

COMPREHENSIVE MONTHLY REPORT

March 2017

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

Metropolitan Washington Airports Authority
Washington, DC

April 28, 2017

PMOC Contract Number: DTFT60-14-D-00011

Task Order Number: 005, **Project Number:** DC-27-5331, **Work Order No.** 02

OPs Referenced: 01, 25

Hill International, Inc.

One Commerce Square

2005 Market Street, 17th Floor

Philadelphia, PA 19103

PMOC Lead: [REDACTED]

Length of Time PMOC Assigned to Project: 3.5 years

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EXECUTIVE SUMMARY

The Project Management Oversight Contractor (PMOC) met with Metropolitan Washington Airports Authority (MWAA) on *April 12, 2017* to conduct the monthly progress meetings for work performed in *March 2017* on Phase 1 and Phase 2 of the Locally Preferred Alternative (LPA) for the Dulles Corridor Metrorail Project. The Phase 2 project extends from the Wiehle Avenue Station in Fairfax County through Dulles International Airport to the Route 772 Station in Loudoun County. The PMOC plans to conduct future PMOC monthly progress meetings during the second week of each month.

1. Project Description

Phase 2 of the Project is an extension of Washington Metropolitan Area Transportation Authority (WMATA) heavy rail system and will provide 11.4 route miles of new track from the interim terminus at Wiehle-Reston East Station through Washington Dulles International Airport ("Dulles Airport") to a terminus in eastern Loudoun County. 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 at 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.

2. Project Status

MWAA announced on April 27, 2015 that they anticipated a delay of thirteen months to the Project. Change Order 066 granted the Package A Contractor 396 days of excusable delay which makes the revised Scheduled Substantial Completion Date (SSCD) August 7, 2019. *The latest Project Master Schedule through February 28, 2017 continues to indicate the contractual SSCD of August 7, 2019. The Package A Contractor's latest schedule through February 2017, which was "not accepted" by MWAA indicates a forecasted SSCD of December 15, 2019, a total slippage of 130 calendar days, a loss of six calendar days compared to the January 2017 schedule update.* MWAA's Project Master Schedule has indicated the Revenue Service Date (RSD) is anticipated to be June 13, 2020 based on CRC's unapproved schedule update. However, MWAA's forecast RSD remains March 31, 2020.

MWAA continues with close out activities for Phase 1. The punch lists from WMATA and Fairfax County have been closed out. VDOT and MWAA continue to work toward resolution of the VDOT Punch List and met with DTP on December 14, 2016 to present the work that DTP is to complete. DTP and MWAA met on March 17, 2017 and DTP's response was unacceptable. DTP accepted responsibility for only about 30% of the listed items. MWAA and DTP continue to negotiate, and meetings are planned with MWAA's pipe expert and DTP. MWAA is now planning to sue Bechtel Corporation, as the parent guarantor, for the completion of the disputed items, if necessary. Whatever work that DTP does not complete will be completed by an MWAA contractor and the suit will be for the recovery of the cost of the work performed by MWAA's contractor.

MWAA reports 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. A ROW/Utility

coordination meeting has been scheduled for April 20, 2017. Old Meadow Road construction is estimated to be completed in April 2018. The closeout of the FFGA is expected to occur six to eight months following payment of final Project costs which is expected to extend until mid-2018.

3. Core Accountability Information

TIFIA Core Accountability Items			
Project Status:		Original at TIFIA:	Current Estimate (EAC):
Cost	Cost Estimate	\$2,778,235,564	\$2,778,235,564
Contingency	Unallocated Contingency	\$551,451,179	\$443,207,702
	Total Contingency (allocated plus Unallocated)	\$551,451,179	\$443,207,702
Schedule	Revenue Service Date	1/31/19	6/13/20*
		Amount (\$)	Percent (as percent of total)
Planned Value to Date	Total budgeted cost of work scheduled to date <i>(if available)</i>	\$1,583,264,987	68%
Earned Value to Date	Budgeted cost of work completed to date, i.e. actual total value of work earned or done <i>(if available)</i>	\$1,230,810,220	53%
Actual Cost	Total cost of work completed to date <i>(actual total)</i>	\$1,122,241,041	48%
Contracts		Amount (\$)	Percent
	Total contracts awarded to date	\$2,140,371,746	94%
	Total construction contract awarded to date (construction contracts only)	\$1,555,542,431	68%
	Physical construction work completed (amount of construction contract work actually completed)	\$809,947,096	52%
Major Issues	Status	Comments / Action / Planned Action	
1	SWM changes to Package A – 13 month delay	Cost negotiated to be \$95M.	
2	Package B Design Delays, thru June 1, 2016	Global settlement 128 days. Cost yet to be finalized	
3	Airports Authority's Extended Management Cost (13 month delay)	Cost yet to be finalized	
4	Communications System Scope of Work – Fire Alarm and Intrusion Alarm systems separation.	Risk realized. Cost yet to be finalized.	
5	Coordination of Package B and Package A interface	Package A has forecasted interface supply dates up to 2 months behind Package B's need dates.	
Date of Next Quarterly Meeting (if known):		May 15, 2017	

- MWAA forecast for RSD is March 31, 2020.

4. 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.
2. The additional construction costs related to the Stormwater/Early Design Changes and attendant increased overhead costs have yet to be determined. MWAA has requested and obtained additional information regarding delay costs from CRC and expects to reach cost resolution during the first quarter of 2017. MWAA has submitted their consultant's (Delta Consulting) evaluation of the claim to CRC submitted their certified claim in the amount of \$157.9 million on January 4, 2017. MWAA responded to the claim by March 4, 2017. *MWAA reported the delay claim was settled for \$95M.*
3. The Package A contractor has encountered harder rock than anticipated at some locations which has forced the contractor to go to Directional Boring or hand mining rather than using a Jack and Bore Procedure. The contractor has redesigned the utility connections at stations to mitigate the impact.
4. The delays experienced by the Package A Contractor could have a negative schedule impact on the Package B Contractor who will have to tie-in the Maintenance Facility lead and systems to the mainline. At this time, the Package A Contractor estimates providing utility and systems interface work two months and six months (respectively) later than the Package B contractor needs them. MWAA continues to work with the contractors for Packages A and B to mitigate any impacts at the interface points.
5. A major open item in the close out of Phase 1 is the Virginia Department of Transportation (VDOT) punch list. Although Phase 1 went into revenue service on July 26, 2014, VDOT did not submit their final punch list until May 16, 2016. VDOT offered to perform the punch list work and developed a cost proposal in the amount of \$36.8 million to perform the work.

Meetings between the two parties have made progress in reaching a mutually agreeable resolution. VDOT and MWAA met with DTP on December 14, 2016 to present their scope of work that DTP needs to rectify. *MWAA met with DTP on March 17, 2017 to discuss the deficiencies MWAA claims are DTP's responsibility. DTP's response amounting to accepting responsibility for about 30% of the deficiencies was unacceptable. Meetings between the two parties continue in the hope of resolution. Rather than seeking resolution through DTP's bonding company, MWAA is planning to file suit against Bechtel Corporation, the guarantor of the DTP joint venture, if necessary. The additional videotaping of the piping and underdrains started on the night of March 12, 2017 and continues.*

6. The Director of Package A, Kevin Volbrecht, left the Project at the end of September. Mr. Volbrecht had served as Deputy Director for Construction on Phase 1 of the Program. Mr. Jay Neider who is currently Deputy Director of Package A is acting as Director of Package A while the recruitment process continues. *MWAA reports that they have made a selection for the position. Subsequently on April 13, 2017, MWAA submitted the resume of Shirlene Cleveland, P.E. to the FTA for concurrence.*

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MAIN REPORT

A. Project Status

Design Status

Final design and construction is being performed under DB contracts for Package A as well as for Package B. The design of Package A is 100% complete and the *design for Package B is 96% complete. There are several Directive Letter and/or Owner-directed design changes that remain to be completed that have resulted in the drop in design completion.* Fairfax and Loudoun Counties are managing the final design of the parking facilities included in Parking Facilities (formerly Package C). The Counties confirmed their commitment to deliver those elements as a condition precedent to their TIFIA loans.

Construction – Package A

As of January 1, 2017, MWAA reported that all of the aerial substructure and support work had been completed. *As of April 1, 2017, 227 deck spans (77%) had been poured. Coastal Precast has completed the casting of all girders required for the Project and is preparing the remaining girders for shipment to the site. Foundation drilling crews continue drilling supports for the stations pedestrian bridges. Crews continue casting diaphragms for the guideway from Abutment A toward the east side of the Dulles Airport Station. Straddle Bent P-107 is complete and the forms are being removed from the Project site. The large crane in the median of the Greenway will be disassembled and removed from the Project. Reinforcing steel and formwork for the aerial deck spans, inbound and outbound, are being prepared from Abutment A to the east side of the Dulles Airport Station.*

Construction of track retaining walls and foundations continues in the DIAAH median. Modification work continues along the DIAAH and Dulles Toll Road (DTR) to enable the construction of the Innovation, Herndon and Reston Stations. The Contractor continues drainage work and track wall construction in the DIAAH median to close in the at-grade guideway in preparation for future ballast and track work. The contractor has completed the installation of the protective slabs over the Fairfax Water line crossing west of the Reston Station. Realignment of the Greenway has been completed with only minor lane shifts and barrier wall installation remaining as needed to support the ongoing abutment and retaining wall work. The contractor continues directional boring, as required, to install the required systems and utilities under the DTR and the Greenway. Hand mining work continues in areas of dense rock for the installation of drainage, utilities and systems required for the stations and operating systems. Jack and bore work continues in areas where the conditions permit this type of excavation and drilling. The Contractor continues the relocation of the DTR south of the Herndon Station. Foundations are being installed for the traction power substation screen walls.

Century Link Communications lines continue to be relocated to allow the installation of the future pedestrian bridge piers on the north and south sides of the DIAAH/DTR. Lighting and the electrical supply to the lights are being relocated in anticipation of the future road widening. Work for the 34.5 kV Traction Power Feeder continues with the installation of ductbank and manholes along DIAAH near TPSS #12, #13, #14 and #15. Work continues to tie-in these TPSS locations to the track cable trough. The contractor continues to install 34.5kV ductbank along Rudder Road, Cargo Drive and Autopilot Road. The contractor continues to install ductbank and

manholes for the 34.5 kV feed in the Greenway median in advance of guideway structures and abutments. Work also continues on directional drilling of ductbank under Horsepen Lake for the 34.5kV service to the future Maintenance Yard.

Precast erection, grouting and detailing continues at the Innovation Station. Structural steel painting and deck welding continues on the station vault roof. Masonry work, electrical rough-in and plumbing work also continues in the station. Construction continues at the North and South Pavilions. Construction of the Pedestrian Bridge Pier continues along with assembly of the Pedestrian Bridge at Innovation Station. Structural steel for the Herndon Station vault roof continues. Precast detailing and grouting continues at Herndon Station. Construction of the South Pavilion continues. The contractor continues precast erection in preparation for installation of structural steel at Reston Station. Station precast and structural steel continues to be erected at Dulles Station. Station mechanical, electrical and plumbing rough-in work also continues. Walk Back Tunnel tie-in work also continues at the Dulles Station. Station precast erection continues at the Loudoun Gateway Station. Station foundation, columns and support wall work continues at the Ashburn Station.

Concrete plinth construction continues in the yard leads and on the west side of the Dulles Airport Station on the aerial guideway. Cable trough, ballast and concrete ties are being installed along the at-grade guideway in the DIAAH median. Electricians continue tying the internal equipment together at TPSS #13 and TPSS #15 and are installing battery racks. Ground grids are being installed in the traction power substation sites.

Construction – Package B

During March 2017, Hensel Phelps Construction Company (HPCC) continued with earthwork operations and blasted rock crushing continues. HPCC's subcontractor continues to place ballast and welded rail in the lay up yard and has begun the installation of special trackwork. Structural steel work in the Service and Inspection Building (SIB) continues and structural steel work began in the Maintenance of Way Building (MWB). Concrete work continued in the blow pit and wheel truing pit areas. HPCC continued working on foundations and stem walls for the Transportation Police Building (TPB) and the Train Wash Facility (TWF). HPCC continues to progress utility installation including water lines, ductbank, storm sewer lines and sanitary lines.

Parking Facilities (formerly Package C)

Fairfax County: 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 May 31, 2019 for the Innovation Center Garage and remains as April 30, 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 the project management and oversight of both projects.

Fairfax County received bids for the Herndon Station Parking Garage and awarded the contract to Manhattan Construction and 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. A partnering session was held with the Contractor on December 6, 2016. Bids were opened for the Innovation Center Garage on February 8, 2017 and the contract has been awarded to Manhattan Construction. *The notice to proceed was issued on April 3, 2017.*

Loudoun County: 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. Comstock is on schedule. Loudoun County has received their detailed garage design and are in the process of reviewing it and providing comments.

Route 772 North (Ashburn North) –Loudoun County reported that the Final Comprehensive Agreement with Comstock was reached on September 9, 2015. At the October 5, 2016 Update Meeting, Loudoun County reported that they had received the Permit Package on August 31, 2016 and the 90% Design has been completed. Loudoun County provided the following updated Comstock schedule for the Ashburn North Garage at the December 7, 2016 Update Meeting.

Milestone	Date
Garage Design	November 2015(A)
Zoning Approvals	December 2015(A)
Construction Drawings	August 2016(A)
Site Planning	September 2016(A)
Obtain Building Permits	<i>March 16, 2017 (A)</i>
Obtain Construction Loan	December 2016 (A)
General Contractor Selection	December 2016 (A)
Garage Construction Complete	January 2018
Operating & Maintenance Plan Development	January 2018
Interim Garage Occupancy Ends	<i>September 2019</i>
Open Metrorail Parking Operations (RSD)	<i>October 2019</i>

The Ashburn North Garage is being constructed as a public privatization arrangement between Loudoun County and Comstock, LLP. Comstock was the developer of the Wiehle-Reston

Parking Garage at the Phase 1 terminus. Loudoun County reported that the Garage was under construction with the completion of foundation work, and the contractor is continuing with utility work.

Route 772 South (Ashburn South) and Route 606 (Loudoun Gateway) – Loudoun County provided an updated schedule at the November 15, 2016 Monthly Update Meeting and noted that the Pre-Bid Meeting had been held on September 13, 2016. *At the April 12, 2017 Update Meeting, Loudoun County stated that the activities are on schedule. The County also reported that they anticipated the award date to be during the first week in May 2017. The recommendation for award is going to the Finance Committee on April 18, 2017 and to the Board of Supervisors on May 2, 2017.*

Milestone Activities	Target Date
Advertise/Issue RFQ (Part 1)	September 2016 (A)
Pre-Bid Meeting	September 13, 2016 (A)
Design-Build Team Qualification Short-list	November 14, 2016 (A)
Short-listed Team Interviews	December 6, 2016 (A)
Issue RFP to Short-listed D-B Firms	January 5, 2017 (A)
Award Design Build Contract	<i>May 2, 2017</i>
Target Garages Construction Completion	May 2019

Loudoun County reported that since the Loudoun Gateway is on Airport Property, the County is working with MWAA's building specifications that require discussions with MWAA on an exception by exception basis. At the December 7th meeting, Loudoun County reported that waivers to administrative and construction standards have been submitted to MWAA.

Loudoun County will prepare documents for a concessionaire to operate and maintain the garages.

Real Estate Acquisition

The status of the Property Acquisitions through March 2017 is shown in the following table.

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 ⁸	9	8	1	8	0	7	7
2A	22	21 ⁹	13	0	14	0	14	12
2B	20	17 ¹⁰	10	0	5	0	3	1
Total¹¹	51	47	31	1	27	0	24	20

Right of Entry (ROE) Status:

- Full Access for Construction has been provided for Parcels 235 and 237.
- Limited ROE for construction provided for Parcels 255 and 236 in February 2016 and for Parcel 228 in June 2016. Full access for construction was provided for Parcel 236 in April 2016 and for Parcel 255 in February 2017.
- Full Access to Fairfax County-owned property was provided in 2013 for Parcels 213, 223, 232, and 234.
- Full Access to Loudoun County-owned property was provided in 2016 for Parcels 257 and 258.

¹ Total based on current understanding.

² PIP = Property Identification Plan.

³ Initial appraisals complete for Priority 1 Parcels 207, 214, 220, 237, 262, 255, 253, and 254. One other appraisal placed on hold initially due to dedication revision (Parcel 258). Appraisal 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, and 357** Appraisal for the dedicated parcel, Parcel 236 to be prepared.

⁴ New appraisal required for Parcel 237 due to revised utility relocation and pier construction approach will be deferred at request of landowner to account for actual conditions rather than speculated conditions.

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, and 349. Negotiations ongoing for Parcels 237, 228, and 259. Offers rescinded for Parcels 253 and 271 as the acquisition need for those parcels has been eliminated. An offer is not required for Parcel 236. Condemnation package prepared and filed for Parcels 207, 220, 320, 260/360, and 249 due to impasse.

⁶ Parcels 207, 214, 220, 240, 253, 231, 264, 276, 275, 238, 262, 320, 254, 256, 261, 236, 266, 251, 255, 271, 224 and **349** complete. **Impasse established in March on Parcel 349**, Condemnation package submitted to VDOT for approval for Parcels 260/360 and 249.

⁷ Parcels 207 (COT), 214, 220 (COT), 240, 231, 264, 276, 275, 238, 262, 320 (COT), 254, 256, 261, 266, 251, and 255. Parcels 253 and 271 offers rescinded; no further action required. Parcel 236 dedication completed in June 2016.

⁸ For the parcel dedicated to Loudoun County (Parcel 258), appraisal will be conducted based on revised areas needed for Project shown on the revised PIP accepted in August 2016.

⁹ Priority 2A PIP status: Parcels 240, 238, 231, 275, 276, 264, 320, 271, 256, 266, 251, 249, 265, 358, 236, 281, 336, 349, 252, 269, and 328 PIPs Accepted by MWAA. Parcel 236 has proceeded as a proffered dedication. Deed, Plat and PIP preparation were processed simultaneously and completed. Only value appraisal outstanding. **CRC resubmitted the PIP for Parcel 263.**

¹⁰ Priority 2B PIP status: MWAA Accepted PIPs for Parcel 261, 228, 260, 259, 224, 257, 357, 235, 225, 226, 212, 267, 211, 208, 209, 210, and **227**. **CRC submitted three PIPs for review, Parcels 204, 205, and 268.**

¹¹ Does not include those parcels on which construction will be performed by permit/permission (TRIP II and Fairfax County). Acquisitions/conveyances will be based on as-built conditions and completed prior to Substantial Completion.

Third Party Agreements

MWAA reported that there are six Intergovernmental Agreements required for Phase 2: WMATA, Virginia Department of Transportation (VDOT), Fairfax County, Loudoun County, the Town of Herndon, the Dulles Greenway. As of November 4, 2013, MWAA had executed all six Intergovernmental Agreements.

The summary of the status of the agreements follows.

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.

On April 24, 2015, 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 30, 2017.

B. 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 *April 12, 2017*.

The update **PMP, Version 2.1**, dated June 2016, was submitted to the FTA on June 30, 2016 and the PMOC's comments were submitted to the FTA on July 27, 2016, and FTA forwarded the comments on September 12, 2016. MWAA was to incorporate the comments and submit an updated PMP by October 31, 2016. MWAA submitted a Draft PMP, Version 2.2, to the FTA on October 31, 2016. PMOC provided comments to FTA on December 9, 2016. FTA forwarded the comments to MWAA on December 22, 2016 and requested that the comments be incorporated by January 31, 2017. 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 Plan with comments on April 6, 2017.*

MWAA submitted the latest revision of the Phase 2 **Quality Program Plan (QPP)**, Revision 1, to the FTA on March 26, 2013 for FTA review and approval. On September 23, 2013, FTA approved the Phase 2 QPP, Revision 1, and requested that MWAA update it as needed as Phase 2 continues to move forward through final design and construction.

MWAA submitted **Safety and Security Management Plan (SSMP)**, Revision 2 dated February 29, 2016 was submitted it to the PMOC on February 25, 2016. The PMOC provided review comments on the SSMP to FTA on March 8, 2016. WMATA's email of April 13, 2016 stated that they had received the revised SSMP and had no comments. FTA's email of June 15, 2016, accepted the Plan with comments. The SSMP revision was expected by the end of February 2017. *MWAA submitted the updated SSMP to FTA on April 12, 2017 and the Plan is under review.*

MWAA submitted the revised **Risk and Contingency Management Plan (RCMP)** on May 17, 2016. PMOC requested and received MWAA's Excel worksheets in support of their contingency analysis for review. On August 8, 2016, PMOC requested that the "Draft" watermark be removed and the Final document be formally submitted to the FTA with some minor edits. The Project team submitted the RCMP Rev 2.0 along with FTA requested revisions on August 11, 2016. PMOC recommended that FTA accept the RCMP on September 6, 2016. FTA approved the RCMP dated August 11, 2016 on December 2, 2016. MWAA submitted an updated Risk Register on December 16, 2016 which was discussed with MWAA on January 11, 2017. On February 10, 2017, PMOC recommended FTA accept the update.

Since WMATA, rather than MWAA, will be the operator of the completed project, the **WMATA Rail Fleet Management Plan (RFMP)** is the applicable document. WMATA submitted RFMP, Revision J, on August 1, 2013 and FTA accepted it on August 8, 2013.

C. 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.

The PMOC continues to monitor the transition of staff from the Phase 1 project to Phase 2 to ensure that there are adequate levels of dedicated and experienced staff on Phase 2 to ensure effective and efficient progression of final engineering and project management. As of the end

of March 31, 2017, nineteen full time equivalents were working on Phase 1. This is the same as the February 2017 figure.

MWAA reported that the *estimated* number of full-time equivalents for Phase 2 during March 2017 is 1196 a decrease of 447 from the February 2017 revised actuals of 1643. The March 2017 numbers are composed as follows: MWAA – 32, Virginia Department of Rail and Public Transportation (DRPT) – 1, Virginia Department of Transportation (VDOT) – 5, Washington Metropolitan Area Transit Authority (WMATA) – 37, Project Management Support Services (PMSS) – 126, Capital Rail Constructors (CRC), Package A – 745, and Hensel Phelps Construction Company (HPCC), Package B – 250.

Upon completion of the project, WMATA will become the owner/operator of this extension to the existing Metrorail system. WMATA personnel have been active participants in the Phase 1 project, and the agency will have more staff involved on the Phase 2 project.

- **Project Controls**

MWAA has developed project management procedures with regard to monitoring and controlling project scope, quality, schedule, cost, contingency management, and safety. MWAA is to update the PMP by January 31, 2017, which it did. PMOC recommended that FTA approve PMP Final Version 2.2 on February 8, 2017. 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, 2017. Dollar values are included for the latest assessed period.

PRIME CONTRACTS	DBE GOAL %	DBE CONTRACTS AWARDED (DBEC/TC)	NEW DBE AWARDS FEBRUARY 2017	DBE CONTRACTS AWARDED TOWARD GOAL	DBE GOAL ACHIEVED (DBE Pmts/TC)	DBE PAYMENTS FEBRUARY 2017
PreEng - PRELIMINARY ENGINEERING	0%	15.77%	\$0	N/A	15.77%	\$0
PMSS - RAIL OFFICE	25%	22.42%	\$0	89.69%	17.73%	\$108,365
PKG A - DESIGN BUILD CONTRACT	14%	13.67%	\$41,187	97.67%	4.79%	\$1,568,332
PKG B - RAIL YARD AND MAINTENANCE FACILITY	14%	10.71%	\$5,227	76.52%	2.62%	\$523,315
PKG S - SOL STOCKPILE RELOCATION	25%	37.53%	\$0	150.11%	21.49%	\$0
PSI - SPECIAL INSPECTION SERVICES	15%	16.15%	\$0	107.64%	11.81%	\$44,606
ROW - REAL ESTATE ACQUISITION	25%	18.58%	\$0	74.33%	0.53%	\$0
TOTALS			\$ 46,414			\$ 2,244,618

- **Davis-Bacon Act Verification** – MWAA is reporting Davis-Bacon Act verification activities in the Monthly Progress Report. As of the February 2017 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.

D. 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 \$348,215,194, which includes associated primary and secondary mitigation for the parking facilities. The SCC budget and expenditure summary for the period ending *February 2017* is shown below. As of *February 2017*, project expenditures total \$1,122,241,041. Based on the budget and expenditures, the total project completion is 48%. This percentage does not include finance charges and contingency.

All Packages Cost Summary by SCC Code, February 2017

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	\$ 4,064,710	\$ 113,853,374	\$ 203,636,734	\$ 4,510,734
20	Stations	\$ 228,424,057	\$ 227,697,000	\$ 2,583,641	\$ 60,424,516	\$ 216,343,814	\$ 9,469,543
30	Yards, Shops, Admin. Bldgs	\$ 229,857,097	\$ 213,730,843	\$ 10,759,151	\$ 79,790,042	\$ 219,946,567	\$ 6,215,724
40	Site Work and Utility Relocation	\$ 394,075,868	\$ 545,160,692	\$ 13,127,620	\$ 355,722,724	\$ 604,719,303	\$ 59,234,266
50	Systems	\$ 193,794,178	\$ 215,516,247	\$ 3,657,962	\$ 67,493,978	\$ 215,988,659	\$ 11,078,512
60	Right of Way Acquisition	\$ 58,523,267	\$ 58,600,000	\$ 518,176	\$ 7,447,014	\$ 58,488,200	\$ -
70	Vehicles	\$ 212,765,000	\$ 213,613,334	\$ -	\$ 39,832,723	\$ 213,613,334	\$ -
80	Professional Services	\$ 564,398,592	\$ 574,696,366	\$ 9,239,563	\$ 397,676,670	\$ 602,291,251	\$ 27,575,931
90	Contingency ³	\$ 551,451,179	\$ 561,292,412	\$ -	\$ -	\$ 443,207,702	\$ (118,084,710)
TOTAL PROJECT COST		\$ 2,778,235,564	\$ 2,778,235,564	\$ 43,950,823	\$ 1,122,241,041	\$ 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 matched the Contract Price. Baseline Budget for Contingency is adjusted by \$9.8 million increase which is the net of the underrun in Package S and overrun in Package B

³ All of the contingency resides in SCC 90

⁴ Package A expenditure to date include \$5 million of retainage released in December 2014. Excludes Betterments

⁵ Estimate at Completion includes Baseline Budget plus any changes funded via contingency drawdown requests and budget transfer requests. Excludes 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 2017*, Contingency Drawdown Requests (CDR) totaling \$108,243,477 have been issued. This includes a contribution to Contingency of \$9,841,233 due to balance of the under run for Package S and the overrun in Package B.

The following are the expenditures through February 2017 by SCC for each of the contract packages. Both Package A and Package B continue to lag the planned performance levels. Both CRC (Package A) and HPCC (Package B) continue to increase their staffing levels, but greater staffing increases are required to meet the Contractual Substantial Completion Dates.

Package A Cost by SCC – February 2017

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 ^{4,5}	CONTINGENCY TO DATE
10	Guideway and Track Elements	\$ 340,953,449	\$ 163,928,670	\$ 4,064,710	\$ 113,853,374	\$ 199,636,734	\$ 4,510,734
20	Stations	\$ 224,432,514	\$ 223,697,000	\$ 2,583,641	\$ 60,424,516	\$ 212,343,814	\$ 9,469,543
30	Yards, Shops, Admin. Bldgs	\$ 377,285	\$ -		\$ -	\$ -	\$ -
40	Site Work and Utility Relocation	\$ 352,759,752	\$ 509,201,330	\$ 11,604,734	\$ 338,840,435	\$ 566,733,831	\$ 57,208,156
50	Systems	\$ 172,044,132	\$ 188,997,000	\$ 3,657,962	\$ 67,493,978	\$ 189,469,412	\$ 11,078,512
60	Right of Way Acquisition	\$ -	\$ -		\$ -	\$ -	\$ -
70	Vehicles	\$ -	\$ -		\$ -	\$ -	\$ -
80	Professional Services	\$ 87,209,868	\$ 91,953,000		\$ 111,504,575	\$ 113,694,746	\$ 21,722,792
90	Contingency	\$ -	\$ -			\$ -	
TOTALS		\$ 1,177,777,000	\$ 1,177,777,000	\$ 21,911,046	\$ 692,116,879	\$ 1,281,878,537	\$ 103,989,737

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 spares parts budget. This reflects the original contract amount

3 Expenditure to date include \$5 million of retainage released in December 2014. Excludes Betterments

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

Package B Cost by SCC – February 2017

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, Admin. Bldgs	\$ 202,977,283	\$ 201,238,645	\$ 10,759,151	\$ 74,125,255	\$ 206,956,869	\$ 5,718,224
40	Site Work and Utility Relocation	\$ 25,772,661	\$ 23,296,613	\$ 1,522,887	\$ 13,283,211	\$ 23,339,006	\$ 42,393
50	Systems	\$ -	\$ 2,772,451			\$ 2,772,451	
60	Right of Way Acquisition	\$ -	\$ -			\$ -	
70	Vehicles	\$ -	\$ 1,558,000			\$ 1,558,000	
80	Professional Services	\$ 20,530,586	\$ 24,123,291	\$ 139,203	\$ 23,971,437	\$ 25,914,224	\$ 1,790,933
90	Contingency	\$ -	\$ -			\$ -	
TOTALS		\$ 249,280,530	\$ 252,989,000	\$ 12,421,240	\$ 111,379,903	\$ 260,540,550	\$ 7,551,550

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

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

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

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

Package S Cost by SCC – December 2016

FTA SCC CODE	DESCRIPTION	ORIGINAL BUDGET ¹	BASELINE BUDGET ²	EXPENDITURE IN OCTOBER	EXPENDITURE TO DATE	ESTIMATE AT COMPLETION ³	CONTINGENCY TO DATE
10	Guideway and Track Elements	\$ -	\$ -			\$ -	
20	Stations	\$ -	\$ -			\$ -	
30	Yards, Shops, Admin. Bldgs	\$ 19,216,990	\$ 5,167,287		\$ 5,664,787	\$ 5,664,787	\$ 497,500
40	Site Work and Utility Relocation	\$ 527,455	\$ 527,455		\$ 529,972	\$ 529,972	\$ 2,517
50	Systems	\$ -	\$ -			\$ -	
60	Right of Way Acquisition	\$ -	\$ -			\$ -	
70	Vehicles	\$ -	\$ -			\$ -	
80	Professional Services	\$ 255,555	\$ 255,555		\$ 255,555	\$ 255,555	
90	Contingency	\$ -	\$ -			\$ -	
TOTALS		\$ 20,000,000	\$ 5,950,297	\$ -	\$ 6,450,314	\$ 6,450,314	\$ 500,017

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 the original contract amount

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

Through March 2017, approved change orders totaled \$145,328,355 for Package A. Package A change orders approved in March 2017 totaled \$95,000,000. (This is the settlement amount for the cost impacts of the delay due to SWM Part II-B and early design changes.) The change orders in process through March 2017 total \$19.24M and 59 Requests For Change (RFC) under evaluation that total approximately \$34,024,110 in Contractor's proposals for Package A. In addition, MWAA has approved 27 change orders for Package B that total \$2.049M. The change orders in process through March 2017 total \$9.017M and 38 Requests for Change (RFC) under evaluation

that total \$20.078M. This represents a total of \$229.736M or 51.8% of the remaining Project Contingency of \$443.207M at a point where overall Project completion is at 48%. It may be noted that change orders in process and portions of some of the request for change (RFC) under evaluation may already have been funded via contingency drawdowns.

Monthly Cost Report, February 2017

DESCRIPTION	ORIGINAL BUDGET	BASLINE 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	\$ 692,116,879	\$ 1,281,878,537	
Commodity Escalation - Package A	\$ 16,000,000	\$ 16,000,000	\$ -	\$ 16,000,000	
Yard - Package B + Yard Soil Preparation - Package S	\$ 269,280,530	\$ 258,939,297	\$ 117,830,217	\$ 266,990,864	
Commodity Escalation - Package B	\$ 4,000,000	\$ 4,000,000	\$ -	\$ 4,000,000	
Parking Garages - Package C	\$ -	\$ -	\$ -	\$ -	
Design-Build Contracts Total	\$ 1,467,057,530	\$ 1,456,716,297	\$ 809,947,096	\$ 1,568,869,401	52%
Right of Way					
Parcels & Project Management	\$ 58,600,000	\$ 58,600,000	\$ 7,447,014	\$ 58,488,200	
Right Of Way Total	\$ 58,600,000	\$ 58,600,000	\$ 7,447,014	\$ 58,488,200	13%
WMATA Agreement					
Vehicles	\$ 205,868,200	\$ 205,868,200	\$ 39,832,723	\$ 205,868,200	
WMATA Non Revenue Vehicles	\$ 9,250,751	\$ 9,620,781	\$ 3,008	\$ 9,620,781	
WMATA Project Management and Other Costs	\$ 90,205,767	\$ 89,835,737	\$ 12,583,379	\$ 89,835,737	
WMATA Agreement Total	\$ 305,324,718	\$ 305,324,718	\$ 52,419,110	\$ 305,324,718	17%
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	\$ 39,695,729	\$ 65,421,913	
Project Management Support	\$ 140,000,000	\$ 140,000,000	\$ 100,599,954	\$ 140,560,000	
Other Costs ¹	\$ 116,182,137	\$ 116,682,137	\$ 38,866,082	\$ 121,363,630	
Airports Authority Services Total	\$ 320,802,137	\$ 321,302,137	\$ 179,161,765	\$ 327,345,543	55%
Contingency					
Contingency Total	\$ 551,451,179	\$ 561,292,412		\$ 443,207,702	
TOTAL PROJECT COSTS	\$2,778,235,564	\$2,778,235,564	\$1,122,241,041	\$2,778,235,564	48%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 Package A, 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

4 Package A expenditure to date includes \$5 million of retainage released in December 2014 Excludes 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 Betterments

Funding Sources

Primary funding for Phase 2 (excluding parking facilities) comes from MWAA (8.41%), Fairfax County (18.63%), Loudoun County (9.85%), Commonwealth of Virginia (11.64%), Dulles Toll Road (49.31%), and the Northern Virginia Transportation Authority (2.16%). 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 billion 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.

Funding Source	Phase 2 Funding*	Percentage of Total
Commonwealth of Virginia	\$ 323,300	11.64%
Northern VA Transportation Authority	\$ 60,000	2.16%
Fairfax County	\$ 517,692	18.63%
Loudoun County	\$ 273,597	9.85%
MWAA (Aviation Funds)	\$ 233,698	8.41%
MWAA (Dulles Toll Road)	\$ 1,369,949	49.31%
Total Sources of Funding	\$ 2,778,236	100.00%

* In \$1,000

TIFIA Funding Status

On August 20, 2014, United States Department of Transportation (USDOT) Transportation Infrastructure Finance and Innovation Act (TIFIA) credit assistance program executed a loan with MWAA, not to exceed \$1.278 billion to assist in financing its share. 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.

E. 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 *February 28, 2017 Project Master Schedule* submitted on *April 5, 2017*, as provided by MWAA. *However, these dates are based on CRC's February 2017 Monthly Schedule Update which was **again not accepted** by MWAA.* MWAA has not accepted CRC's monthly Schedule updates since April 2016. *In the past, MWAA has requested that CRC incorporate MWAA's comments in the next schedule update. However, starting with the February 2017 update, MWAA is asking that CRC address MWAA's comments and resubmit the February schedule update. HPCC's February 2017 Monthly Schedule Update was not accepted by MWAA.* The Revenue Operations Date has been reported by MWAA as *March 31, 2020*. *However, the Project Master Schedule indicates a Revenue Service Date of June 13, 2020 based upon CRC's unapproved schedule.*

DULLES CORRIDOR PHASE 2 MILESTONES	
DESCRIPTION	DATE
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(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 (A)
Package S – Advanced Earthwork Contract Substantial Completion	12/08/2014(A)
Deadline for Fairfax and Loudoun Counties' decision to construct the Parking Facilities	12/29/2014(A)
Fairfax County – Design of Parking Facilities Complete	11/30/16 (A)
Loudoun County – Design for RFP of Parking Facilities Complete	01/04/17 (A)
Package A – Complete Design	08/13/17
Package A – Complete Aerial Guideway Construction	08/03/17
Package A – Complete At-Grade Guideway Structure Construction	10/20/17
Package A – Station Build-out	02/20/19
Package A – Systems Installation	04/01/19
Fairfax County – Construction of Parking Facilities Complete	04/30/19
Loudoun County - Construction of Parking Facilities Complete	05/31/19
Package A – Forecasted Substantial Completion	12/15/19
Package B - Finish Yard Systems and Commissioning	11/19/18
Package B – Forecasted Substantial Completion	05/07/19
Complete WMATA Operations Readiness Testing	02/13/20
Complete WMATA Revenue Operations Acceptance Testing	06/12/20
Revenue Service Date	06/13/20*
Project Final Acceptance	09/12/20

* As noted in this report, this Revenue Service Date is based on CRC's February 2017 Monthly Schedule Update which was not accepted by MWAA. MWAA is forecasting a RSD of March 31, 2020.

Important Activities – 90-Day Look Ahead

- *MWAA to hold a risk and contingency workshop with FTA and PMOC participation.*
- *MWAA to revise their RCMP based upon the results of their negotiations with CRC for the time delay costs.*
- *Loudoun County to continue the procurement process for the Design-Build of the Loudoun Gateway and Ashburn South Parking Garages.*

Critical Path

CRC's Primary Critical Path as reflected in their February 2017 schedule update runs through the N97 Segment storm sewer piping installation leading into at-grade track walls, track civil work, trackwork, wayside ATC and ETS systems cable installations, and testing and commissioning. It should be noted that CRC's February update was "not accepted" due to the inaccuracy of the longest path, failure to provide explanation and remedial actions of CRC's own caused delays to critical and near-critical activities, unresolved comments from previous reviews, and non-compliance to other contractual requirements. Rather than having CRC incorporate the comments in the next monthly update, MWAA has asked CRC to address and correct the issues causing the rejection of the schedule update and resubmit the February Monthly Schedule Update for MWAA's review and approval.

F. Quality Assurance/Quality Control

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

During March 2017, CRC performed an audit of Tindall Precast and the audit report is pending.

MWAA typically submits a rolling six month Audit Schedule at each monthly update meeting. *The most recent QA Audit Schedule for April 2017 through August 2017 for Package A is shown below from the April 12, 2017 Update Meeting.*

DULLES CORRIDOR METRORAIL PROJECT

Phase 2, Package A

QA Audit and Surveillance Schedule

April 2017 through August 2017

Tentative Date	Audit (A) Surveillance (S)	Organization/Activity	Joint Audit/ Surveillance	Lead
4/11-12/17	A	Schindler Elevator	N	CRC
4/25-26/17	A	CRC Survey (<i>rescheduled from 3/1-2/17</i>)	Y	MWAA
3/22/17	A	JP and Concepts (special track work)	N	CRC
5/16-17/17	A	Grazzini	N	CRC
6/13-14/17	A	Thompkins – American (hydraulic elevators)	N	CRC
6/21/17 (Rescheduled from 5/17/17)	A	CRC Construction Safety and Security Audit Plan	N	MWAA
7/18-19/17	A	Williams Steel Erection	N	CRC
8/15-16/17	A	Ansaldo – Train Control	N	CRC

During March 2017, no audits or surveillances were performed on Package B. The most recent QA Audit Schedule for Package B is shown below.

DULLES CORRIDOR METRORAIL PROJECT
Phase 2, Package B
QA Audit and Surveillance Schedule
April 2017 through August 2017

Tentative Date	Audit (A) Surveillance (S)	Organization/Activity	Joint Audit/ Surveillance	Lead
4/19/17	S	Hensel Phelps (Vias/CMT) Special Trackwork	Y	MWAA/HP
6/19/17	S	Hensel Phelps (Superior Steel) – Structural Steel Fabrication	Y	MWAA/HP
8/16/17	S	Hensel Phelps (MC Dean) – Caroline County, VA Electrical Fabrication	Y	MWAA/HP

G. Safety and Security

Construction Safety and Security – The contractor’s safety performance reports, including the accident/injury statistics, are included in the MWAA Monthly Progress Reports. However, the PMOC requested that the Accident/Injury Statistics be provided by the fifteenth of each month, ahead of each monthly progress meeting. As of *March 2017*, CRC has recorded 3,971,097 hours worked with 122 first-aid cases, seventeen OSHA recordable cases of which one resulted in lost time, 101 incidents, twenty-two utility hits, four environmental spills, 13 vehicular accidents, seven property damage claims (>\$1500) and four lost time days. *Four first aid cases and two incidents occurred during March 2017.*

HPCC has recorded 613,565 hours worked with three OSHA recordable (non-lost time) cases, six first-aid cases, one vehicular accident and thirty-nine incidents. There were five incident investigations and two first-aid cases during March 2017.

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 just hired their consultant for this work. The TVA consultant is actively reviewing the designs of the Project.

H. Americans with Disabilities Act (ADA)

There have been no ADA issues reported to date. The design of the Project is ADA compliant.

I. Buy America

There have been no Buy America issues to date.

J. Vehicle Technology

The Project is acquiring 64 new rail cars which are part of WMATA's 7000 Series Rail Car Procurement. Earlier, MWAA procured 64 7000 Series Rail Cars for Phase 1. The monitoring of the rail car procurement is being done under the WMATA PMOC oversight. The production of the Phase 2 rail cars began in February 2017.

Project Risks

The Project team submitted the RCMP Rev 2.0 along with FTA requested revisions on August 11, 2016. PMOC recommended that FTA accept the RCMP on September 6, 2016. FTA approved the RCMP dated August 11, 2016 on December 2, 2016. MWAA submitted an updated Risk Register on December 16, 2016 which was discussed with MWAA on January 11, 2017 and PMOC recommended that FTA accept it on February 10, 2017.

Budget Risks: MWAA has 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 schedule risk analysis shows that there is less than five percent chance that the Schedule Substantial Completion Date (SSCD) will take place on July 7, 2018. The 80% confidence level date for the SSCD is 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, the project team has accepted the recommendation by PMOC 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. With MWAA's announcement on April 27, 2015 that the Project was incurring a thirteen month delay, essentially all of the forecasted Project Schedule Contingency (14 months) has been consumed.

Action Items

MWAA – DULLES CORRIDOR METRORAIL PROJECT PHASE 2- Items for Grantee Action

PR	ITEM	IDENTIFICATION	NATURE of PROBLEM	D	A	I	COMMENTS	STATUS
3	2B	FTA to approve MWAA management plans	MWAA submitted the PMP, QPP, SSMP, RCMP, Permit Management Plan and RAMP.	Y	Y	Y	MWAA submitted the Final PMP Version 2.0 on February 9, 2015 that was approved with comments by the FTA on July 8, 2015. MWAA submitted PMP Version 2.2 on October 31, 2016 and PMOC provided comments to FTA on December 9, 2016. FTA forwarded the comments to MWAA on December 22, 2016. MWAA submitted PMP Version 2.2 dated January 2017 on January 31, 2017 which PMOC recommended for approval on February 8, 2017. <i>FTA approved the PMP on April 6, 2017.</i>	C
3	2B	<i>MWAA to update SSMP.</i>	<i>SSMP Revision 2 should be updated.</i>	Y	N	N	<i>MWAA submitted SSMP, Revision 3, to FTA on April 12, 2017 which is under review by PMOC.</i>	R

KEY ITEM 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

LEGEND

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

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
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
DCR	Design Change Request
DEQ	Department of Environmental Quality
DHR	Department of Historical Resources
DIAAH	Dulles International Airport Access Highway
DIDB	Disparate Impact and Disproportionate Burden
DTP	Dulles Transit Partners, LLC
DVP	Dominion Virginia Power
EA	Environmental Assessment
FONSI	Finding of No Significant Impact
FTA	Federal Transit Administration
HPCC	Hensel Phelps Construction Company
IFP	Issued for Permit
IPP	Integrated Permit Package
LPA	Locally Preferred Alternative
MWAA	Metropolitan Washington Airports Authority
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
RFQI	Request for Qualifications Information
RFP	Request for Proposal
RBS	Revised Baseline Schedule
SCC	Standard Cost Category
SHPO	State Historic Preservation Office
S&I	Service and Inspection
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
TOC	Tri-state Oversight Committee
TIA	Time Impact Analysis
TIFIA	Transportation Infrastructure Finance and Innovation Act
USDOT	United States Department of Transportation
VDOT	Virginia Department of Transportation
VSMP	Virginia Stormwater Management Program
WFC	West Falls Church
WMATA	Washington Metropolitan Area Transit Authority

APPENDIX B – PROJECT OVERVIEW

Project Name: Dulles Corridor Metrorail Project – Phase 2
Grantee: Metropolitan Washington Airports Authority (MWAA)
FTA Regional Contact: Corey Walker, P.E. - 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.

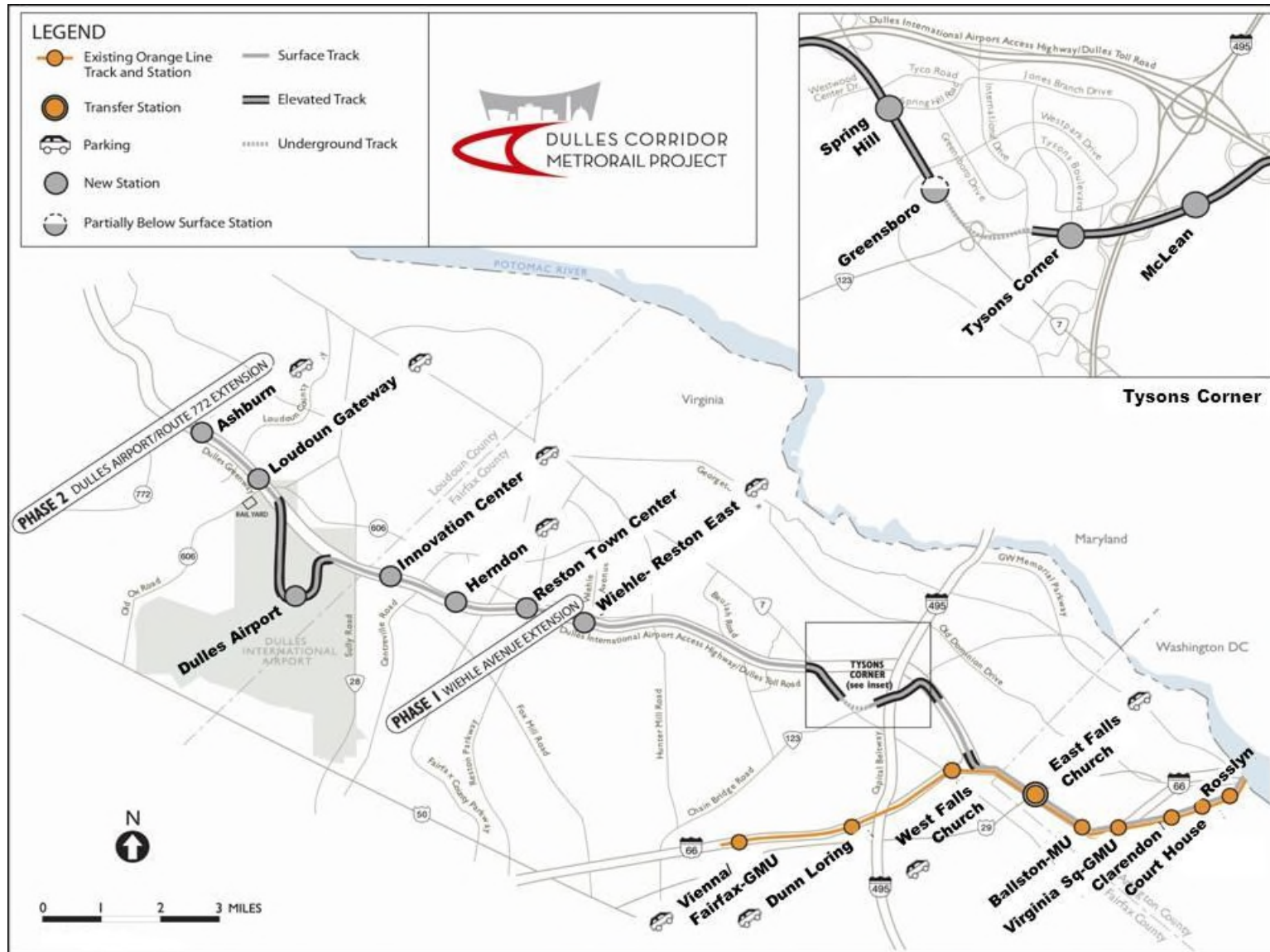
Current Delivery Milestone Schedule

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
53%	Percent Work in Place Complete at the date of this report (<i>earned value</i>)
64.6%*	Percent Project Schedule Complete at the date of this report
	*Based on new 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
\$1,122,241,041	Amount of expenditures at the date of this report from a total project budget of \$2,778,235,564
48%	Percent Complete expenditures at the date of this report. (This percentage does not include finance charges and contingency)
\$443,207,702	Total project contingency remaining (allocated and unallocated contingency)

APPENDIX C – PROJECT MAP



APPENDIX D – 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 2016	Approved on June 16, 2016	<p>MWAA submitted SSMP Rev. 0 dated July 2013 for review and approval in August 2013 in response to comments provided in May 2013. FTA approved the SSMP on November 15, 2013. MWAA submitted SSMP Rev.1 dated February 28, 2015 and PMOC recommended acceptance with comments on May 5, 2015. FTA approved the SSMP with comments on June 15, 2015. 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. <i>The 2017 update was submitted on April 12, 2017 and is under review.</i></p>	

Safety and Security Certification Plan			<p>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.</p>
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. APMC'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	Tri-State Oversight Committee (TOC)	
Has the State designated an oversight agency as per Part 659.9?	Y	Tri-State Oversight Committee (TOC)	
Has the oversight agency reviewed and approved the grantee's SSPP as per 659.17?	Y	TOC approved an updated WMATA SSPP dated January 2013 on February 15, 2013.	
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	TOC and/or its contractor (TRA) routinely attend the quarterly meetings, including the most recent on February 13, 2017.	
Has the grantee submitted its safety certification plan to the oversight agency?	Y		
Has the grantee implemented security directives issued by the Department of 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's SSMP, Revision 0, dated July 11, 2013 was approved by FTA on November 15, 2013. MWAA submitted SSMP Rev.1 dated February 28, 2015 and FTA accepted the SSMP with comments on June 15, 2015. MWAA submitted a revised SSMP on February 25, 2016. FTA accepted the Plan with comments on June 15, 2016. <i>The 2017 update, submitted on April 12, 2017, is under review by PMOC.</i>
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. <i>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.</i> WMATA is responsible for TVA and selected a TVA Consultant in November 2016. <i>The TVA consultant completed their TVA design review of Phase 2 on March 1, 2017.</i>
Does the grantee implement regularly scheduled meetings to track to resolution 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 E – Top 10 Project Risks

RCMP - Top Ten Risks (13 risk events) as of November 2016			
Risk ID	Event Description	(Proposed Primary) Risk Mitigation	Risk Rating
80.02.D.239	Package B Design delays thru June 1, 2016	1) Minimize any further delays working with WMATA. 2) Expedite AHJ reviews where possible 3) Evaluating delay ownership/responsibility 4) Engage 3rd party consultant to assist determination of extended costs 5) <i>Global Settlement 128 days. Risk is partially realized. Cost portion yet to be finalized.</i>	35
40.08.C.1	CRC's Extended Management Cost for Early Design Changes. 13 months of schedule extension has been settled in Change Order No. 66.	1) Ensure inclusion of known design changes into negotiations 2) Perform cost and schedule impact analysis prior to directing changes 3) Third party analyze CRC's proposal and assist project team with negotiations 4) <i>Risk realized. Cost yet to be negotiated</i>	25
80.03.C.1	Airports Authority's Extended Management Cost for Early Design Changes due to 13 months of schedule extension which was settled in Change Order No. 66. This cost includes Airports Authority, Project Management Support Services and Washington Metropolitan Area Transit Authority.	Proactively manage the staff to efficiently address and attend the project needs while minimizing cost. <i>Risk realized. Cost yet to be finalized.</i>	25
50.05.C.153 NEW*	Communications System Scope of Work – Fire Alarm and Intrusion Alarm systems separation.	<i>The designs for these changes have been finalized and the changes to construction have been reduced. The increased costs are mainly due to additional material and labor. Risk realized. Cost yet to be finalized.</i>	25
40.08.C.221	Coordination of Package B and Package A interface	1) Work with CRC to improve interfaces dates. 2) HP finishes per Contract schedule, demobilizes, reduces staff and then remobs for Pkg A interface testing 3) HP to provide temporary means to complete testing 4) Pkg B interface need dates are getting closer to Pkg A interfaces	25
80.03.C.2 NEW*	Request for Equitable Adjustment Part 2 (REA-2) (for changes included in CO-66 but were not finalized)	<i>The notice of change was for info only at this time and has been not submitted with an associated schedule in P6 native format for evaluation. Project team is reviewing the submitted document. Will review details once the native schedule file is submitted.</i>	21
80.03.C.3 NEW*	Revised Baseline Schedule version REA-X (for changes post CO-66)	<i>Working to avoid further impacts, perceived or otherwise delay the schedule. Minimize directed changes and objective monitor CRC's performance to</i>	21
80.02.D.240 NEW*	Package B Design delays beyond June 1, 2016	1) <i>Spot mitigation of issues as arise</i> 2) <i>Expediting owner reviews, negotiating acceleration, coordinate with management.</i>	21
50.05.C.150	Communications System Scope of Work - Changes to match Phase 1 and RFP requirements.	<i>The designs for these changes have been finalized and the changes to construction have been reduced. The increased costs are due mainly to additional material and labor. Risk realized. Cost yet to be finalized.</i>	20
80.08.C.196	WMATA does not complete testing, start-up or final acceptance in a timely manner.	Phase 1 Testing and Startup provided experience and lessons learned that improved both the Airports Authority and WMATA's processes, particularly in mutual understating and appreciation for timely communications and coordinated interactions. WMATA has larger staff in support of Phase 2 project. Any part of the corporate agreement, any major outstanding issues or disagreements are deferred to the executive committee to resolve.	16
50.05.C.151 NEW*	Communications System Scope of Work – PIDS	<i>The designs for these changes have been finalized and the changes to construction have been reduced. The increased costs are due to additional mounting equipment and the modified interface with the Metrorail PIDS system. Risk realized. Cost yet to be finalized.</i>	15
50.05.C.152 NEW*	Communications System Scope of Work – FIA/PAS Separation	<i>The designs for these changes have been finalized and the changes to construction have been reduced. The increased costs are due mainly to additional material and labor.</i>	15
20.01.C.1 NEW*	Air conditioning in elevator and escalator machine rooms & modifications to VT specs	1) <i>Successfully negotiate costs related to Air Conditioning of the Machine Rooms (building size, ductwork, AHUs, louvers and dampers)</i> 2) <i>Reduce requested changes to specifications to essential elements</i>	15