90,205,767	\$ 89,835,737	\$ 55,614,769	\$ 89,835,737	
<b>WMATA Agreement Total</b>	<b>\$ 305,324,718</b>	<b>\$ 305,324,718</b>	<b>\$ 190,864,385</b>	<b>\$ 280,759,119</b>	<b>68%</b>
<b>Preliminary Engineering</b>					
<b>Preliminary Engineering Total</b>	<b>\$ 75,000,000</b>	<b>\$ 75,000,000</b>	<b>\$ 73,266,056</b>	<b>\$ 75,000,000</b>	<b>98%</b>
<b>Airports Authority Services</b>					
Airports Authority Project Management	\$ 64,620,000	\$ 64,620,000	\$ 66,890,937	\$ 80,081,913	
Project Management Support	\$ 140,000,000	\$ 140,000,000	\$ 186,966,987	\$ 194,560,000	
Other Costs <sup>1</sup>	\$ 116,182,137	\$ 116,682,137	\$ 70,176,266	\$ 93,464,125	
<b>Airports Authority Services Total</b>	<b>\$ 320,802,137</b>	<b>\$ 321,302,137</b>	<b>\$ 324,034,190</b>	<b>\$ 368,106,038</b>	<b>88%</b>
<b>Contingency</b>					
<b>Contingency Total</b>	<b>\$ 551,451,179</b>	<b>\$ 527,740,251</b>		<b>\$ 236,592,453</b>	
<b>TOTAL PROJECT COSTS</b>	<b>\$2,778,235,564</b>	<b>\$2,778,235,564</b>	<b>\$2,251,603,141</b>	<b>\$2,778,235,564</b>	<b>89%<sup>2</sup></b>

1. Includes Rent, Relocation, OCIP, VDOT, Dulles Rail Consultants, Testing Consultant, DGS, TRIP II, DEQ, Airports Authority Permits/Inspection, Testing Power and Historic/Archaeological Mitigation. Estimate at Completion includes Dominion Virginia Power Route 28 to Frying Pan Road Ductbank Installation also.

2. This percentage does not include Contingency.

3. Baseline Budget for Packages A, G, P, B and S reflects the Contract Price. Baseline Budget for Contingency is adjusted by \$9.8 million increase which is the net of the underrun in Package S and overrun in Package B. Baseline Budget for Contingency is further adjusted by \$33.6 million decrease to fund Packages G and P.

4. Package A expenditure to date includes \$5 million of retainage released in December 2014 and \$14.7 million retainage released in December 2018 with October 2018 payments. Excludes \$9.7 million in Betterments.

5. Baseline Budget for WMATA Agreement is adjusted to align with WMATA's distribution of original budget in invoice #2.

6. Estimate at Completion includes Baseline Budget plus any changes funded via contingency drawdown requests and budget transfer requests. Excludes \$11.0 million in Betterments.

## Funding Sources

Primary funding for Phase 2 (excluding parking facilities) is shown in the table 9 below. The CMAQ Grant was awarded in May 2018. The Northern Virginia Transportation Authority funding of \$60 million is to be used to fund just the construction of the Innovation Station and was awarded in October 2015 and May 2016.

**Table 9**

<b>Funding Source</b>	<b>Phase 2 Funding (\$ thousands)</b>	<b>Percentage of Total</b>
Commonwealth of Virginia	323,300	11.64%
Northern VA Transportation Authority	60,000	2.16%
Congestion Mitigation Air Quality (CMAQ) Grant (awarded)	11,069	0.40%
Fairfax County	515,910	18.57%
Loudoun County	273,066	9.83%
MWAA (Aviation Funds)	233,244	8.40%
MWAA (Dulles Toll Road)	1,361,647	49.01%
<b>Total Sources of Funding</b>	<b>\$2,778,236</b>	<b>100.00%</b>

### **TIFIA Funding Status**

On August 20, 2014, United States Department of Transportation (USDOT) Transportation Infrastructure Finance and Innovation Act (TIFIA) credit assistance program executed a loan with MWAA, not to exceed \$1.278 billion to assist in financing its share. USDOT executed a TIFIA Loan with Loudoun County for up to \$195 million, which closed on December 9, 2014. The TIFIA Loan executed with Fairfax County is for up to \$403 million, and it closed on December 17, 2014. The three TIFIA loans total \$1.876 billion in to support the construction of Phase 2. As of August 2014, this represents the largest TIFIA assistance for a single project in the program's history.

Because the Project was delayed 13 months due to stormwater management changes, MWAA submitted a Recovery Plan on August 11, 2016 which reflected the 13-month delay to the Project. The Recovery Plan was accepted by FTA on October 3, 2016. MWAA submitted their 2017 TIFIA Financial Plan and associated Revised Financial Model of the Project on March 30, 2017. The 2018 TIFIA Financial Plan was submitted on March 30, 2018. The 2019 TIFIA Financial Plan was submitted on March 29, 2019. Due to further delays to the Project's completion, MWAA submitted a Recovery Plan for the Project on June 27, 2019 which approved by FTA on August 20, 2019.

*MWAA prepaid their TIFIA Loan, in full, on December 19, 2019.*

### **5. Project Schedule**

Phase 2 is currently in the construction phase. Package A construction began in June 2014 with the start of utility relocation. The revenue service was to begin on March 31, 2020, according to the last accepted overall Program Schedule. Since MWAA announced on April 27, 2015 that the Project was incurring a thirteen-month delay, a revised baseline schedule has been submitted. Revised Project

Milestones are updated based on the accepted-as-noted Package Revised Baseline Schedule in May 2015.

The table below shows the Phase 2 milestones as noted in the *December 1, 2019*, Project Master Schedule, as provided by MWAA. MWAA continues to “not accept” schedule updates from the contractors. CRC’s November 2019 schedule update was “**Not Accepted**” by MWAA due to CRC combining Level C and Level F Dynamic Testing activities, missing critical delay events regarding the Interlocking Plant Test, inconsistency of the Testing Plan with expressed resources limitations, violations of the Contract Schedule Specification, disagreements with the duration and logic shown for near-critical fragnets, and other technical issues. CRC’s November 2019 schedule update forecasts the SSCD to be June 21, 2020, a 319 impact to the contractual SSCD. The Project Master Schedule (PMS) reflects the dates in CRC’s November 2019 schedule update which was “**Not Accepted**”. HP’s November 2019 schedule update which forecasts a SSCD of August 4, 2020, a 591 days delay, was also “**Not Accepted**” by MWAA. MWAA has identified corrections to the contractors for their respective schedule’s logic, but the contractors have not complied with this guidance. Both CRC and HP have missed their contractual SSCDs. MWAA requested HP submit a recovery schedule which was submitted on September 21, 2019, but was withdrawn by HP due to commercial issues. HP’s schedule continues to be the subject of discussions between HP and MWAA.

MWAA’s December 1, 2019 PMS indicates a Revenue Service Date (RSD) of July 16, 2020. This RSD was based on MWAA’s Monte Carlo analysis of their assumed schedule. Since MWAA’s PMS does not reconcile the conflicting completion dates, the PMOC does not consider it a true master schedule.

**Table 10**

<b>DULLES CORRIDOR PHASE 2 MILESTONES</b>		
<b>DESCRIPTION</b>	<b>RE-BASELINED SCHEDULE</b>	<b>UPDATED SCHEDULE**</b>
Package A – Design-Build Contract Award		05/14/2013(A)
Package S – Advanced Earthwork Contract IFB		06/27/2013 (A)
Package A – Contract NTP	07/08/2013	07/08/2013(A)
Package S – Advanced Earthwork Contract Award		11/01/2013 (A)
Package S – Advanced Earthwork Contract NTP		11/18/2013 (A)
Package B – Contract RFQI		11/12/2013 (A)
Package B – Contract RFP		02/11/2014 (A)
Loudoun County Garages – Board Action on BAFOs		06/10/2014 (A)
Package B – Contract Award		07/29/2014 (A)
Package A – Start of Construction		June 2014 (A)
Fairfax County – Approval of Land Use Cases for Parking Facilities		07/29/2014 (A)
Package B – Contract NTP	08/18/2014	08/18/2014 (A)
Package S – Advanced Earthwork Contract Substantial Completion		12/08/2014(A)
Deadline for Fairfax and Loudoun Counties' decision to construct the Parking Facilities		12/29/2014(A)
Fairfax County – Design of Parking Facilities Complete	03/31/16	11/30/16 (A)
Loudoun County – Design for RFP of Parking Facilities Complete	06/28/16	01/04/17 (A)
Package A – Complete Design*	10/21/15	03/02/20**

<b>DULLES CORRIDOR PHASE 2 MILESTONES</b>		
<b>DESCRIPTION</b>	<b>RE-BASELINED SCHEDULE</b>	<b>UPDATED SCHEDULE**</b>
Package A – Complete Aerial Guideway Structure Construction *	04/07/17	11/13/18 (A)
Package A – Complete At-Grade Guideway Structure Construction	12/19/17	07/09/18(A)
Package A – Complete Station Build-out	11/21/18	12/13/19**
Package A – Complete Systems Installation	09/21/18	12/08/19**
Fairfax County – Construction of Parking Facilities Complete	04/30/18	01/28/20
Loudoun County - Construction of Parking Facilities Complete	02/28/17	04/30/20
Package A – Forecasted Substantial Completion	08/07/19	06/21/20**
Package B - Complete Yard Systems and Commissioning	03/02/18	02/13/20**
Package B – Forecasted Substantial Completion	12/23/18	08/04/20**
Complete WMATA Operations Readiness Testing	10/06/19	05/17/20***
Complete WMATA Revenue Operations Acceptance Testing (Baseline: 3/31/20)	03/31/20	07/16/20***
Revenue Service Date (RSD) (Baseline: 3/31/20)	03/31/20	07/16/20***

\* Includes changes

\*\* Based on Unapproved Schedules

\*\*\* Based on MWAA's Monte Carlo Analysis

### **Critical Path**

- CRC's Primary Critical Path as reflected in their November 2019 schedule update runs through the submittal and approval of pre-printed data sheets for the Interlocking Plant Test; static testing for N97, performance of Level B dynamic testing for N97E, N10, N96, N09, N08, N07, N11, and N12 Train Control Rooms TCRs); performance of Levels C and F dynamic testing for N12 TCR; Systems Performance Demonstration; and Substantial Completion.

***Based upon the current status of the Project, it is the PMO's opinion that the Revenue Service Date will be late in the fourth quarter of 2020. At the current stage of the Project there is no ability to recover time. MWAA must establish SSCDs for each Package based on the current levels of completion.***

### **Important Activities – 90-Day Look Ahead (by the end of March 2020)**

- Right of Way acquisition to be completed.
- Completion of construction of wayside facilities.
- Testing and commissioning of all stations to be completed.
- Completion of wayside TPSS and TBS testing and commissioning.
- Maintenance yard systems to be commissioned.
- Construction of the Service and Inspection Building, Warehouse Building, Maintenance of Way Building, and Transportation Building.
- Commissioning of yard systems and dynamic testing with WMATA trains to be completed.
- Art in Transit installations at Herndon, Dulles Airport and Loudoun Gateway Stations to be completed.

## 6. Quality Assurance/Quality Control

The Quality Management Plan, Revision 1, submitted by CRC was approved in January 2014. MWAA added that it has requested the QC plans be submitted from the CRC subcontractors and vendors. CRC is submitting inspection test plans for MWAA review.

*During December 2019, MWAA did not conduct any audits or surveillances for Package A.*

MWAA typically submits a rolling Audit Schedule at each monthly update meeting. *The most recent QA Audit Schedule for January 2020 for Package A is shown below.*

**Table 11**

<b>Tentative Date</b>	<b>Audit (A) Surveillance (S)</b>	<b>Organization/Activity</b>	<b>Joint Audit/ Surveillance</b>	<b>Lead</b>
<i>TBD</i>	A	CRC ATC*	N	MWAA
<i>TBD</i>	A	Survey Audit	N	MWAA

\*The schedule for over the shoulder audits will be determined in coordination with CRC.

*During December 2019, MWAA did not perform any audits of HP and no further audits or surveillances are planned*

## 7. Safety and Security

**Construction Safety and Security** – *The safety statistics from MWAA for Package A, Package B, Package G and Package P for December 2019 are contained in the tables below.*

### Package A Safety and Security Performance Report, December 2019

EVENT	DURING PERIOD	CUMULATIVE
Hours Worked	25,031	8,727,457
First-Aid Cases	0	309
OSHA Recordable Cases (Non-Lost Time)	1	55
OSHA Recordable Cases (Lost Time)	0	4
Lost Time Days (for cases above)	0	11
Utility Hits	0	54
Incident Investigation Reports	0	428
Property Damage Claims (>\$1500)	0	63
Vehicular Accidents on Public Roads	1	39
DEQ Reportable Environmental Spills*	0	7

\*Spills that are less than 25 gallons are not reported as long as the oil has been cleaned up, and the spill does not impact groundwater, surface water, or other waters of the US.

\*\* The cumulative total includes updated hours (revised from 18,737 to 47,083) for the month of November 2019 reported in January 2020.

### Package B Safety and Security Performance Report, December 2019

EVENT	DURING PERIOD	CUMULATIVE
Hours Worked	9,798	2,070,225
First-Aid Cases	0	18
OSHA Recordable (Non-Lost Time)	0	14
OSHA Recordable (Lost Time Cases)	0	1
Lost Time Days (for cases above)	0	28
Property Damage Claims (>\$1500)	0	0
Incident Investigation Reports	0	86
Utility Hits	0	0
Vehicular Accidents	0	1
DEQ Reportable Environmental Spills*	0	0

\*Spills that are less than 25 gallons are not reported as long as the oil has been cleaned up, and the spill does not impact groundwater, surface water, or other waters of the US.



**Package G Safety and Security Performance Report, *December 2019***

<b>EVENT</b>	<b>DURING PERIOD</b>	<b>CUMULATIVE</b>
<b>Hours Worked</b>	618	1,510
<b>First-Aid Cases</b>	0	0
<b>OSHA Recordable (Non-Lost Time)</b>	0	0
<b>OSHA Recordable (Lost Time Cases)</b>	0	0
<b>Lost Time Days (for cases above)</b>	0	0
<b>Property Damage Claims (&gt;\$1500)</b>	0	0
<b>Incident Investigation Reports</b>	0	0
<b>Utility Hits</b>	0	0
<b>Vehicular Accidents</b>	0	0
<b>DEQ Reportable Environmental Spills*</b>	0	0

\*Spills that are less than 25 gallons are not reported as long as the oil has been cleaned up, and the spill does not impact groundwater, surface water, or other waters of the US.

**Package P Safety and Security Performance Report, *December 2019***

<b>EVENT</b>	<b>DURING PERIOD</b>	<b>CUMULATIVE</b>
<b>Hours Worked</b>	2,552	38,077
<b>First-Aid Cases</b>	0	0
<b>OSHA Recordable (Non-Lost Time)</b>	0	0
<b>OSHA Recordable (Lost Time Cases)</b>	0	0
<b>Lost Time Days (for cases above)</b>	0	0
<b>Property Damage Claims (&gt;\$1500)</b>	0	0
<b>Incident Investigation Reports</b>	0	0
<b>Utility Hits</b>	0	0
<b>Vehicular Accidents</b>	0	0
<b>DEQ Reportable Environmental Spills*</b>	0	0

\*Spills that are less than 25 gallons are not reported as long as the oil has been cleaned up, and the spill does not impact groundwater, surface water, or other waters of the US.

**Safety and Security Working Group (SCWG)** is the entity charged with the development of Design and Construction Conformance criteria, checklists and hazard analysis for the Project. This group meets on a monthly basis and continues to function satisfactorily. WMATA is responsible for the Threat and Vulnerability Analysis and has hired their consultant for this work. WMATA has completed the review of the Phase 2 design against the existing Silver Line and Yard TVAs, and has not informed MWAA of any issues requiring resolution.

**Washington Metrorail Safety Commission (WMSC)** - On March 18, 2019, the FTA certified the WMSC as the independent body now responsible for overseeing and enforcing safety practices on WMATA. The PMOC plans to coordinate its readiness review with WMSC. WMSC has participated in MWAA's SCWG meetings.

**Transportation Security Administration (TSA)** – On August 26, TSA representatives toured the Dulles Airport Station, TPSS #17 and the Rail Yard,

## **8. Americans with Disabilities Act (ADA)**

Following review of the field installation and shop drawings, the design of the platform expansion joint was questioned and subsequently submitted by CRC to the Access Board for review. The supplier, MM Systems, performed some additional testing in response to Access Board comments, but the Board determined the joint to be non-compliant with the ADAAG. CRC has installed stainless steel cover plates over the joints to establish ADA compliance.

## **9. Buy America**

*There are no current Buy America issues.*

## **10. Vehicle Technology**

The Project is acquiring 64 new rail cars which are part of WMATA's 7000 Series Rail Car Procurement. The production of the Phase 2 rail cars began in February 2017. The 64th railcar was conditionally accepted on October 13, 2017.

## 11. PROJECT RISKS

The Final RCMP, Revision 3.0 was submitted on February 1, 2018, and approved by the FTA on March 6, 2018. The Final RCMP, Revision 4.0, was submitted to FTA on June 27, 2019 and approved on September 18, 2019.

**Budget Risks:** MWAA allocated \$551 million in contingency for the overall project. A contingency management plan has been established for the release of contingency based on contract milestones. *MWAA continues to remain within the contingency milestones. The Project has consumed 57.10% (\$314,858,726) of the total Project contingency at a point where the Project is 89% complete.*

**Schedule Risks:** MWAA held a risk workshop on February 7, 2019 to review the RCMP, and in particular the schedule risk. In the absence of approved schedule updates from CRC and HP, MWAA was requested by the FTA to perform a Monte Carlo Analysis of their best estimate of the project schedule. That analysis, documented in RCMP, Revision 4.0, generated a RSD of July 16, 2020.

*MWAA continues to “not accept” schedule updates from the contractors. CRC’s November 2019 schedule update was “Not Accepted” by MWAA. CRC’s November 2019 schedule update forecasts the SSCD to be June 21, 2020, a 319 impact to the contractual SSCD. The Project Master Schedule (PMS) reflects the dates in CRC’s November 2019 schedule update which was “Not Accepted”. HP’s November 2019 schedule update which forecasts a SSCD of August 4, 2020, a 591 days delay, was also “Not Accepted” by MWAA. MWAA has identified corrections to the contractors for their respective schedule’s logic, but the contractors have not complied with this guidance. Both CRC and HP have missed their contractual SSCDs. MWAA requested HP submit a recovery schedule which was submitted on September 21, 2019, but was withdrawn by HP due to commercial issues. HP’s schedule continues to be the subject of discussions between HP and MWAA.*

*MWAA’s December 1, 2019 PMS indicates a Revenue Service Date (RSD) of July 16, 2020. This RSD was based on MWAA’s Monte Carlo analysis of their assumed schedule. Since MWAA’s PMS does not reconcile the conflicting completion dates, the PMOC does not consider it a true master schedule.*

***There is not sufficient time for the contractors to recover significant time between now and April 17, 2020. It is the PMOC’s opinion that the actual SSCD will occur late in the fourth quarter of 2020.***

*Another factor that may adversely impact the SSCD is the investigation by WMATA’s Office of Inspector General’s (OIG’s) of the quality issues affecting the Project. There is no known schedule for the completion of the OIG’s review. If there are extensive items requiring mitigation beyond the three items described in WMATA’s letter of September 6, 2019 to MWAA, this could further impact the SSCD.*

### Action Items: Items for Grantee Action from the December 16, 2019 QPRM

PR	Item	Identification	Nature of Problem	D	A	I	Comments	Status
2	2B	MWAA to provide FTA with the revised procedure for applying the Evonik sealer.	First applications of the sealer did not achieve the proper depth of penetration.	Y	Y	Y	Revised application procedure and warranty were provide on December 23, 2019.	C
2	2B	MWAA to provide Report on the fatigue and stress analysis of the frog plates.	Frog plates are not flat and there is concern that the flexure could result in fatigue failure.	N	N	N	Report to be provided at the February 2019 PMOC Monthly Update Meeting.	O
2	2B	MWAA to provide a tabulation of the yard fouled ballast test results at the January 2020 PMOC Monthly Update Meeting.	There are areas of the yard where the ballast contains an excessive amount of fine materials resulting in drainage problems.	Y	Y	N	Areas of fouled ballast to be replaced with clean ballast.	O

#### KEY

Note: Items marked with a 'C' in the 'PMO Contractor Status' column will be dropped from future reports.

Subtask 2A CLIN 0002A – PMP Review

Subtask 2B CLIN 0002 – On-Site Monitoring

#### Priority (PR)

- 1- Most Critical
- 2- Critical
- 3- Least Critical

#### Grantee Action

- D – Remedial Action Developed
- A – Remedial Action Approved
- I – Action Implemented

#### PMO Contractor Status

- O- Open
- R – Review On-going
- C – Completed – No further review required

## **APPENDICES**

### **Appendix A – List of Acronyms**

ACMC	Atlantic Contracting and Material Company
AHJ	Authority Having Jurisdiction
Airport	Dulles Airport
AUP	Agreed Upon Procedures
BAFO	Best and Final Offer
BMP	Best Management Practices
Board	MWAA Board of Directors
CA	Conditional Acceptance ( 7K Railcars)
CDR	Contingency Drawdown Requests
CMAQ	Congestion Mitigation Air Quality
CPSM	Construction and Professional Services Manual (Commonwealth of Virginia)
CRC	Capital Rail Constructors
DB	Design-Build
DBE	Disadvantaged Business Enterprise
DBOM	Design-Build-Operate-Maintain
DBOM+F	Design-Build-Operate-Maintain-Finance
DCMP	Dulles Corridor Metrorail Project
DCR	Design Change Request
DE	Dominion Energy
DEQ	Department of Environmental Quality
DHR	Department of Historical Resources
DIAAH	Dulles International Airport Access Highway
DIDB	Disparate Impact and Disproportionate Burden
DRPT	Department of Rail and Public Transportation (Virginia)
DTP	Dulles Transit Partners, LLC
DTR	Dulles Toll Road
DVP	Dominion Virginia Power (now called Dominion Energy)
EA	Environmental Assessment
EPDM	Ethylene Propylene Diene Terpolymer (roofing system)
FIA	Fire and Intrusion Alarm
FONSI	Finding of No Significant Impact
FTA	Federal Transit Administration
FWSO	Federal WMATA Safety Oversight
HPCC	Hensel Phelps Construction Company
IFB	Invitation for Bid
IFP	Issued for Permit
IPP	Integrated Permit Package
LPA	Locally Preferred Alternative
MWAA	Metropolitan Washington Airports Authority
MWB	Maintenance of Way Building
NEPA	National Environmental Policy Act
NFPA	National Fire Protection Association
NTP	Notice to Proceed
NTSB	National Transportation Safety Board

OCIP	Owner Controlled Insurance Program
PIP	Property Identification Plans
PMOC	Project Management Oversight Contractor
PMSS	Project Management Support Services
PMP	Project Management Plan
PPP	Public-Private Partnership
PRBS	Proposed Revised Baseline Schedule
QA	Quality Assurance
QC	Quality Control
QMP	Quality Management Plan
QPP	Quality Program Plan
RAMP	Real Estate Acquisition Management Plan
RCMP	Risk and Contingency Management Plan
RFMP	Rail Fleet Management Plan
RFQ	Request for Qualifications
RFQI	Request for Qualifications Information
RFP	Request for Proposal
RFI	Request for Information
RBS	Revised Baseline Schedule
RSD	Revenue Service Date
SCC	Standard Cost Category
SCWG	Safety/Security Working Group
SHPO	State Historic Preservation Office
SIB	Service and Inspection Building
SSCD	Schedule Substantial Completion Date
SSMP	Safety and Security Management Plan
SSOA	State Safety Oversight Agency
STOMP	Safety and Security Oversight Management Plan (TOC)
SWM	Storm Water Management
SWPPP	Stormwater Pollution Prevention Plan
TBD	To Be Determined
TBS	Tie-Breaker Station
TIA	Time Impact Analysis
TOC	Tri-state Oversight Committee
TPB	Transportation Police Building
TPSS	Traction Power Substation
TWF	Train Wash Facility
USDOT	United States Department of Transportation
VDOT	Virginia Department of Transportation
VSF	Vehicle Storage Facility
VSMP	Virginia Stormwater Management Program
WB	Warehouse Building
WFC	West Falls Church
WHB	Warehouse Building
WMATA	Washington Metropolitan Area Transit Authority
WMSC	Washington Metrorail Safety Commission

## Appendix B – Project Overview

**Project Name:** Dulles Corridor Metrorail Project – Phase 2  
**Grantee:** Metropolitan Washington Airports Authority (MWAA)  
**FTA Regional Contact:** Andre Anderson - FTA Region III, DC Metro Office Engineer  
**FTA Headquarters Contact:** Dale Wegner, P.E. - FTA Headquarters, Project Manager

### Scope

**Description:** Phase 2 of the Project consists of the design and construction 11.4 route miles of new track from the interim terminus at Wiehle-Reston East Station through Washington Dulles International Airport to a terminus in eastern Loudoun County. The current Phase 2 project budget is \$2,778,235,564 exclusive of parking facilities and finance costs. (Overall cost is 3.126 B.)

**Guideway:** Phase 2 consists of 11.4 miles of elevated and at-grade guideway.

**Stations:** Phase 2 includes six new stations (Reston Town Center, Herndon, Innovation Center, Dulles Airport, Route 606 and Route 772 Stations).

**Support Facility:** Phase 2 includes a maintenance and storage yard facility at Dulles Airport, wayside facilities (including traction power substations, tiebreaker stations, stormwater management ponds along the alignment), and five new parking facilities with 8,900 parking spaces.

**Vehicles** Phase 2 includes sixty-four new railcars.

### Current Delivery Milestone Schedule

12/01/2009	Preliminary Engineering Commenced
02/29/2012	Preliminary Engineering Completed
07/08/2013	Package A Design-Build NTP issued
11/18/2013	Package S Design-Build NTP issued
08/18/2014	Package B Design-Build NTP issued
05/08/2015	MWAA TIFIA Loan Executed
	Package S Completed
91%	Percent Work in Place Complete at the date of this report (earned value)

100%\* Percent Project Schedule Complete at the date of this report

\*Based on SSCD of August 7, 2019

**Cost**

\$2,778,235,564	Total project cost in year-of-expenditure dollars (\$YOE) at the date of this report
\$2,251,603,141	Amount of expenditures at the date of this report from a total project budget of \$2,778,235,564
89%	Percent Complete expenditures at the date of this report. (This percentage does not include finance charges and contingency)
\$236,592,453	Total project contingency remaining (allocated and unallocated contingency)



## Appendix C – MWAA Safety and Security Checklist

<b>Project Overview</b>		Dulles Corridor Metrorail Project – Phase 2	
<b>Project Mode (Rail, Bus, BRT, multimode)</b>		Rail	
<b>Project Phase (Preliminary Engineering, Design, Construction, or Start-up)</b>		Design and Construction	
<b>Project Delivery Method (Design/Build, Design/Build/Operate/Maintain, CMGG, etc.)</b>		Design/Build	

<b>Project Plans</b>	<b>Version</b>	<b>Review By FTA</b>	<b>Status</b>
Safety and Security Management Plan	February 2017	Approved on August 8, 2017	MWAA submitted a revised SSMP on February 25, 2016 and PMOC provided comments to the FTA on March 28, 2016. MWAA's email of April 13, 2016 stated they had no comments on the revised SSMP. FTA accepted the Plan with comments on June 15, 2016. The 2017 update was submitted on April 12, 2017 and PMOC recommended FTA approval on April 27, 2017. PMOC provided additional comments on June 1, 2017, requesting the FWSO be added to the Plan. The issue regarding the FWSO has been resolved and FTA's letter of August 8, 2017 approved the revised plan.
Safety and Security Certification Plan			MWAA has adopted their contractors' SSCPs as the guiding certification documents. MWAA Accepted "CRC's SSCP on October 10, 2014. MWAA accepted as noted HPCC's SSCP on February 20, 2015. The SSCP was resubmitted on May 28, 2015, and returned "Accepted as Noted" on July 2, 2015. HPCC resubmitted the SCPP on October 8, 2015 and MWAA "accepted as noted" on November 11, 2015. The SSCP was resubmitted on December 9, 2015 and accepted by MWAA on December 21, 2015.

<b>Project Plans</b>	<b>Version</b>	<b>Review By FTA</b>	<b>Status</b>
System Safety Program Plan	January 2013		WMATA's 2014 SSPP is effective January 2014 and approved by TOC on April 25, 2014.
System Security Plan or Security and Emergency Preparedness Plan (SEPP)	3/2012	N/A	WMATA submitted a revised SEPP to TOC in March 2012, which the TOC approved on April 23, 2012.
Construction Safety and Security Plan (CSSP)			CRC's CSSP was accepted on December 13, 2013. The CSSP procedures were submitted on June 4, 2014 for information. CRC's CSSP was resubmitted in January 2015 and accepted on February 5, 2015. ACMC's CSSP was Accepted as Noted on December 23, 2014. HPCC's CSSP, Rev.1, was accepted by MWAA on December 15, 2014. The Procedures were accepted on March 5, 2015.

<b>Safety and Security Authority</b>	<b>Y/N</b>	<b>Notes/Status</b>
Is the grantee subject to 49 CFR Part 659 State Safety Oversight requirements?	Y	Washington Metrorail Safety Commission (WMSC)
Has the State designated an oversight agency as per Part 659.9?	Y	Washington Metrorail Safety Commission (WMSC)
Has the oversight agency reviewed and approved the grantee's SSPP as per 659.17?	Y	WMATA's 2018 SSPP was approved by the FWSO on June 22, 2018.
Has the oversight agency reviewed and approved the grantee's Security Plan or SEPP as per Part 659.21?	Y	WMATA SEPP approved on April 23, 2012.
Did the oversight agency participate in the last Quarterly Program Review Meeting?	N	WMSC last attended the QPRM on June 3, 2019.

<b>Safety and Security Authority</b>	<b>Y/N</b>	<b>Notes/Status</b>
Has the grantee submitted its safety certification plan to the oversight agency?	Y	
Has the grantee implemented security directives issues by the Department Homeland Security, Transportation Security Administration?	Y	WMATA will be operator. TSA representatives participate in the monthly SCWG meetings.

<b>SSMP Monitoring</b>	<b>Y/N</b>	<b>Notes/Status</b>
Is the SSMP project-specific, clearly demonstrating the scope of safety and security activities for this project?	Y	MWAA submitted a revised SSMP on February 25, 2016. FTA accepted the Plan with comments on June 15, 2016. The 2017 update, submitted on April 12, 2017 and PMOC recommended FTA approval on April 27, 2017. PMOC provided additional comments on June 1, 2017, requesting the FWSO be added to the Plan. SSMP, Revision 3 was approved by FTA on August 8, 2017.
Grantee reviews the SSMP and related project plans to determine if updates are necessary?	Y	
Does the grantee implement a process through which the Designated Function (DF) for Safety and DF for Security are integrated into the overall project management team? Please specify.	Y	
Does the grantee maintain a regularly scheduled report on the status of safety and security activities?	Y	
Has the grantee established staffing requirements, procedures and authority for safety and security activities throughout all project phases?	Y	

Does the grantee update the safety and security responsibility matrix/organizational chart as necessary?	Y	
Has the grantee allocated sufficient resources to oversee or carry out safety and security activities?	Y	
Has the grantee developed hazard and vulnerability analysis techniques, including specific types of analysis to be performed during different project phases?	N	Contractors (CRC and HPCC) are responsible for PHAs. A draft copy of the PHA was provided by CRC on June 25, 2014. CRC's Final PHA was submitted to MWAA on December 23, 2015. CRC began updating their PHA in early 2017 is expected to complete the review in the fourth quarter of 2017. HPCC's PHA was finalized on February 14, 2017. WMATA is responsible for TVA and selected a TVA Consultant in November 2016. The TVA consultant completed their TVA design review of Phase 2 on March 1, 2017.
Does the grantee implement regularly scheduled meetings to track the resolution of any identified hazards and/or vulnerabilities?	N	CRC and HPCC will resolve all identified hazards and vulnerabilities with final review by the SCWG.
Does the grantee monitor the progress of safety and security activities throughout all project phases? Please describe briefly.	Y	Yes, through SCWG.
Does the grantee ensure the conduct of preliminary hazard and vulnerability analyses? Please specify analyses conducted.	N	MWAA is developing the PHAs through its contractors, CRC and HPCC, and WMATA is responsible for the TVA.
Has the grantee ensured the development of safety design criteria?	Y	
Has the grantee ensured the development of security design criteria?	Y	
Has the grantee ensured conformance with safety and security requirements in design?	N	The safety and security requirement conformance process is ongoing and a report will be issued at the end of the design phase.

Has the grantee verified conformance with safety and security requirements in equipment and materials procurement?	N	This requirement will be met through Construction Specification Conformance.
Has the grantee verified construction specification conformance?	N	The construction specification conformance process is in progress and a report will be issued at the end of the construction phase.
Has the grantee identified safety and security critical tests to be performed prior to passenger operations?	N	
Has the grantee verified conformance with safety and security requirements during testing, inspection and start-up phases?	N	
Does the grantee evaluated change orders, design waivers, or test variances for potential hazards and /or vulnerabilities?	Y	Contractor is responsible for this evaluation.
Has the grantee ensured the performance of safety and security analyses for proposed work-arounds?	N	
Has the grantee demonstrated through meetings or other methods, the integration of safety and security in the following: <ul style="list-style-type: none"> <li>• Activation Plan and Procedures</li> <li>• Integrated Test Plan and Procedures</li> <li>• Operations and Maintenance Plan</li> <li>• Emergency Operations Plan</li> </ul>	N	
Has the grantee issued final safety and security certification?	N	
Has the grantee issued the final safety and security verification report?	N	

<b>Construction Safety</b>	<b>Y/N</b>	<b>Notes/Status</b>
Does the grantee have a documented/implemented Contractor Safety Program with which it expects contractors to comply?	Y	
Does the grantee's contractor(s) have a documented company-wide safety and security program plan?	Y	
Does the grantee's contractor(s) have a site-specific safety and security program plan?	Y	MWAA has accepted the contractor's Construction Safety and Security Plan.
Provide the grantee's OSHA statistics compared to the national average for the same type of work. If the comparison is not favorable, what actions are being taken by the grantee to improve its safety record?	Y	System in place, construction activities have started on Package A. Package B construction started in July 2015.
Does the grantee conduct site audits of the contractor's performance versus required safety/security procedures?	Y	MWAA has developed an Audit schedule. MWAA conducts audits every six months of the Construction Safety and Security and System Safety and Security for both Package A and Package B.

<b>Federal Railroad Administration</b>	<b>Y/N</b>	<b>Notes/Status</b>
If shared track: has grantee submitted its waiver request application to FRA? (Please identify specific regulations for which waivers are being requested)	N/A	This is a Heavy Rail Transit Project. There is no FRA involvement.
If shared corridor: has grantee specified specific measures to address shared corridor safety concerns?	N/A	
Is the Collision Hazard Analysis underway?	N/A	

Other FRA required Hazard Analysis – Fencing, etc.?	N/A	
Does the project have Quiet Zones?	N/A	
Does FRA attend the Quarterly Review Meetings?	N/A	

## Appendix D – Top 10 Project Risks

RCMP - Top Risks as of January 2019 Final			
Risk ID	Event Description	Primary Risk Mitigation	Risk Rating
80.03.P.292 Proposed NEW*	Owner management extended time due to Pkg A: 1-Replace camber in special rail ties 2- Delay start of ATC 3-Additional safe braking tests Pkg B delay post June 2016	MWAA to manage the overall program budget including PMSS, WMATA, VDOT, etc.. to minimize cost overruns.	40
80.08.P.296 Proposed NEW*	There is a delta between the number of safe braking tests that CRC propose to complete (18 in total) and the number that WMATA would accept (around 1500).	MWAA to continue the discussion with CRC and WMATA on the number of tests required. Based on the results of the 1st safe braking test WMATA may consider reducing the number of tests. CRC to consider 2 shifts for testing.	35
80.02.D.240	Package B claim for Design delays beyond June 1, 2016	1) Spot mitigation of issues as they arise 2) Expediting owner reviews, negotiating acceleration, coordinating with management. 3) Airports Authority has notified that HP is responsible for some of the delay due to slow construction progress.	30
80.03.P.297 Proposed NEW*	HP has verbally informed MWAA of their intent to file a 'Delay and Disruption' Claim	Continue to document HP activities, particularly in their continuing need to rework to correct flawed installations, inability to produce timely designs and poor track performance	20
80.08.P.294 Proposed NEW*	WMATA Safety (SAFE) is a Department that is separate and operates in autonomy from WMATA project office. It may require scope beyond contract.	The WMATA, MWAA and Package Contractors work together where possible to deal with and mitigate issues that might impact the project SSCD and maintain project safety.	16
80.03.C.2	Request for Equitable Adjustment Part 2 (REA-2) (for changes included in CO-66 and for changes after CO-66 that have not been finalized) (Cumulative claims / Total Cost)	Project Team Will review details once the native schedule file is submitted. PT is also looking at CRC's performance, progress delays and reworks to refute the claim.	15
10.C.293 Proposed NEW*	Excessive camber in special rail ties	Work with CRC and WMATA to establish acceptable plan for fixing or replacement of the ties: 1) Identify ties that need fixed/replace, 2) Have CRC submit new QA/QC plan for the ties, 3) Expedite replacement of ties, 4) Direct cost will be absorbed by CRC .	12
80.03.C.4	Litigation costs including owner management	1) Promote good faith approach amongst all parties 2) Ensure timely & proactive resolution of the issues 3) Collective agreement on clear "burden of proof" & accountability for the delays 4) Minimize any further changes 5) Early collective efforts of contract, project controls and legal team.	12
20.R.300 Proposed NEW*	Code compliance issues associated with Air Conditioning Equipment in elevator and escalator machine rooms	Work closely with CRC and AHJ on solution and code reviews. Consider reduction in equipment size or type; need for compliance with energy code; relocation/redesign of equipment. Focus efforts on stations by proposed turnover sequence	12

\* Proposed NEW item and Top Risk



## **Appendix E – Phase 1 Closeout**

MWAA continues with close out activities for Phase 1. VDOT and MWAA continue to work toward resolution of the VDOT Punch List. *MWAA submitted an updated draft schedule for VDOT repairs dated January 8, 2020 that indicates that all VDOT work will be completed on June 30, 2020. The delay is due to the delay in utility company relocations at Old Meadow Road and extended time to complete the Dulles Connector Road (DCR) left shoulder repairs.*

MWAA met with DTP on December 14, 2016 to present the work that DTP is to complete. Bechtel Corporation, as the parent guarantor for DTP, entered into negotiations with MWAA for the completion of the work. Bechtel, at a December 18, 2017 meeting with MWAA, agreed to repair all defective stormwater piping. MWAA reported the cost of these repairs will be funded jointly by Bechtel and MWAA. MWAA and Bechtel negotiated an agreement covering this work. Construction began on July 2, 2018. Bechtel has completed their work and final videos have been submitted to VDOT which were approved. The MWAA/Bechtel contract has been closed. MWAA's cost was \$526,980.98.

MWAA reported the Task Order for the design of Old Meadow Road was negotiated, and cost of the final design is \$382,737. The Notice to Proceed was issued on March 20, 2017. ROW/Utility coordination meetings have been held *and utility relocation has been completed with the exceptions of Zayo and Summit.* Old Meadow Road construction is expected to be completed by June 5, 2020.

The closeout of the FFGA is expected to occur in several years following payment of final Project costs with regard to the first 64 rail cars, which is expected to extend until 2021.

*In December 2019, ten full time equivalents were working on Phase 1 which is the same as November 2019 actual headcount.*

## **Appendix F – PMOC Evaluation Team**

### **Michael Radbill, PE, F.ASCE, Program Manager**

Mr. Radbill is responsible for oversight of this Task Order. He was assigned to this Task order at the end of March 2012 when he joined Hill. Mr. Radbill has over 40 years of technical and management experience in the construction of federal, state, local, and private projects, which types include public transportation, power generation, petrochemical, correctional, military, aviation, commercial, hotel, and others. Skills and management accomplishments include project manager for owner/contractor; analyzing and reporting on quality issues on FTA funded urban transit, and petrochemical construction projects; course designer and principal instructor for FTA sponsored project management course; instructor for FTA sponsored quality assurance/quality control (QA/QC) training course; reviewer for two FTA sponsored Guidelines; drafting and editing general and special conditions of the contract for FTA funded public transportation projects; lead civil field engineer for contractor on construction of fossil and nuclear power plants; developing, updating, and analyzing critical path method schedules; facilitating partnering for construction projects; testifying as an expert at trial regarding delays and damages; arbitrating construction disputes; writing and updating design and construction contracts and specifications.

### **Mathew Trzepacz, PE, Task Order Manager**

Mr. Mathew Trzepacz, P.E., PhD, is responsible for oversight of this task order. He has over 40 years of experience in progressively responsible positions managing transportation design, maintenance, and construction. He has been the Project Manager for assignments in the FTA's PMOC Program in Regions 2, 4, and 8 for over eight years. He also developed the training manual and was an instructor for the National Transit Institute's course on the Management of Transit Construction Projects, which was established for the FTA. Mr. Trzepacz was previously responsible for a staff of professional engineers and maintenance forces as Chief Engineer for the Southeastern Pennsylvania Transportation Authority (SEPTA).

### **John Lehman, PE, Rail Equipment Engineer**

John Lehman has over 35 years of experience in the transportation sector. Mr. Lehman has directed multi-disciplinary, multi-national engineering design teams on rail car manufacturing and large construction projects. He specializes in heavy equipment design, maintenance and operations, construction, and operations analysis for rail car procurement, rail manufacturing facilities and car repair and locomotive servicing facilities. Mr. Lehman has prepared engineering and economic studies on equipment selection, maintenance, transportation operations, and plant location.

### **Edward F. Nicholson, PE, Systems Integration Manager**

Mr. Nicholson, P.E., has over 36 years of experience and has served as Senior Rail Planning Engineer, Superintendent of Signals, Communications, and Superintendent of Transportation for the Port Authority Trans-Hudson Corporation (PATH). During his employment at Hill, among other assignments, Mr. Nicholson has performed PMOC oversight reviews and assessments on the Dulles Corridor Metrorail Project, Washington Metropolitan Area Transit Authority Projects, the Weber County Commuter Rail, and Mid-Jordan Projects in Salt Lake City, and the Central Florida Commuter Rail Project.

**Judy R. Mewborn, CCM, Construction Management Manager**

Ms. Mewborn has over 30 years of experience in the construction field performing such duties as capital program manager, senior project/construction manager, project control, facilities condition assessment, design management, surveying, planning, space programming, and the production of design and construction documents. Her experience also includes acting as a client representative Project Manager on federal and local government projects. Additional experience includes project management on educational, hospitality and commercial projects, as well as designer and project assistant on residential projects.