

MONTHLY MONITORING REPORT

March 2019

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

Metropolitan Washington Airports Authority
Washington, DC

May 20, 2019

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

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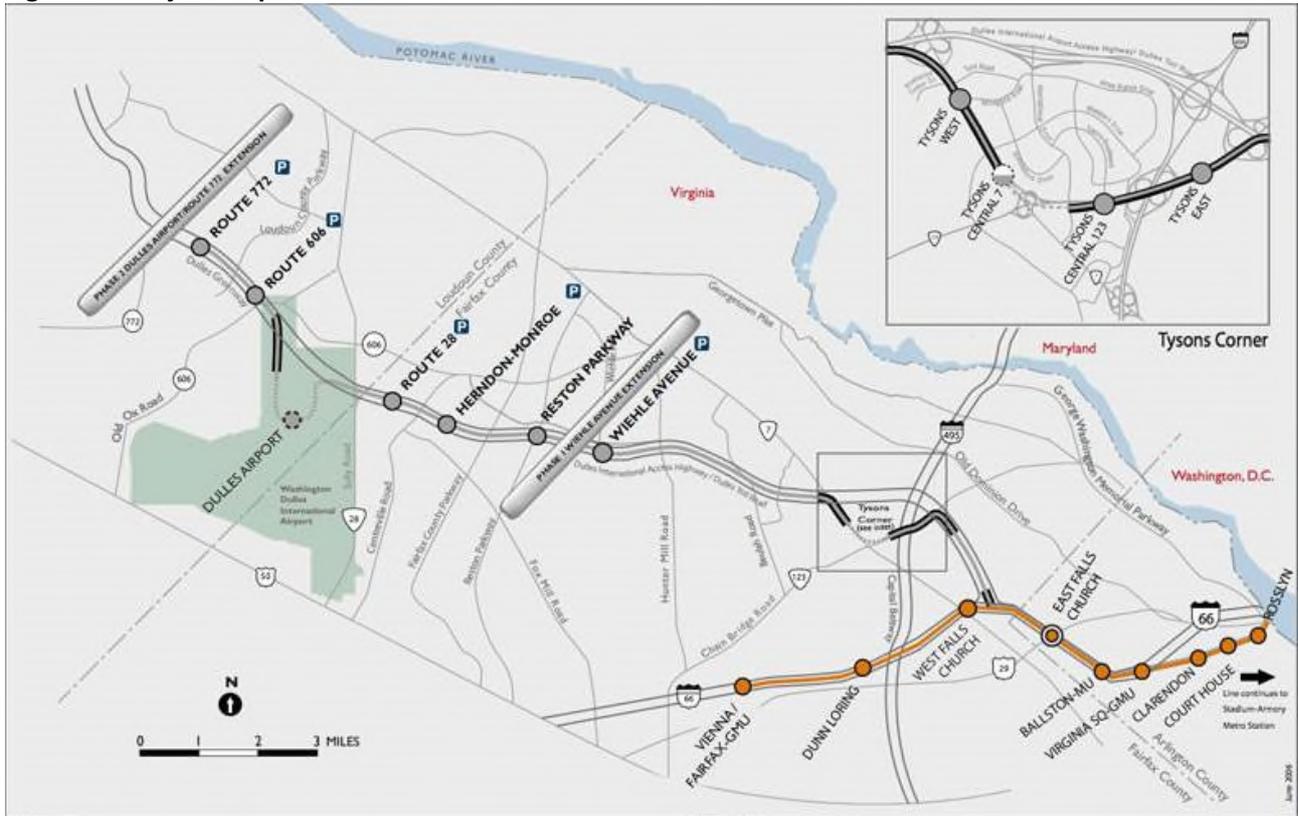
EXECUTIVE SUMMARY

The FTA and Project Management Oversight Contractor (PMOC) met with the Metropolitan Washington Airports Authority (MWAA) on April 10, 2019 for the Monthly Project Update Meeting 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.

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-Reston East 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. *At the end of March 2019, the project was 82% complete based on expenditures.* 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 with their *latest schedule through February 2019 forecasting a SSCD of February 8, 2020, representing 185 days of delay.* MWAA has repeatedly rejected CRC’s schedules as “Not Accepted” for a number of reasons (see the Schedule section of this report for details). Although the latest MWAA Project Master Schedule through March 1, 2019 continues to show the contractual SSCD as August 7, 2019, the contractor’s forecast substantial completion is February 8, 2020. MWAA’s Project Master Schedule through March 1, 2019 indicates the baseline Revenue Service Date (RSD) to be March 31, 2020. However, the MWAA Project Master Schedule now indicates a RSD of July 2020. MWAA’s Project Master Schedule is merely a compilation of schedule data from CRC, Hensel Phelps (HP), WMATA and the counties of Fairfax and Loudoun. MWAA’s Project Master Schedule does not reflect a reconciliation of the conflicting completion dates, and cannot be considered a true project master schedule.

Core Accountability Information

Table 1

TIFIA Core Accountability Items			
Project Status		Original at TIFIA Closing	Current Estimate (EAC)
Cost	Cost Estimate	\$2,778,235,564	\$2,778,235,564
Contingency	Unallocated Contingency	\$551,451,179	\$260,704,735
	Total Contingency (allocated plus Unallocated)	\$551,451,179	\$260,704,735
Schedule	Revenue Service Date	1/31/19	July 2020
		Amount (\$)	Percent (of total)
Planned Value to Date	Total budgeted cost of work scheduled to date	\$2,265,286,567	90%
Earned Value to Date	Budgeted cost of work completed to date, i.e. actual total value of work earned or done	\$2,137,439,502	85%
Actual Cost	Total cost of work completed to date (<i>actual total expenditures</i>)	\$2,060,323,988	82%

**TIFIA
Core Accountability Items**

		Amount (\$)	Percent (of total)
Contracts	Total contracts awarded to date	\$2,405,685,281	98%
	Total construction contract awarded to date (construction contracts only)	\$1,733,297,020	70%
	Physical construction work completed (amount of construction contract work actually completed)	\$1,496,445,805	86%

Major Issues	Status	Comments / Planned Action
SWM changes to Package A	Change resulted in 13 month schedule delay. Construction cost yet to be negotiated.	<i>The construction cost is expected to be part of the global settlement at the end of the contract.</i>
MWAA's extended management costs due to 13 month delay.	Cost yet to be finalized.	<i>Final audit needs to be completed.</i>
<i>Delays to both Package A and Package B</i>	<i>The February 2019 contractor schedule updates indicate Package A is delayed 185 days and Package B is delayed 514 days which, if correct, result in a substantial delay in the Revenue Service Date.</i>	<i>MWAA has not accepted either contractor's schedule update for over a year and a half. MWAA continues to work with each contractor to improve the schedules with little success to date. MWAA's Project Master Schedule through March 1, 2019 now indicates a RSD of July 2020.</i>
<i>Non- Buy America compliant overhead cranes in Service and Inspection Building</i>	<i>Five overhead bridge cranes purchased for installation in the Service and Inspection Building at the Yard do not meet Buy America requirements and will may have to be replaced. Three of the cranes are already installed.</i>	<i>MWAA will request that prime contractor for the Yard, Hensel Phelps (HP), submit a new Buy America certification from Demag under the manufactured product standard (49 CFR 661.5).</i>
Date of Next Quarterly Meeting (if known):		<i>June 3, 2019</i>

Major Problems/Issues

1. Stormwater/Early Design Changes in Package A have resulted in a thirteen-month delay to the Project's construction substantial completion date to August 7, 2019. MWAA reported the *Package A contractor's* thirteen-month time delay claim was settled for \$95M. The additional construction costs related to the Stormwater/Early Design Changes have yet to be finalized; *although, the Package A Contractor's Request for Change (RFC) was valued at \$21.8 million*

and the credit offered for the original stormwater design standard was \$6.9 million. MWAA has directed the contractor to proceed with the additional work on a time and materials basis.

2. On December 19, 2019, the Senior Vice President of the Project stated that the Maintenance Yard opening date has been delayed at least 115 days. WMATA has stated they cannot open rail service without the yard. *The February 2019 contractors' schedule updates indicate a substantial completion date for Package A of February 8, 2020 (185 calendar days late) and for Package B of May 19, 2020 (514 calendar days late) which will delay the Revenue Service Date. MWAA has been working with both contractors to improve their schedules for nearly two years with little effect.*
3. Five overhead bridge cranes purchased for installation in the Service and Inspection Building (SIB) at the Yard *have been certified by the Package B contractor, Hensel Phelps, as being Buy America compliant based on a designation of the equipment as rolling stock. FTA, upon request from MWAA, has indicated that the cranes do not qualify as rolling stock, and are non-compliant as certified. MWAA will request that prime contractor, HP, submit a new Buy America certification from Demag under the manufactured product standard (49 CFR 661.5). This could result in a delay to the scheduled completion, if the cranes cannot be re-certified and new overhead cranes have to be purchased and installed.*
4. Elevator/escalator rooms along the mainline and at the yard do not meet code clearance requirements *around the elevator/escalator equipment.* Various options are being investigated including replacing the equipment with smaller units. *This could impact the schedule if the code clearances can't be provided in a timely manner to obtain permits.*
5. On May 16, 2018, the Department of Justice (DOJ) unsealed their filing against Universal Concrete Products Corporation for violations of the False Claims Act. As part of the filing, the DOJ alleges that the aggregate being used in the precast concrete panels was from an unapproved quarry and failed to meet industry standard requirements, including alkali-silica reaction (ASR1) testing. MWAA and CRC ordered independent petrographic examination of the sand, aggregate, and concrete core samples obtained from the panels in order to determine the ASR susceptibility of the materials. The findings were that there is currently no evidence of ASR in the materials and a low potential for formation in the future. However, additional evaluation was recommended given the age of the concrete and the unknown field performance record of the sand and aggregate. WMATA has not commented on the findings, and has suggested that they will defer comment until the conclusion of the WMATA OIG's review of construction and concrete quality on the project. The WMATA OIG has not provided a timeline for conclusion of its review. *This could have a negative impact on the scheduled revenue service date if WMATA does not accept the proposed remediation. In the meantime, MWAA has directed the Package contractor to proceed with applying a waterproofing treatment to the panels.*
6. In September 2018, MWAA reported that intermediate-length concrete ties at crossovers along the mainline were found to have excessive negative camber; meaning that they had deformed more than the one-half inch allowed in the project specifications. MWAA has informed CRC that the ties must be replaced prior to substantial completion. *The preliminary results of a re-survey of the crossovers indicate the cross levels can be brought within tolerance by re-tamping the ballast in affected areas. Final results of MWAA's re-survey of the crossovers are being compiled. Cross level measurements of some 500 intermediate ties in the yard found only six ties*

to have minor out of tolerance measurements. If a significant number of mainline crossover ties have to be replaced, it is likely to cause a delay to the schedule.

7. 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). Based on MWAA's consultant's evaluation it appears that most of the cracking is the result of panel shrinkage around rigid foundation connections. The contractor has been directed by MWAA to reevaluate the precast concrete panel connection system, remediate the connections and mitigate the restraint. WMATA's refusal to accept the proposed remediation could result in a schedule delay to the revenue service date.
8. The windscreen bearing pedestals at the Dulles Airport Station exhibited cracking and investigation revealed a lack of confining reinforcement and damaged bearing plate anchors. The contractor responded to MWAA's comments on the formal submittal of the design change and is working on the analysis of the bearing boxes. The remediation could pose a delay to the Package G contractor's work resulting in a potential cost impact.
9. During February 2019 the contractor experienced spurious activation of several surge arrestors in TPSS#15 and TPSS#17. The devices have been sent back to the manufacturer for evaluation and the contractor is preparing a root cause analysis of the incidents for further evaluation. The conclusions from the root cause analysis could result in a delay to acceptance of the traction power facilities and the revenue service date.

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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 is as follows:

Table 2

Contract	Description	Planned Substantial Completion	Construction Status
Package A	Rail Line, Station, Systems Contract	08/2019	<i>91% complete</i>
Package B	Maintenance Facility	05/2020	<i>97% complete</i>
Package S	Maintenance Facility Site Preparation	--	Completed in December 2014
Package G	Screenwall at Dulles Station	08/2020	<i>Responses to the 100% design review comments are being reviewed.</i>
Package P	Stormwater Ponds	06/2021	<i>Design 65% complete</i>
Package K	Project Closeout		
Herndon Station	Parking Garage	04/2019	<i>100% complete</i>
Innovation Center Station	Parking Garage	04/2019	<i>70% complete</i>
Loudon Gateway Station	Parking Garage	10/9/2019	<i>81% complete</i>
Ashburn (Route 772) North	Parking Garage	--	Completed in January 2018
Ashburn (Route 772) South	Parking Garage	7/25/2019	<i>85% complete</i>

Construction – Package A

As of January 1, 2017, MWAA reported all aerial substructure and support work had been completed. As of September 1, 2017, all the deck spans had been poured. Structural crews have set the pedestrian bridges at the Herndon, Reston Town Center, and Innovation Center Stations.

During March 2019 the Contractor continued the relocation of the Dulles Toll Road (DTR) south of the Herndon Station for accessing the kiss and ride area and allowing the realignment of the DTR for Herndon Station. The Innovation Station sanitary line was exposed to allow rework of the line to the appropriate slope per the specifications. The contractor is hand mining to ensure the proper elevation and slope of the line. This line was originally directionally bored; however, during the drilling for this line the operator lost the drill and deviated from the intended path causing a dip at the midpoint of the drain line from the station. The stormwater management ponds were constructed as access became available. Grounding of the fencing continued prior to energization of the guideway and the access of WMATA rail vehicles. Median barrier walls were cast in their final configuration between the DTR and the Dulles International Airport Access Highway (DIAAH). Stormwater drainage lines were installed along Edmund Halley Drive as the roadway reconfiguration continued.

Power and communication lines continue to be relocated to allow clearance from top of rail on the east and west sides of Ashburn Station. The overhead lines have been removed and relocated. Communication and electric lines were relocated along Edmund Halley Drive roadway relocation.

Herndon Station – Station ceiling grid installation continued in the station and on the pedestrian bridges. Ceramic tile was placed in the public restrooms. Elevator and escalator work continued in the north pavilion and south pavilion. Glazing and trim work continued in the pavilions.

Innovation Station – Finish work continues on the station and pavilion. Finishes are being applied to the station with ceiling grids and lighting fixtures. Plumbing fixtures were installed and finish tile was placed in the restrooms. Station elevator and escalator trim was installed.

Reston Town Center Station –Detailing of the north and south pavilion elevators and escalators continued. The installation of roofing trim and ceiling grid continued in the station and on the pedestrian bridges. Trim installation continued within the station.

Dulles Airport Station – The installation of station lighting and ceiling grid framing continued in the mezzanine ceiling. Granite treads were placed on the staircases. Station mezzanine paver installation continued, as did the installation of station louvers.

Loudoun Gateway Station – Installation of station vault roof skylight glazing continues. Electrical cable pulling continues throughout the station. Station and pedestrian bridge ceiling grid and panel installation trim work continued in March. Station ceramic tile work also continued.

Ashburn Station - Roof work continues, as does mechanical, electrical and plumbing rough-in work. Elevator and escalator work continues in the station and north and south pavilions. Work also continues with detailing of the pedestrian bridges and ceiling grid and panel installation.

Rail and switches along the at-grade guideway in the DIAAH median up to the Phase 1 tie-in were made ready for energization and test train movement. Rail and switches along the Greenway median were aligned into their final position up to and beyond the Ashburn Station. Cable trough lids were installed along the aerial and west at-grade guideways.

Emergency trip station panels were installed, wired and tested along the east at-grade guideway up to the Phase 1 tie-in. Electricians continue installing jumpers and bonds on the at-grade track. Power and train control cables were installed in cable troughs throughout the western section of the aerial guideway and along the at-grade guideway west to the Ashburn Station. Guideway mounted equipment for train control and switch operation continued to be installed on at-grade ballasted guideway from Reston Station through Loudoun Gateway Station. TPSS and station equipment was tested and final connection verification of this equipment continued prior to applying power to these downstream pieces of equipment and facilities.

Communications cables were installed along the alignment and communications rooms were equipped with racks and interconnecting cables were installed and terminated. Intrusion detection cabling and panels were installed on the at-grade guideway fencing from the Phase 1 tie-in to the at-grade guideway west toward the Ashburn Station.

Traction power connections were made to the contact rail and testing of these connections was done along the aerial guideway and into the east at-grade guideway in the area that has been readied for future dynamic testing. Testing along the guideway from TPSS #17 through the Dulles Station and east to the Innovation Center Station continued. The guideway east to the Wiehle Tie-in was energized in preparation for train movement and dynamic testing.

Construction – Package B

As of the end of March 2019, work is continuing to progress on four major buildings in the Maintenance Facility. During the month, the Contractor performed remedial work on the restraining rail on the inner loop tracks. The installation of perimeter fencing and bio-retention ponds continued. Work on the sanitary main remains on hold awaiting the relocation of overhead power lines.

Installation of industrial equipment and equipment testing continued in the Service and Inspection Building (SIB). The installation of doors and hardware also continued. Punch list work continues.

Elevator work continued in the Maintenance of Way Building (MWB). Punch list work continues.

Interior finish work continued in the Transportation Building (TB). Testing of industrial equipment continued as did punch list work in the TB. Punch list work continued in the Warehouse Building (WB). The installation of industrial equipment continued at the Train Wash Facility (TWF). Roofing installation continued in the Storage Bins and Vehicle Storage Facility. Testing of yard train control cabling continued throughout the site. The installation of switches, signals and insulated joints 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 90% design submitted on November 1, 2018 has been reviewed and comments have been returned to the contractor. The comment resolution meeting was held on December 5, 2018. *Comments on the 100% design submittal were forwarded to the contractor on February 21, 2019 and a comment resolution meeting was held. The design package was submitted to the Authority Having Jurisdiction on March 26, 2019.*

The pre-construction meeting with HGS, LLC for Package P (Stormwater Management Ponds) was held on June 14, 2018, and 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. The design permit package was submitted to the Department of Environmental Quality (DEQ) and returned with comments. The schedule for performing the work has been submitted and MWAA advises that it will be accepted with comments. *There are three pond packages. The first has reached the 100% level of completion and the second has reached the 65% level of completion. Comments on both submittals were sent to the contractor on March 28, 2019. The 65% design for the third package is expected at the end of April 2019.*

Parking Facilities (formerly Package C)

Fairfax County is responsible for two parking facilities: one at the Innovation Center Station and one at the Herndon 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 County's 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. Fairfax County had a formal groundbreaking for the Herndon Garage on November 30, 2016. The County received the contractor's detailed construction schedule on January 20, 2017. 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. Construction remains at 65% complete due to the stop work order 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 not been submitted. The garage is expected to be completed on December 31, 2019.

Loudoun County is responsible for three parking facilities: one at the Route 606 Station and two at the Route 772 Station.

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 both garages is May 30, 2019. MWAA is the Authority Having Jurisdiction (AHJ) for the Ashburn South Garage, and Loudoun County is the AHJ for the Loudoun Gateway Garage. Loudoun County reports permits for the construction of both Ashburn South and Loudoun Gateway Garages have been obtained. Construction has begun on the installation of footings and drainage at Ashburn South. Installation of footings at Loudoun Gateway will begin when weather permits. Loudoun County and the Design-Build Contractor met with the fabricator of the external precast structure and all materials have been confirmed and fabrication has begun. 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 Ashburn South Garage is 85% complete and is estimated to be completed by the end of July 2019 which is two months behind schedule. Loudoun Gateway Garage is 81% complete and expected to be completed at the end of September 2019 which is four months behind schedule. Both garages are expected to be completed before the Revenue Service Date.

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

Real Estate Acquisition

MWAA's report indicating the status of the Property Acquisitions through March 2019 is shown in the following table. Although acquisition of ten properties remains to be completed, there has been no impact to construction since rights of entry have been secured for all properties.

Figure 2

*Dulles Corridor Metrorail Project
Extension to Dulles Airport / Route 772*

Property Acquisition Status

Priority	Total Anticipated ¹	PIP ² Complete	Initial Appraisal Complete ³	Revised PIP/ Appraisal Pending ⁴	Offer Made ⁵	Revision in Process	Settlement Reached/ Condemnation Processed ⁶	Acquisition Complete ⁷
1	9	9	9	0	9	0	8	8
2A	27	25 ⁸	26	0	26	0	25	21
2B	20	20 ⁹	20	0	20	0	20	16
Total¹⁰	56	54	55	0	55	0	53	45

Right of Entry (ROE) Status:

- Full Access for Construction provided for acquired parcels and Parcels 237, 226, and 211.
- 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.

¹ Total based on current understanding. Two new acquisitions added in September 2018 due to a newly identified expanded TCE by CRC for wall construction on Parcels 311 and 509. These will be incorporated into ongoing acquisitions for Parcels 211 and 309

² PIP = Property Identification Plan.

³ Initial appraisals complete for all Priority 1 Parcels 207, 214, 220, 237, 262, 255, 253, and 254. The appraisal for Parcel 258 is not needed since it was dedicated to Loudoun County prior to being made available to the Project. Appraisals complete for Priority 2 Parcels 231, 238, 240, 275, 276, 256, 320, 264, 271, 251, 266, 261, 228, 249, 260/360, 224, 259, 349, 208, 225, 209, 210, 357, 281, 225, 226, 211, 227, 212, 267, 263, 328, 252, 269, 358, 204, 205, 268, and 265, 308, 309, 366, and 509. Appraisals for the dedicated parcels, Parcels 236, 336, 235, and 257 are not needed since the landowner is not subject to condemnation.

⁴ New appraisal for Parcel 237 completed in September 2018.

⁵ 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 (June 2017), 210, 252, 269, 328 (including revision to Parcel 228), 263, 358, 357, 205, 204, 268, 212, 267, 265, and 509. Negotiations ongoing for Parcels 237, 226, 210, and 265. Appraisal and offer revised for Parcels 226, 212, and 267 (latter two pending due to new ROW dedication by landowner). 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.

⁶ 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, 269, 268, 210, 226, 212, 267, and 509.

⁷ 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, and 358. Dedications of ROW for Parcels 308, 309 and 366 are in progress. Parcels 253 and 271 offers rescinded; no further action required. Parcels 236, 235, and 257 dedications completed.

⁸ Priority 2A PIP status: PIPs have been completed for all Priority 2A parcels except Parcels 509 and 311. Parcels 240, 238, 231, 275, 276, 264, 320, 271, 256, 266, 251, 249, 265, 358, 236, 281, 336, 349, 252, 269, 328, 263, 308, 309, and 366. PIPs Accepted by MWAA. Parcel 236 and 336 completed as a proffered dedication.

⁹ Priority 2B PIP status: PIPs have been completed for all Priority 2B parcels. MWAA Accepted PIPs for Parcel 261, 228, 260/360, 259, 224, 257, 357, 235, 225, 226, 212, 267, 211, 208, 209, 210, 227, 204, 205, and 268.

¹⁰ 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.

March 31, 2019

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 the table *below*.

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 prepared an Environmental Assessment covering the preliminary engineering design refinements for Phase 2, and issued it for public review on May 10, 2012. The FTA Regional Administrator issued a Finding of No Significant Impact (FONSI) on December 17, 2012, that stated there were “no significant environmental or socioeconomic impacts associated with the design refinements for Phase 2 of the Dulles Corridor Metrorail Project.” FTA cautioned that should there be any changes in the location of the parking facilities by the counties, or if they need any additional property for the construction of the parking facilities, MWAA must notify FTA immediately to determine if the environmental documents would need revisions.

MWAA submitted a letter regarding the environmental re-evaluation for the DCMP Phase 2 parking garage refinements to the FTA on June 4, 2015. FTA’s concurrence letter dated August 10, 2015 was received on August 11, 2015.

MWAA last updated their Summary Matrix of Environmental Mitigation Measures to FTA on January 22, 2019 for the fourth quarter of 2018.

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 *February 28, 2019*.

PMP Final Version 2.2 was submitted to the FTA on January 31, 2017; and PMOC recommended the FTA approve the document with comments on February 8, 2017. FTA approved the Project Management Plan Final Version 2.2 with comments on April 6, 2017. The draft update of the PMP, Version 3.0 was submitted on March 30, 2018 and PMOC submitted its review comments to MWAA on May 8, 2018. The major concern is that the revised PMP does not indicate the position of Manager of Systems Testing and Commissioning in the organization charts and does not designate the individuals who are to fill the positions. Subsequently, MWAA submitted PMP Version 3.0 on March 30, 2018 and PMP Version 3.1 covering the Testing and Start-up Phase of the Project on June 28, 2018. PMOC provided comments to both submissions. MWAA submitted the Pre-Final PMP Version 3.1 on November 30, 2018 and PMOC provided comments on January 8, 2019. *MWAA formally submitted the Final PMP Version 3.1 on February 26, 2019 which is under review by PMOC.*

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.

Safety and Security Management Plan (SSMP), Revision 3 dated February 28, 2017 was approved by FTA on August 8, 2017.

Risk and Contingency Management Plan (RCMP) - MWAA submitted the Final RCMP, Revision 3.0 on January 22, 2018. PMOC had a few comments which MWAA incorporated into the RCMP on February 1, 2018. PMOC recommended FTA approve the RCMP on February 5, 2018. FTA approved the RCMP, Revision 3.0 on March 6, 2018.

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.

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 March 2019 is 1832, an overall increase of 4% from the February 2019 actual count of 1770. The estimated March 2019 numbers are indicated in the table below.

Table 4

MWAA	33
Virginia Department of Rail and Public Transportation (DRPT)	1
Virginia Department of Transportation (VDOT)	4
Washington Metropolitan Area Transportation Authority (WMATA)	42
Project Management Support Services	110
Capital Rail Constructors (CRC) – Package A	1,339
Hensel Phelps Construction Company (HPCC) – Package B	288
WM Schlosser – Package G	7
HGS – Package P	8
Total	1,832

Project Controls

MWAA has developed project management procedures with regard to monitoring and controlling project scope, quality, schedule, cost, contingency management, and safety. FTA approved PMP Version 2.2 on April 6, 2017. 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 February 28, 2019. Dollar values are included for the latest assessment period.

Figure 3

PRIME CONTRACTS	DBE GOAL %	DBE CONTRACTS AWARDED (DBEC/TC)	NEW DBE AWARDS FEBRUARY 2019	DBE CONTRACTS AWARDED TOWARD GOAL	DBE GOAL ACHIEVED (DBE Pmts/TC)	DBE PAYMENTS FEBRUARY 2019
PreEng - PRELIMINARY ENGINEERING	0%	15.77%	\$0	N/A	15.77%	\$0
PMSS - RAIL OFFICE	25%	24.47%	\$0	97.87%	20.05%	\$1,221,997
PKG A - DESIGN BUILD CONTRACT	14%	16.17%	\$3,789,062	115.47%	10.80%	\$379,029
PKG B - RAIL YARD AND MAINTENANCE FACILITY	14%	14.96%	\$36,577	106.84%	12.17%	\$734,032
PKG S - SOIL STOCKPILE RELOCATION	25%	37.53%	\$0	150.11%	21.49%	\$0
PSI - SPECIAL INSPECTION SERVICES	15%	18.34%	\$0	122.25%	17.23%	\$0
ROW - REAL ESTATE ACQUISITION	25%	21.70%	\$0	86.80%	13.29%	\$0
CHANGE ORDER & CLAIM STATUS	20%	7.47%	\$0	37.36%	7.47%	\$30,000
PKG G - DESIGN BUILD CONTRACT	15%	20.85%	\$0	104.25%	0.00%	\$0
PKG P - SWM FACILITIES	25%	25.00%	\$30	100.00%	0.13%	\$33,730
TOTALS			\$ 3,825,670			\$ 2,398,788

- Davis-Bacon Act Verification** – MWAA is reporting Davis-Bacon Act verification activities in the Monthly Progress Report. As of the *February 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 February 28, 2019* is shown below.

Figure 4

Dulles Corridor Metrorail Project - Phase 2
All Packages Cost Summary by SCC Code, February 2019

FTA SCC CODE	DESCRIPTION	ORIGINAL BUDGET ¹	BASELINE BUDGET ²	EXPENDITURE IN FEBRUARY	EXPENDITURE TO DATE ⁴	ESTIMATE AT COMPLETION ⁵	CONTINGENCY TO DATE
10	Guideway and Track Elements	\$ 344,946,326	\$ 167,928,670	\$ 111,565	\$ 192,137,749	\$ 207,986,934	\$ 8,306,234
20	Stations	\$ 228,424,057	\$ 231,928,000	\$ 5,035,945	\$ 184,561,430	\$ 235,148,620	\$ 20,684,813
30	Yards, Shops, Administration Buildings	\$ 229,857,097	\$ 213,730,843	\$ 7,635,849	\$ 205,605,748	\$ 234,679,331	\$ 19,374,488
40	Site Work and Utility Relocation	\$ 394,075,868	\$ 571,790,853	\$ 5,261,670	\$ 622,007,277	\$ 726,950,432	\$ 158,048,753
50	Systems	\$ 193,794,178	\$ 215,516,247	\$ 2,753,791	\$ 155,965,122	\$ 230,310,903	\$ 25,158,877
60	Right of Way Acquisition	\$ 58,523,267	\$ 58,600,000	\$ 80,420	\$ 25,965,239	\$ 57,316,200	\$ -
70	Vehicles	\$ 212,765,000	\$ 213,613,334	\$ -	\$ 133,752,665	\$ 187,489,735	\$ (24,565,599)
80	Professional Services	\$ 564,398,592	\$ 577,387,366	\$ 7,866,219	\$ 540,328,758	\$ 637,648,674	\$ 60,027,950
90	Contingency ³	\$ 551,451,179	\$ 527,740,251	\$ -	\$ -	\$ 260,704,735	\$ (267,035,516)
TOTAL PROJECT COST		\$ 2,778,235,564	\$ 2,778,235,564	\$ 28,745,459	\$ 2,060,323,988	\$ 2,778,235,564	\$ -

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 match 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 \$8.8 million in Betterments.
 5. Estimate at Completion includes Baseline Budget plus any changes funded via contingency drawdown requests and budget transfer requests. Excludes \$10.8 million in Betterments.

On May 14, 2013, MWAA awarded the Package A Contract for final design and construction of the line and stations in the amount of \$1,177,777,000. This was \$307.6 million below the engineer’s estimate, which did not take into account the Insurance line item that was deleted from the contract award amount. In April 2014, MWAA redistributed the SCC budgets to reflect the cost-loaded Final Baseline Schedule for Package A and in April 2015 the SCC budgets were redistributed to reflect the cost-loaded Final Baseline Schedule for Package B.

As of February 28, 2019, Contingency Drawdown Requests (CDR) totaling \$290,746,444 have been issued. This 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, \$260,704,735 (47.28%) remains available.*

The following MWAA tables show the expenditures through February 2019 by SCC for each of the contract packages. Both Package A and Package B continue to lag the planned performance levels. It is the PMOC’s opinion that both CRC (Package A) and HPCC (Package B) need to increase their staffing levels to meet the Contractual Substantial Completion Dates.

Tables 5-8

Package A Cost by SCC – February 2019

Dulles Corridor Metrorail Project - Phase 2

Package A Project Cost Summary by SCC Code

FTA SCC CODE	DESCRIPTION	ORIGINAL BUDGET ¹	BASELINE BUDGET ²	EXPENDITURE IN FEBRUARY	EXPENDITURE TO DATE ³	ESTIMATE AT COMPLETION ⁴	CONTINGENCY TO DATE
10	Guideway and Track Elements	\$ 340,953,449	\$ 163,928,670	\$ 111,565	\$ 192,137,749	\$ 203,986,934	\$ 8,306,234
20	Stations	\$ 224,432,514	\$ 223,697,000	\$ 5,035,945	\$ 184,561,430	\$ 226,917,620	\$ 20,684,813
30	Yards, Shops, Administration Buildings	\$ 377,285	\$ -		\$ -	\$ -	\$ -
40	Site Work and Utility Relocation	\$ 352,759,752	\$ 509,201,330	\$ 5,003,333	\$ 594,731,586	\$ 649,073,461	\$ 142,854,501
50	Systems	\$ 172,044,132	\$ 188,997,000	\$ 2,755,266	\$ 154,699,277	\$ 203,791,656	\$ 25,158,877
60	Right of Way Acquisition	\$ -	\$ -		\$ -	\$ -	\$ -
70	Vehicles	\$ -	\$ -		\$ -	\$ -	\$ -
80	Professional Services	\$ 87,209,868	\$ 91,953,000	\$ 421,629	\$ 113,071,425	\$ 116,686,113	\$ 24,390,559
90	Contingency	\$ -	\$ -		\$ -	\$ -	\$ -
TOTALS		\$ 1,177,777,000	\$ 1,177,777,000	\$ 13,327,738	\$ 1,239,201,467	\$ 1,400,455,784	\$ 221,394,984

1. Original Budget is based on Table 2-1 "Program Budget Breakdown" of RCMP Rev1c submitted to FTA in November 2013.
2. Baseline Budget reflects cost loading of Package A baseline schedule approved in February 2014 and redistribution of spares 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 \$8.8 million in Betterments.
4. Estimate at Completion includes Baseline Budget plus any changes funded via contingency drawdown requests and budget transfer requests. Excludes \$10.8 million in Betterments.

Package B Cost by SCC – February 2019

Dulles Corridor Metrorail Project - Phase 2

Package B Project Cost Summary by SCC Code

FTA SCC CODE	DESCRIPTION	ORIGINAL BUDGET ^{1,3}	BASELINE BUDGET ²	EXPENDITURE IN FEBRUARY	EXPENDITURE TO DATE	ESTIMATE AT COMPLETION ⁴	CONTINGENCY TO DATE
10	Guideway and Track Elements	\$ -	\$ -			\$ -	
20	Stations	\$ -	\$ -			\$ -	
30	Yards, Shops, Administration Buildings	\$ 202,977,283	\$ 201,238,645	\$ 7,635,849	\$ 199,940,961	\$ 221,761,633	\$ 18,876,988
40	Site Work and Utility Relocation	\$ 25,772,661	\$ 23,296,613	\$ 137,419	\$ 21,163,495	\$ 36,563,727	\$ 13,173,918
50	Systems	\$ -	\$ 2,772,451	\$ (17,796)	\$ 969,634	\$ 2,772,451	
60	Right of Way Acquisition	\$ -	\$ -			\$ -	
70	Vehicles	\$ -	\$ 1,558,000			\$ -	
80	Professional Services	\$ 20,530,586	\$ 24,123,291	\$ 355,920	\$ 26,490,511	\$ 28,539,280	\$ 4,525,185
90	Contingency	\$ -	\$ -			\$ -	
TOTALS		\$ 249,280,530	\$ 252,989,000	\$ 8,111,393	\$ 248,564,602	\$ 289,637,091	\$ 36,576,091

1. Original Budget is based on Table 2-1 "Program Budget Breakdown" of RCMP Rev1c 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 – February 2019

Dulles Corridor Metrorail Project - Phase 2

Package G Project Cost Summary by SCC Code

FTA SCC CODE	DESCRIPTION	ORIGINAL BUDGET ¹	BASELINE BUDGET	EXPENDITURE IN FEBRUARY	EXPENDITURE TO DATE	ESTIMATE AT COMPLETION	CONTINGENCY TO DATE
10	Guideway and Track Elements						
20	Stations		\$ 4,231,000			\$ 4,231,000	
30	Yards, Shops, Administration Buildings						
40	Site Work and Utility Relocation		\$ 1,915,000	\$ 3,520	\$ 49,891	\$ 1,915,000	
50	Systems						
60	Right of Way Acquisition						
70	Vehicles						
80	Professional Services		\$ 820,000	\$ 207,100	\$ 573,800	\$ 820,000	
90	Contingency						
TOTALS		\$ -	\$ 6,966,000	\$ 210,620	\$ 623,691	\$ 6,966,000	

Package P – February 2019

Dulles Corridor Metrorail Project - Phase 2

Package G Project Cost Summary by SCC Code

FTA SCC CODE	DESCRIPTION	ORIGINAL BUDGET ¹	BASELINE BUDGET	EXPENDITURE IN FEBRUARY	EXPENDITURE TO DATE	ESTIMATE AT COMPLETION	CONTINGENCY TO DATE
10	Guideway and Track Elements						
20	Stations		\$ 4,231,000			\$ 4,231,000	
30	Yards, Shops, Administration Buildings						
40	Site Work and Utility Relocation		\$ 1,915,000	\$ 3,520	\$ 49,891	\$ 1,915,000	
50	Systems						
60	Right of Way Acquisition						
70	Vehicles						
80	Professional Services		\$ 820,000	\$ 207,100	\$ 573,800	\$ 820,000	
90	Contingency						
TOTALS		\$ -	\$ 6,966,000	\$ 210,620	\$ 623,691	\$ 6,966,000	

Through March 2019, approved change orders totaled \$207,126,079 for Package A. There were no change orders approved in March 2019. The change orders in process in March 2019 total \$27,028,096, and 66 Requests for Change (RFC) are under evaluation totaling approximately \$46,536,310 in Contractor proposals for Package A. In addition, MWAA has approved change orders for Package B

that total \$32,333,135. In March 2019, change orders in process total \$4,730,034 and 15 Requests for Change (RFC) under evaluation total \$4,960,651. These charges against contingency represents a total of \$322,714,305 or 61.15% of the total Project Contingency of \$527,740,251, at a point where overall Project completion is at 82%. 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, February 2019**

DESCRIPTION	ORIGINAL BUDGET	BASELINE BUDGET ^{3 5}	EXPENDITURE TO DATE ⁴	ESTIMATE AT COMPLETION ⁶	PERCENT OF EAC EXPENDED TO DATE
Design-Build					
Design Build Main Line - Package A	\$ 1,177,777,000	\$ 1,177,777,000	\$ 1,239,201,467	\$ 1,400,455,784	
Commodity Escalation - Package A	\$ 16,000,000	\$ 16,000,000	\$ -	\$ 16,000,000	
Design Build Main Line - Package G		\$ 6,966,000	\$ 623,691	\$ 6,966,000	
Design Build Main Line - Package P		\$ 26,586,161	\$ 1,605,731	\$ 26,586,161	
Subtotal Design-Build Main Line	\$ 1,193,777,000	\$ 1,227,329,161	\$ 1,241,430,889	\$ 1,450,007,945	
Yard - Package B + Yard Soil Preparation - Package S	\$ 269,280,530	\$ 258,939,297	\$ 255,014,916	\$ 296,087,405	
Commodity Escalation - Package B	\$ 4,000,000	\$ 4,000,000	\$ -	\$ 3,928,000	
Subtotal Design-Build Yard	\$ 273,280,530	\$ 262,939,297	\$ 255,014,916	\$ 300,015,405	
Design-Build Contracts Total	\$ 1,467,057,530	\$ 1,490,268,458	\$ 1,496,445,805	\$ 1,750,023,350	86%
Right of Way					
Parcels & Project Management	\$ 58,600,000	\$ 58,600,000	\$ 25,965,239	\$ 57,316,200	
Right Of Way Total	\$ 58,600,000	\$ 58,600,000	\$ 25,965,239	\$ 57,316,200	45%
WMATA Agreement					
Vehicles	\$ 205,868,200	\$ 205,868,200	\$ 133,752,665	\$ 181,302,601	
WMATA Non Revenue Vehicles	\$ 9,250,751	\$ 9,620,781	\$ 8,208	\$ 9,620,781	
WMATA Project Management and Other Costs	\$ 90,205,767	\$ 89,835,737	\$ 39,807,640	\$ 89,835,737	
WMATA Agreement Total	\$ 305,324,718	\$ 305,324,718	\$ 173,568,513	\$ 280,759,119	62%
Preliminary Engineering					
Preliminary Engineering Total	\$ 75,000,000	\$ 75,000,000	\$ 73,266,056	\$ 75,000,000	98%
Airports Authority Services					
Airports Authority Project Management	\$ 64,620,000	\$ 64,620,000	\$ 61,800,416	\$ 66,471,913	
Project Management Support	\$ 140,000,000	\$ 140,000,000	\$ 165,749,391	\$ 166,560,000	
Other Costs ¹	\$ 116,182,137	\$ 116,682,137	\$ 63,528,567	\$ 121,400,247	
Airports Authority Services Total	\$ 320,802,137	\$ 321,302,137	\$ 291,078,375	\$ 354,432,160	82%
Contingency					
Contingency Total	\$ 551,451,179	\$ 527,740,251		\$ 260,704,735	
TOTAL PROJECT COSTS	\$2,778,235,564	\$2,778,235,564	\$2,060,323,988	\$2,778,235,564	82%²

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 \$8.8 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 \$10.8 million in Betterments.

Funding Sources

Primary funding for Phase 2 (excluding parking facilities) is shown in the table 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. MWAA, Fairfax County, and Loudoun County received a total of \$1.876, 000,000 in direct loans under the United States Department of Transportation (USDOT) Transportation Infrastructure Finance and Innovation Act (TIFIA) credit assistance program to assist in financing their shares.

Table 9

Funding Source	Phase 2 Funding (\$ thousands)	Percentage of Total
Commonwealth of Virginia	323,300	11.64%
Northern VA Transportation Authority	60,000	2.16%
Congestion Mitigation Air Quality (CMAQ) Grant (awarded)	7,401	0.40%
CMAQ (to be awarded)	3,668	
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%
Total Sources of Funding	\$2,778,236	100.00%

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 \$1.278,000,000 billion to assist in financing its share. The TIFIA Loan with Loudoun County for up to \$195 million closed on December 9, 2014 and the TIFIA Loan with Fairfax County for up to \$403 million closed on December 17, 2014. The US Department of Transportation has provided \$1.876 billion in TIFIA Loans 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. 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.*

5. Project Schedule

Phase 2 is currently in the design/construction phase. Construction began on Package A in June 2014 with the start of utility relocation. The commencement of revenue service is 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 *March 1, 2019 Project Master Schedule*, as provided by MWAA. *These dates are based on CRC's February 2019 Monthly Schedule Update which was "Not Accepted" by MWAA. CRC's February 2019 Schedule Update forecasts a substantial completion of February 8, 2020 reflecting 185 days delay to the Project Contractual Substantial Completion Date of August 7, 2019. This reflects an improvement of 19 days from the January 2019 schedule update. Hensel Phelps' February 2019 schedule update forecasts substantial completion on May 19, 2020 which is 514 calendar days delayed from the contract substantial completion date. This schedule was "Not Accepted" by MWAA. The last schedule update from CRC that was approved, with comments, was dated September 2017. MWAA's March 1, 2019 Project Master Schedule indicates a new Revenue Service Date of July 2020. However, the basis for the adjustment was not provided. As MWAA's Project Master Schedule does not reconcile the conflicting completion dates, the PMOC does not consider it a true master schedule.*

Table 10

DULLES CORRIDOR PHASE 2 MILESTONES		
Description	Re-baselined Schedule	Updated Schedule**
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)

DULLES CORRIDOR PHASE 2 MILESTONES

Description	Re-baselined Schedule	Updated Schedule**
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	06/21/19**
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	09/18/19**
Package A – Complete Systems Installation	09/21/18	08/28/19**
Fairfax County – Construction of Parking Facilities Complete	04/30/18	12/31/19
Loudoun County - Construction of Parking Facilities Complete	02/28/17	04/30/20
Package A – Forecasted Substantial Completion	08/07/19	02/08/20**
Package B - Complete Yard Systems and Commissioning	03/02/18	12/04/19**
Package B – Forecasted Substantial Completion	08/17/18	05/19/20**
Complete WMATA Operations Readiness Testing	10/06/19	04/0820**
Complete WMATA Revenue Operations Acceptance Testing (Baseline: 3/31/20)	03/31/20	07/20**
Revenue Service Date (RSD) (Baseline: 3/31/20)	03/31/20	07/20**
Project Final Acceptance	06/30/20	10/20**

* Includes changes

**Based on Unapproved Schedules

Critical Path

CRC's Primary Critical Path as reflected in their *February 2019* schedule update runs through modifications to the Wiehle Station for the Phase 1 tie-in and dynamic testing in the east segments, MWAA did "Not Accept" this schedule update representing 185 days delay to the Project completion. MWAA gave the following reasons for rejection of the February 2019 schedule update include: 1) SSCD exceeds the contractual date by 185 days; 2) Incorporation of additional safe braking tests is yet to be added to the schedule in order to accurately forecast its schedule impact; the schedule impact; 3) A technical solution for the cross-level track issue has not been agreed upon; 4) Schedule performance continues to lag behind schedule forecasts; 5) Schedule is missing activities to identify some of the rework, repairs and removal of defective work in key areas; 6) Failure to provide accurate forecast dates based on actual production rates, progress and availability of resources, as well as activities riding and dragging the data date; and 7) Continuing schedule, narrative and cost issues.

Based upon the current status of the Project, it is the PMO's opinion that the Revenue Service Date will be late in the third quarter of 2020.

Important Activities – 90-Day Look Ahead

- *Right of Way acquisition to be completed.*
- *CRC to complete design (including design changes).*
- *At Grade Track – East Segment Testing to be completed.*
- *Aerial Track to Yard Lead Track Testing to be completed.*
- *MWAA to update the RCMP and perform a Monte Carlo analysis of the Project schedule.*
- *Dynamic Testing and Commissioning with WMATA trains to commence.*

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 March 2019, MWAA did not conduct any audits or surveillances of CRC for Package A.

MWAA typically submits a rolling six-month Audit Schedule at each monthly update meeting. *The most recent QA Audit Schedule for April 2019 through September 2019 for Package A is shown below.*

Table 11

Tentative Date	Audit (A) Surveillance (S)	Organization/Activity	Joint Audit/ Surveillance	Lead
4/24/19	A	CRC Landscaping	N	MWAA
5/22/19	A	CRC ATC	N	MWAA
6/20/19	A	CRC’s Care and Maintenance of installed equipment	N	MWAA
7/24/19	A	CRC CQMP Testing and Inspection	N	MWAA
8/21/19	A	Survey Audit	N	MWAA
9/26/19	A	Environmental Management Program	N	MWAA

During March 2019, MWAA did not perform any audits or surveillances of Hensel Phelps for Package B. The most recent QA Audit Schedule for April 2019 through September 2019 for Package B is shown below.

Table 12

Tentative Date	Audit (A) Surveillance (S)	Organization/Activity	Joint Audit/ Surveillance	Lead
5/21/19	S	M.C. Dean Quality Verification Records	Y	MWAA/HP
7/15/19	S	Package B Dynamic Testing Readiness	Y	MWAA/HP
9/15/19	S	Post Installation Checkout Testing	Y	MWAA/HP

7. Safety and Security

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

Table 13: Package A

Event	During Period	Cumulative
Hours Worked	102,606	7,851,107
First-Aid Cases	3	286
OSHA Recordable Cases (Non-Lost Time)	4	49
OSHA Recordable Cases (Lost Time)	0	3
Lost Time Days (for cases above)	0	8
Utility Hits	1	47
Incident Investigation Reports	15	352
Property Damage Claims (>\$1500)	1	50
Vehicular Accidents on Public Roads	3	36
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 additional 29,461 hours (for the month of February 2019) reported in April 2019.

Table 14: Package B

Event	During Period	Cumulative
Hours Worked	31,795	1,887,666
First-Aid Cases	0	17
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	1	84
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.

Table 15: Package P

Event	During Period	Cumulative
Hours Worked	973	4707
First-Aid Cases	0	0
OSHA Recordable (Non-Lost Time)	0	0
OSHA Recordable (Lost Time Cases)	0	0
Lost Time Days (for cases above)	0	0
Property Damage Claims (>\$1500)	0	0
Incident Investigation Reports	0	0
Utility Hits	0	0
Vehicular Accidents	0	0
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.

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.

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. Additional on-site inspections of installed conditions are planned to further the determination; however the platform level of the at-grade stations are currently inaccessible. Potential mitigations being considered include cover plates.

9. Buy America

MWAA has identified the following items as being non-compliant with Buy America requirements:

- Mitsubishi Variant Refrigerant Flow (VRF) and ductless split systems,
- Machine Shop Tools-radial arm drill press, engine lathe, vertical milling machine; and
- Overhead Bridge Cranes.

Subsequently, MWAA in consultation with the FTA has determined that all but the overhead bridge cranes fall under the Small Purchase exception.

Five overhead bridge cranes purchased for installation in the Service and Inspection Building (SIB) at the Yard have been certified as being Buy America compliant based on a designation of the equipment as rolling stock. FTA, upon request from MWAA, has indicated that the cranes do not qualify as rolling stock, and are non-compliant as certified. *MWAA will request that the prime contractor, HP, submit a new Buy America certification from Demag under the manufactured product standard (49 CFR 661.5).*

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 3.0 on March 6, 2018.

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.

Schedule Risks: The result from MWAA's original schedule risk analysis showed that there was a less than five percent chance that the Schedule Substantial Completion Date (SSCD) would take place *on/or before* July 7, 2018. The *associated* 80% confidence level date for the SSCD was December 6, 2018, indicating a hypothetical delay of 152 calendar days. The schedule risk analysis performed by the project team was limited to the SSCD. For the Revenue Service Date (RSD), the project team has accepted the PMOC's recommendation to include a time contingency of 14 months in the overall program schedule. Overall, the schedule contingency, including the WMATA testing through the Revenue Service Date, is 14 months. *On* April 27, 2015 MWAA *announced* the Project had incurred a 13- month delay. *The delay effectively consumed* the entire original forecast Project Schedule Contingency of 14 months. Analysis performed on the revised baseline schedule with 13 months of extension and actual progress to date revealed that ten months of additional schedule contingency would suffice. MWAA held a risk workshop on February 7, 2019 to review the RCMP, and in particular the schedule risk.

Action Items: Items for Grantee Action

PR	Item	Identification	Nature of Problem	D	A	I	Comments	Status
2	2A	MWAA to update PMP.	PMP Version 3.0 should be reviewed and updated.	Y	Y	N	MWAA submitted Draft PMP, Version 3, to FTA on March 30, 2018. PMOC submitted comments to MWAA on May 8, 2018. MWAA submitted the revised draft on June 28, 2018, and PMOC provided comments on October 23, 2018. MWAA submitted the pre-final version to PMOC on November 30, 2018 and comments were provided on January 8, 2019is under review. Final submittal was made on February 28, 2019.	R
2	2B	MWAA to provide more detail and the name and title of the presenter in their QPRM Issues Report. Request made December 3, 2018.	The dearth of information in the Issues Report leads to many questions and lengthy discussion at the QPRM.	Y	Y	Y	More detailed Issues Report due for the March 18, 2019 QPRM.	C
2	2B	MWAA to provide back-up data and invoices in support of “Small Purchases” exclusion to Buy America requirements.	MWAA has deemed the Mitsubishi ductless split systems, small tool purchases and other items are under \$150,000.	Y	Y	Y	Discussions started on November 13, 2018, and data is required by the end of February 2019.	C
2	2B	MWAA to provide Hensel Phelps’ schedule for replacing the non-compliant overhead cranes.	The overhead cranes in the Service and Inspection Building do not meet Buy America requirements.	N	N	N	Discussions started on November 13, 2018, and data is required by the end of February 2019.	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
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
85%	Percent Work in Place Complete at the date of this report (earned value)
93.15%*	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

\$2,060,323,988 Amount of expenditures at the date of this report from a total project budget of \$2,778,235,564

82% Percent Complete expenditures at the date of this report. (This percentage does not include finance charges and contingency)

\$260,704,735 Total project contingency remaining (allocated and unallocated contingency)

Appendix C – MWAA Safety and Security Checklist

Project Overview	Dulles Corridor Metrorail Project – Phase 2		
Project Mode (Rail, Bus, BRT, multimode)	Rail		
Project Phase (Preliminary Engineering, Design, Construction, or Start-up)	Design and Construction		
Project Delivery Method (Design/Build, Design/Build/Operate/Maintain, CMGG, etc.)	Design/Build		
Project Plans	Version	Review By FTA	Status
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.

Project Plans	Version	Review By FTA	Status
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.

Safety and Security Authority	Y/N	Notes/Status
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?	Y	WMSC routinely attend the quarterly meetings, including the most recent on March 18, 2018.

Safety and Security Authority	Y/N	Notes/Status
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.

SSMP Monitoring	Y/N	Notes/Status
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"> • Activation Plan and Procedures • Integrated Test Plan and Procedures • Operations and Maintenance Plan • Emergency Operations Plan 	N	
Has the grantee issued final safety and security certification?	N	
Has the grantee issued the final safety and security verification report?	N	

Construction Safety	Y/N	Notes/Status
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.

Federal Railroad Administration	Y/N	Notes/Status
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 Ten Risks as of November 2017			
Risk ID	Event Description	Primary Risk Mitigation	Risk Rating
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)	The notice of change was for information only and has not been submitted with an associated schedule in P6 native format for evaluation. 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.	25
30.C. 185 NEW	Installation of gravity Sewer	Restratgeize the execution to ensure timely execution and dedicated crew to do this work.	25
80.03.C.243 NEW	Overall total cost claim by CRC	MWAA has initiated its own cost and scheduling forensic analysis in Aug 2017 for detail analysis of CRC's schedule and progress/performance and to refute any CRC's unfounded claims.	21
80.08.C.196	WMATA does not provide adequate Vehicles availability, adequate and qualified staff to witness the test, and operators to complete testing, start-up or final acceptance in a timely manner.	1) Started tiger team meetings to coordinate needed efforts from all stakeholders. 2) Working with WMATA on lessons learned from Phase 1 which will be implemented on Phase 2 3) WMATA is retiring old rail cars so ample number of retired cars will be available to support the testing 4) Working with WMATA to utilize the WFC annex facility for repairs & maintenance which will minimize travel delays to Phase 2 site.	21
50.05.C.153	Communications System Scope of Work – Fire Alarm and Intrusion Alarm systems separation.	The designs for these changes have been finalized and the changes to construction have been reduced. Risk realized. Cost yet to be finalized. Negotiating to minimize cost impact, working with MEC to reduce schedule impact	20
80.03.C.3	Recovery of Revised Baseline Schedule (for changes post CO-66) (Acceleration of 109 days)	Working to avoid further impacts that may delay the schedule. Minimize directing changes and objectively monitor CRC's performance for concurrent delays.	20
80.03.C.242 NEW	CRC subcontractors overhead claims	Assessing CRC delays and productivity inefficiencies that contributed to this cost impact	20
20.02.C.1	Screenwall Glazing at Dulles Station	Currently in procurement for competitive bidding	20
80.R.112	Future WMATA (through its granted authority) requires changes to the scope post design or award to the DB.	The Project Team is to establish funding contingency for unanticipated or unforeseen WMATA actions impacting project(s) scope, and monitor/manage same in conjunction with DB and WMATA.	20
80.02.D.241	Repurposing of the TPB - Design	1) MWAA formally advised HP to cease procurement of specialized equipment and materials associated with the police function in the TPB. 2) WMATA to identify which design elements can be deleted or modified to meet WMATA's intended use of the facility. 3) Exclude the TPB from the contractual SSCD, but, complete the RTRA units in the building by ORD. 4) Exclude the TPB from the LEED Silver Certification.	20
30.01.C.244 NEW	Repurposing of the TPB - Construction	1) MWAA formally advised HP to cease procurement of specialized equipment and materials associated with the police function in the TPB. 2) WMATA to identify which design elements can be deleted or modified to meet WMATA's intended use of the facility. 3) Exclude the TPB from the contractual SSCD, but, complete the RTRA units in the building by ORD. 4) Exclude the TPB from the LEED Silver Certification.	20
* Proposed NEW Item and Top Ten 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 April 10, 2019 that continues to indicate that all VDOT work will be completed on September 30, 2019.*

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.*

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 begun.* Old Meadow Road construction is expected to be completed by *September 30, 2019.*

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.

As of March 2019, fifteen full time equivalents were working on Phase 1 which is the same as the February 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.