

PMOC Monitoring Report

National Capital Purple Line Light Rail Transit Project Montgomery and Prince George's Counties, MD

Maryland Transit Administration (MTA)

February 2019

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Work Order Number	04		
OPs Referenced	25		

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EXECUTIVE SUMMARY

Project Description

The National Capital Purple Line (“Purple Line”) is a 16.2 mile east-west Light Rail Transit (LRT) line extending inside the Washington, DC Beltway from Bethesda in Montgomery County, MD to New Carrollton in Prince George’s County, MD. The Purple Line will operate largely at street level in a combination of dedicated and semi-exclusive right-of-way, and also includes segments on elevated structures and in tunnels. The alignment for the Purple Line will provide direct connections to Washington Metropolitan Area Transit Authority (WMATA) at Bethesda, Silver Spring, College Park, and New Carrollton, MD. The project will also connect to all three Maryland Area Regional Commuter (MARC) commuter rail lines, Amtrak, and local bus routes. The project includes twenty-one stations, two storage and maintenance facilities, and 25 light rail vehicles (LRVs). MTA is executing the project using a Public-Private Partnership (P3) method of project delivery. As documented in the Full Funding Grant Agreement (FFGA), the estimated project cost is \$2,407,030,288 and the scheduled Revenue Service Date (RSD) is December 31, 2022.

Project Status

Following the execution of the FFGA on August 22, 2017, the Purple Line Project is currently in the Construction phase, with Purple Line Transit Partners (PLTP) as the P3 Concessionaire.

Scope / Significant Activities

- Purple Line Transit Constructors (PLTC), the PLTP partner responsible for the design and construction of the capital project, continues with project design. MTA’s assessment of PLTC design progress continues to forecast PLTC design completion in June 2019. The original Baseline Schedule anticipated design completion by late fall 2017.
- MTA continued negotiations with CSX on amendments to the existing third party agreement regarding station finishes details and required vertical clearance at the Silver Spring Transit Center (SSTC) mezzanine connector pedestrian bridge (PLTC prepared and presented to CSX a concept to interpret this area as a “building concourse” and is following up with a Life Safety Analysis as requested by CSX), drainage connections, final approvals for the new access road into the CSX yard, supporting documentation to address CSX requirements for an existing Mechanically Stabilized Earth (MSE) retaining wall near the SSTC to meet CSX requirements for a crash wall, and concepts to obtain community acceptance of CSX’s standard chain link fence in lieu of the clear barrier on the Talbot Avenue Bridge. Progress has been made over the past month on all above issues.
- The Alternative Technical Concept (ATC) offered during the proposal process for the use of jet fans at the Bethesda Station in lieu of vent shafts is nearing the final reviews for acceptance. (b) (5)

- Construction activities continued throughout the corridor. At the Columbia Country Club, the west golf cart underpass MSE wall backfill is underway and the east golf cart underpass excavation has commenced, the preparations to remove the remaining structure of the Rock Creek bridge deck are underway; mass excavation east of Rock Creek bridge continues; construction of Lyttonsville Place Bridge parapets and sidewalks continues; and installation of retaining walls continue at the Silver Spring International Middle School. The Purple Line project construction box at Bethesda was completed by the developer's contractor and punchlist items continue to be addressed before turnover to PLTC. Installation of the Support of Excavation (SOE) at Manchester station continues as excavation is nearing the bottom level. Excavation of Plymouth Tunnel bench / invert continues with 720 feet of excavation completed (of the 1020 total feet). Utility relocations continue throughout the Area 3 segments; excavation and SOE installation continue at the UMD pump station; the Baltimore-Washington Parkway Bridge temporary southbound approach grading, wire wall construction and SOE installation continue; retaining wall construction continues along Veteran's Parkway; Hensel Phelps installed underground utilities and foundations at the Glenridge Operations and Maintenance Facility building and completed a second mass concrete placement. At Ellin Road, ductbank installation continued and shaft drilling for retaining walls commenced. Riverdale aerial structure construction continues for piers 3, 4 and 5.
- Vehicle carshell manufacturing activities, coordinated with design progress, continued in Spain and in Elmira, NY:
 - In Spain, resolution of MTA comments on Intermediate and Final Design packages continue and LRVs 102 through 106 continue in manufacture. The structural test was completed but the test report has not yet been received by MTA. Floor fire endurance testing is scheduled to be performed on March 6, 2019; roof fire endurance testing has not yet been scheduled. LRV 103 is expected to arrive in the U.S around the beginning of March 2019.
 - Vehicle final assembly is taking place in CAF's facility in Elmira, NY. All five carshell segments of the first vehicle, modules A, B, C1, C2 and D, continue undergoing final assembly activity, including installation of wireway trays and harnesses, wiring and Nora rubber flooring, and production of the undercar and roof assemblies. MTA rejected CAF's requested design deviation to utilize the current environmental test chamber in Elmira, which is shorter than the overall vehicle, for a second time. MTA has been performing its own research by conferring with other agencies that have extended length vehicles but has not yet reached a conclusion.
- Limits of Disturbance (LOD) adjustments associated with the Montpelier stormwater management facility were submitted to Federal Transit Administration (FTA) in late October 2018 for FTA review. After review/resolution, the signed version was subsequently submitted in December 2018 at FTA's request, just prior to the federal government shutdown and continue under FTA review.
- In February 2019, MTA noted that PLTC is assembling another package of ten to twenty LOD changes resulting from continuing design advancement, to be submitted to FTA for concurrence.

- The Purple Line team submitted additional National Environmental Policy Act (NEPA) documentation for the change in construction approach represented in the recently approved ATC for the Baltimore-Washington (B-W) Bridge with a prior NEPA documentation package: (b) (5)



- MTA is responsible for providing offsite streams, wetlands and stormwater mitigation:
 - For wetlands mitigation, MTA received site development approval from Maryland Department of the Environment (MDE) in July 2018, continues to finalize the plans to be included in the solicitation for the construction contract. Additional Montgomery County comments on the design required minor changes and additional reviews by MDE through the end on 2018. Advertisement of the construction contract is targeted for March 2019, with Notice to Proceed (NTP) anticipated by late summer 2019.
 - For stream mitigation, MTA completed the 100% design packages in June 2017 and received approval from MDE in May 2018. Since some of the property that will be affected during construction is controlled by the local airport, MTA included requirements from Department of Homeland Security, especially those related to security for accessing the air side of the airport, in the contract solicitation documents. MTA advertised the Paint Branch Stream Mitigation construction contract on February 14, 2019, with bids due in 45 days.
 - MTA had received MDE approval for greater than the 5 acres required to be in place by June 30, 2018 in accordance with the P3 contract and is awaiting PLTC's final approved on-site mitigation capacity. However, PLTC has recently increased its forecast for needed offsite mitigation, wherein the available "credit" has been reduced from the 5.53 acres of offsite capacity to currently approximately 1/3 acre. In addition, in accordance with P3 contract requirements, MTA is in the process of identifying and obtaining MDE approval of another 5 acres by June 2019, including previously identified but not designed/approved sites, removal of existing asphalt and concrete surfaces, etc.
 - The project submitted a request to United States Army Corps of Engineers (USACE) and MDE to extend the duration of the permits required for wetlands and stream mitigation construction to accommodate potentially extended construction periods due to seasonal construction moratoriums. The approval from MDE was received in December 2018, and the USACE approval letter continues in process, possibly impaired by the federal government shutdown.
 - The site development design package for the Prince George's County Montpelier Basin site for Stormwater Management (SWM) is advancing through review. The package received MDE Delegated Authority approval contingent on approval by the Maryland Soils Conservation District. All comments from the Soils Conservation District have been resolved and MTA is expecting Prince George's County and Soils Conservation District approvals soon. The Montpelier site is

estimated to generate 4 to 5 acres of credit; current estimates of Prince George's County offsite stormwater mitigations needs are for approximately three acres.

- Right of Way (ROW) acquisition activities continue for the required 466 private parcels and 137 public parcels, for 603 parcels total. Agreement and Board of Public Works (BPW) approval were reached on the three CSX properties in late January 2019. As of February 6, 2019, only three private parcels remain for which MTA does not yet have possession for construction activities.
- MTA also evaluated and reduced the approximately 280 additional small acquisitions initially identified by the P3 Concessionaire for utility relocations to a current total of approximately 164 parcels, of which 112 are private and 52 are public. To date, 100 of the private properties and all 52 of the public properties are in MTA possession. Another 29 private acquisitions are on the list, but are under evaluation for elimination. The cost responsibility for these additional parcels has not yet been negotiated.
- All 172 identified ROW relocations have been physically completed.
- The Design-Build Request for Proposal (RFP) for the Polk Street replacement for the Prince George's County Parks maintenance facility was advertised on August 28, 2018, and MTA received responsive submissions on the November 21, 2018 due date. MTA completed review of the proposals, including conferring with Prince George's County Parks. The topic is on the Board of Public Works (BPW) March 20, 2019 agenda to obtain authorization to award.
- A third lawsuit was filed in January 2019 by The Friends of the Capital Crescent Trail, this time against U.S. Army Corps of Engineers (USACE). (b) (5)

Cost

- The project's documented expenditures are \$944.4 million through November 2018.
- Currently, \$149.7 million of the original \$150.0 million contingency remains
- Several Change Orders that have a potential cost impact on the project contingency are in process.
- Mitigation to recover the schedule may also result in added costs to the project.
- Refer to the Core Accountability Table below for additional project cost information.

Schedule

- PLTC currently does not have an approved recovery schedule. In response to a letter that FTA issued to MTA in early August 2018 expressing concern with the amount of time that the project has advanced without an approved schedule, MTA prepared a working schedule update of the master project schedule and submitted "MTA Master Schedule August 2018". The updated proposed baseline schedule is based on the current negotiations of the P3 contract schedule, which have been ongoing with PLTC since late 2017 and which have

been detailed in prior PMOC Monthly Monitoring reports; but the update is not yet based on a mutually agreeable P3 contract schedule. See also the **Major Problems and/or Issues** subsection of this report, below.

- The following are the current key milestone dates for the project, showing the last approved (March 15, 2017) master project schedule, the MTA Master Schedule August 2018 proposed re-baseline and the November 15, 2018 progress update of the MTA Master Schedule proposed rebaseline. (Previously actualized milestones are not shown here for brevity, but are presented in the body of the report.)

National Capital Purple Line LRT Key Milestone Dates			
Activity	Latest (March 15, 2017) Approved Project Schedule	MTA Master Schedule August 2018 (working baseline)	MTA Master Schedule; November 15, 2018 update
All Significant ROW Acquisition & Relocation	As needed by construction	---	---
Commencement of Trial Running	---	03/09/2022	04/22/2022
P3 Ready to Commence Revenue Service	TBD	10/28/2022*	12/09/2022
MTA Opens for Revenue Service	3/2022	---	12/13/2022
Revenue Operations Date (includes contingency)	12/31/2022	---	12/31/2022
FFGA Revenue Service Date (includes contingency)	12/31/2022	12/31/2022	12/31/2022

* P3 Revenue Service date is based on MTA's working version of an updated integrated master project schedule based on MTA/P3 Concessionaire negotiations to date, but for which final agreement with the P3 Concessionaire has not yet been reached.

Core Accountability

FFGA Core Accountability Items			
Project Status:		Original at FFGA:	Current Estimate (EAC):
Cost	Cost Estimate	\$2,407,030,289	\$2,407,030,289
Contingency	Unallocated Contingency	\$90,535,748	\$90,243,241
	Total Contingency (allocated plus Unallocated)	\$150,035,748	\$149,743,705
Schedule	Revenue Service Date (FFGA)	December 31, 2022	December 31, 2022
	MTA Target Revenue Service Date	March 31, 2022	December 13, 2022 NOTE 5
		Amount (\$)	Percent (as percent of total)
P3 Planned Value to Date	Total budgeted cost of work scheduled to date (if available) NOTE 1	Not Available	---
P3 Earned Value to Date	Budgeted cost of work completed to date, i.e., actual total value of work earned or done (if available) NOTE 1	Not Available	---
P3 Actual Cost	Total cost of P3 work completed to date (actual total expenditures)	\$527,759,279	29.2%
Total Project Actual Cost	Total cost of work completed to date (actual total expenditures)	\$944,427,594	39.2%
Contracts		Amount (\$)	Percent
	Total contracts awarded to date (Note 2)	\$2,257,732,283	93.8%
	Total construction contract awarded to date (construction contracts only) (Note 3)	\$1,043,378,886	99.5%
	Physical construction work completed (amount of construction contract work actually completed) (Note 4)	\$172,255,000	16.4%
Major Issues	Status	Comments / Action / Planned Action	
	See discussion below		
Date of Next Quarterly Meeting (if known):		May 15, 2019 (tentative)	

NOTE 1 (Core Accountability Table). The Planned Value to Date and the Earned Value to Date are currently not available, since even approximated values have become unreliable and/or misleading until re-baselining of the P3 cost-loaded schedule is completed. This effort is ongoing with the P3 Contractor.

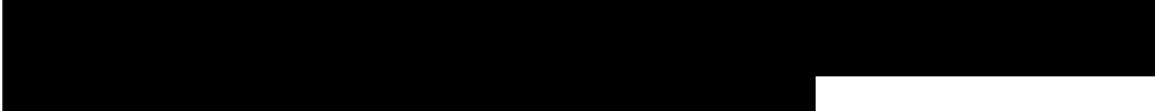
NOTE 2 (Core Accountability Table). Amount includes value of all construction, right of way, vehicle and professional services contracts awarded to date (right of way "awarded" value is the cost of right of way to date). Percentage is calculated based on total project cost estimate of \$2,407,030,289.

NOTE 3 (Core Accountability Table). Amount includes the SCC 10 through 50 values of all contracts awarded to date. Percentage is calculated based on total project planned SCC 10 through 50 costs contained in the latest project SCC Workbook.

NOTE 4 (Core Accountability Table). Amount includes the SCC 10 through 50 values expended to date. Percentage is calculated based on total project planned SCC 10 through 50 costs contained in the latest project SCC Workbook.

NOTE 5 (Core Accountability Table). The Current Estimate (EAC) for the Schedule (MTA Target Revenue Service Date) of November 18, 2022 is from MTA's working version of an updated integrated master project schedule progressed through November 15, 2018, which is based on MTA/P3 Concessionaire negotiations to date, but for which final agreement with the P3 Concessionaire has not yet been reached.

Major Problems and/or Issues

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- According to the PMP, the Master Schedule is to be updated monthly; however, the most recent approved Master Project Schedule update is as of March 15, 2017. Since the December 2016 baseline schedule no longer reflects project conditions, the project does not currently have a current approved resource-loaded Master Integrated Project Schedule to serve as a management tool.
- In May, 2018, MTA issued a directive letter for PLTC to incorporate the workshop mitigations, but agreement on a mitigated project schedule was still not imminent. In summer 2018, the Maryland Secretary of Transportation strongly encouraged PLTP to negotiate in good faith, and in August 2018, FTA sent a letter expressing concern with the amount of time that the project has advanced without an approved schedule, and requested MTA's formal response by September 30, 2018. In response, MTA prepared a working schedule update (proposed re-baseline) of the master project schedule. The update is based on the schedule negotiations to date, but does not yet have the full mutual agreement of both parties. MTA performs monthly progress updates of the MTA Master Project Schedule based on the progress updates received from PLTP as well as from its internal staff, relative to the proposed August 2018 re-baseline.
- Although the November 15, 2018 update of the MTA Master Project Schedule continues to show the start of revenue service prior to the FFGA RSD of December 31, 2022, several major interim milestones have slipped in the past month since the October 15, 2018 schedule update, including approximately two week slippage in the forecasted Commencement of Trial Running date from to April 9, 2022 to April 22, 2022, and approximately four week slippage in the forecasted PLTP Commencement of Revenue Service date from November 18, 2022 to December 13, 2022.
- Mitigation to recover the schedule may potentially result in added costs to the project, which will need to be negotiated with PLTP.
- Both MTA's delivery of properties to Purple Line Transit Constructors (PLTC) and PLTC's progress toward needing those properties for construction are significantly behind the schedule anticipated in the P3 contract. MTA is managing this through weekly meetings of a MTA/PLTC right of way task force that evaluates the needs of the dynamic construction schedule "early start" and "late start" dates for construction activity on each property, and determines work around plans to avoid impacts to the extent possible. Only three properties remain to be acquired and are not currently impacting construction.

- PLTC's forecasted completion of its design scope remains at June 2019, which is significantly behind the scheduled date of fall 2017 anticipated in the P3 contract. As a result, the construction schedule has also slipped, and therefore, PLTC's need for the properties discussed above has also slipped.

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MONTHLY MEETING REPORT

Introduction

The Project Management Oversight Contractor (PMOC) visited with MTA's Purple Line project staff on February 14, 2019 in the project offices in Riverdale, MD. Updated information as of that date is reflected in this report.

A. Project Status

After the U.S. Court of Appeals reversed the vacation of the Record of Decision (ROD) in July 2017 (refer to the **Environmental** section of this report for details), the FFGA was executed on August 22, 2017, approximately one year later than planned. The Purple Line project is currently in the Construction phase.

MTA Design

MTA's General Engineering Consultant (GEC) completed the Purple Line project design to approximately 30% design level in fall 2013 with incremental enhancements through late 2015, and this design formed the basis of the Request for Proposal (RFP) for the P3 contract. See the **P3 (Purple Line Partnership Constructors) Design** section below for the further advancement of this design.

MTA continued to advance the design to 100% for the following scopes, to support construction contracts under a Design-Bid-Build delivery method separate from the P3 scope:

- Stream mitigation – MTA completed the 100% design packages in June 2017 and received approval from MDE in May 2018. The project team conducted a walking tour of the site during the week on September 17, 2018 and confirmed that existing conditions have not changed from that when the design was started. The project team is working with the MTA Procurement department to prepare the solicitation package. *The construction contract was advertised on February 14, 2019. See the **Environmental Mitigation** subsection of this report for additional details.*
- Wetlands mitigation – MTA completed the 100% design packages in June 2017, and subsequently addressed several late-arriving comments from MDE. (b) (5)
[REDACTED] *MTA plans to advertise in March 2019, with NTP anticipated by late summer 2019. See the **Environmental Mitigation** subsection of this report for additional details.*
- Montgomery County off-site stormwater management (SWM) sites – MTA completed design and obtained MDE approval of more than the P3 contract-required 5 acres of off-site mitigation on May 29, 2018, ahead of the June 30, 2018 contract deadline, but may not need to actually construct the sites. *In late 2018, MTA authorized its GEC to design another 5 acres of credit that are to be added to*


*the “bank” by June 2019 in accordance with the P3 contract. See the **Environmental Mitigation** section of this report for the current requirements.*

*MTA also completed the design to support a Design-Build contract for the replacement of the existing Prince George’s County Parks Maintenance Facility with a facility on Polk Street. See the **Real Estate Activities** section of this report for further details.*

P3 (Purple Line Transit Constructors) Design

Among the Purple Line Transit Partners (PLTP) partnership, Purple Line Transit Constructors (PLTC) is the partner responsible for the design and construction of the capital project.

PLTC also continues to incorporate one remaining Alternate Technical Concept (ATC) identified during the proposal process that were approved by MTA, related to the use of jet fans at the Bethesda Station in lieu of vent shafts. The final determination of compliance with National Fire Protection Association (NFPA) Standard 130, which will establish acceptability of the ATC, is with the State Fire Marshall, who reviewed and had no comments on the intermediate design but will not offer a final decision until the final design is reviewed. *As of mid-February 2019, MTA had not yet received the final design package from PLTC.* (b) (5)



MTA and Carr Properties came to agreement on Carr providing for an underground box structure in which the Purple Line project activities can continue while Carr’s redevelopment proceeds above it. MTA and Carr Properties executed the Memorandum of Agreement (MOA) March 2018. Due to other slippages in the project schedule, the date by which the box structure is needed to allow Purple Line work to continue unimpeded was revised from December 2018 until March 2019. In December 2019, Carr’s contractor completed the Purple Line construction box, although approximately 1000 punchlist items remained to be cleared before the box will be turned over to PLTC. *Although punchlist items continue to be resolved, turnover of the box remains on schedule for March 31, 2019.*

CSX Railroad informed the project team that its updated design criteria, which were issued after the “setting date” of the P3 contract, are now applicable to the Purple Line design. MTA and CSX also continue to work on the Construction Agreement, and to resolve the applicable design criteria and the following specific items:

- MTA continues to work with WMATA to resolve CSX comments that would disallow passenger amenities (fare gates and ticketing kiosks) on the Silver Spring Transit Center (SSTC) Purple Line mezzanine connector pedestrian bridge above CSX tracks, [REDACTED]

- [REDACTED]

[REDACTED] The Purple Line project team continues to monitor the situation to manage any resultant effects that could impact the Purple Line FFGA budget or schedule.

- Details for a new access road into the CSX yard that minimizes impact to both Purple Line and CSX operations were developed. [REDACTED]

- [REDACTED]

- The clear solid upper section of electrification crash barrier that was proposed by PLTC for the Talbot Avenue Bridge to meet community preferences, but which was met with CSX objections, is no longer a viable option, since the supplier of the barrier no longer meets Buy America requirements. [REDACTED]

Agreements for use of WMATA property at the four common station areas is discussed in the **Real Estate Activities** subsection of this report.

MTA's assessment of PLTC design progress continues to forecast PLTC design completion in June 2019. The original Baseline Schedule anticipated design completion by late fall 2017. *Through mid-February 2019, 130 of the approximately 237 currently planned design packages have been issued as "Released for Construction" (RFC).*

MTA project team members continue significant effort to facilitate PLTC design progress, including combining some intermediate design submittals via alternative documentation, allowing the issuance of drawings that have "clouded" areas of uncertainty with the information to be provided later by drawing revision, and assisting with MDE approvals where required. The PMOC notes that the additional effort expended by MTA and its GEC and Project Management Consultant (PMC) members to assist PLTC may be manifested in additional SCC 80 project costs.

Construction

MTA Scope

Although the P3 concessionaire is responsible for the majority of the project construction, MTA also has construction responsibility in the areas of the new Prince George's County Parks Maintenance Facility, wetlands mitigation, stream mitigation and possibly some offsite stormwater management sites. Forest mitigation has been accomplished by MTA without the need for additional construction. None of these construction contracts have yet been awarded, but once awarded, they will be discussed in this section of the report.

P3 Scope

Highlights of recent (through mid-February 2019) construction activities throughout the alignment include:

Area 1: At the Columbia Country Club, the west golf cart underpass Mechanically Stabilized Earth (MSE) wall backfill is underway and the east golf cart underpass excavation has commenced, the Rock Creek wooden bridge deck has been removed and preparations to remove the structure are underway; mass excavation east of Rock Creek bridge continues; construction of Lyttonsville Place Bridge parapets and sidewalks continues; asbestos removal commenced at the Faulkland Apartment building; installation of retaining walls continue at the Silver Spring International Middle School.

Area 2: The Bethesda shaft excavation and lagging installation continues to progress and the Purple Line project construction box was completed by the developer's contractor and punchlist items continue to be addressed before turnover to PLTC. At Plymouth Tunnel west portal, installation of the Support of Excavation (SOE) at Manchester station continues as excavation is nearing the bottom level. Excavation of Plymouth Tunnel bench / invert continues with 720 feet of excavation completed (of the 1020 total feet) as of February 14, 2019.

Area 3: Utility relocations continue throughout the Area 3 segments; excavation and SOE installation continue at the University of Maryland (UMD) pump station; the Baltimore-Washington Parkway Bridge temporary northbound lane approaches were completed and southbound grading, wire wall construction and

SOE installation continue; retaining wall construction continues along Veteran's Parkway; Hensel Phelps installed underground utilities and foundations at the Glenridge Operations and Maintenance Facility building and completed a second mass concrete placement; at Ellin Road, ductbank installation continued and shaft drilling for retaining walls commenced. Quality issues with several Riverdale aerial structure drilled shafts (tolerances, voids) continue under resolution while construction of unaffected piers 3, 4 and 5 continue.

Corridor-wide: The first order of rail is awaiting inspection at the manufacturing plant in Steelton, PA, but the documentation is not yet complete.

See Appendix 10 of this report for construction photographs.

Real Estate Activities

As of February 6, 2019, the total number of planned property acquisitions is 603, including 466 privately owned properties and 137 public acquisitions. For the private properties, to date a total of 476 offers have been made including for parcels that were subsequently eliminated, 234 offers have been accepted, all but three of the original P3 contract Exhibit 9 private parcels are in MTA possession (some of which are Rights of Entry and properties that have been filed for condemnation under the State Highway Administration (SHA) process), and 288 properties have completed settlement. Currently, 281 properties are in process for condemnation, and of these, condemnation has been filed for 137 properties, excluding those that have been optioned or settled. Agreement was reached on the three CSX properties and BPW approval to acquire was received in late January 2019. The remaining private parcels yet to be acquired consist of two parcels owned by a developer in the Bethesda Station area and one parcel owned by a different developer near the Silver Spring Transit Center aerial structure. As of February 2019, significant progress is being made on the last three properties. MTA reached agreement in principle for one of the Bethesda properties (Montgomery Tower) and is continuing to refine the details. The second Bethesda property (Bethesda Crossing) is expected to follow the first as a template, except that details also need to be worked out with a new second owner who now owns half of the Bethesda Crossing property. For the developer's property in Silver Spring (Silver SM), MTA recently received a limited Right of Entry (ROE) to perform surveys required for PLTC to complete its design. A construction ROE is also being pursued.

All required public properties have been available for construction.

Additional small parcel acquisitions were expected to be added to the total as utility down-guys and other utility relocation needs are identified as the project progresses. In December 2017, PLTC initially submitted a list of approximately 280 such utility relocation-related parcels and subsequently added to that list. MTA has resolved that it will acquire these properties, rather than executing amendments to the utility agreement to have the utility companies perform this function. MTA's ability to perform appraisals in-house for these parcels or to waive appraisals for low value, uncomplicated parcels is expediting the process somewhat. MTA continues to review such requests for additional properties from PLTC to eliminate the need wherever possible. *As of February 6, 2019, the list of*

additional acquisitions includes 164 parcels in negotiation. Of these, 52 are public property and will be acquired by agreement and 112 are private acquisitions. Another 29 private acquisitions are on the list but are under evaluation for elimination. Also, most of the additional private parcels affect property already acquired or currently in the acquisition process. MTA is separately tracking the additional parcels (approximately 98% are for utility relocations) in its right of way tracking system to best manage changes to parcels already acquired or in the process of acquisition. As of February 6, 2019, 100 of these additional 112 private properties and all 52 of the public properties are in MTA possession through rights of entry and/or options. 49 of the properties are in process for condemnation. The MTA and PLTC cost responsibility for each parcel has not yet been worked out, with the immediate effort being on expediting the acquisitions so as to not impact construction.

The Purple Line Project will require *a total of 172 relocations*, of which 57 are residential and 115 are businesses. *Through February 6, 2019, all 172 move outs have been completed.* The Post Office, which was the last remaining tenant in the Spring Center Shopping Center signed a lease and relocated to the Silver Spring Library building in August 2018 for at least the short term until its final location is decided and ready. The project is responsible for up to 10 month's rent at the new location. If the Post Office decides to not make this its permanent location, the Purple Line project will be responsible for a second and final relocation.

Properties that have not yet settled due to disputed compensation values have been going to trial in accordance with the ROW acquisition process. MTA is tracking actual acquisition costs versus planned expenditures so that contingency can be effectively managed, and shares this information with the PMOC. *Settlement / condemnation values continue to trend somewhat higher than the SCC budget, with a significant number of high-value settlements yet to be reached.*

Certain parcels of property currently owned by WMATA and needed for the Purple Line project (at Bethesda, Silver Spring, College Park and New Carrollton) will be acquired via easements from WMATA, as approved by WMATA's Board in late January 2018. In lieu of monetary compensation, MTA will provide WMATA with some of MTA's current property at New Carrollton. The property plats at Bethesda have already been approved by WMATA, and the project has all access that it needs. For College Park, Silver Spring and New Carrollton, WMATA has agreed that it does need to wait for the plats to be approved to grant access. However, WMATA does want the Exhibits that show the construction to be performed, as well as a detailed Work Plan showing the limits of the Purple Line work to be encompassed by a fence. This will allow PLTC construction work to be conducted without the normal security screening that WMATA requires for work on its system. PLTC has submitted but has not yet received WMATA's construction-phase approval on the Work Plans for these three station areas. However, PLTC developed the Exhibits and redlines of the plats for the New Carrollton property, and MTA will advance the property transfer based on these while work on the site-specific Work Plans continue. *The first of two required BPW approvals for the New Carrollton property transfer is was received in early February 2019, and the second is planned 45 days later. The plats for*

the property at Silver Spring have been submitted for approval. The Washington Suburban Sanitary Commission (WSSC) utility relocations at College Park have been resolved, and after the College Park plats are prepared, these and the plats for the New Carrollton property will be submitted to WMATA for approval. Since MTA has identified that federal (Highway) funding sources were used for the acquisition of the New Carrollton property, MTA will provide FTA with the requested documentation upon transfer on the property to appropriately record responsibility for parcels with federal funding assistance.

MTA's delivery of properties to PLTC has fallen significantly behind the schedule committed in the P3 contract. On the other hand, PLTC's progress toward needing those properties for construction is also significantly behind the schedule anticipated in the P3 contract. To manage its risk relative to property availability for construction by the concessionaire, MTA had assembled a task force of Purple Line project team members specializing in right of way, construction management, scheduling, risk management and third party agreements. The task force has been meeting recently a weekly basis to review the forecasted property availability dates based on the latest ROW schedule update relative to the concessionaire's progressed schedule, including the concessionaire's "early start" and "late start" dates for construction activity on each property. *MTA continues to focus its effort to acquire possession of the three remaining properties as quickly as possible.*

The relocation of the existing Prince George's County Parks Maintenance Facility to make way for the siting of the new Purple Line Glenridge light rail maintenance facility, is being implemented as a negotiated/functional replacement. MTA's Procurement Department is managing the Design-Build (D-B) contract solicitation for the Prince George's County facility. The RFP for the Polk Street Facility Design-Build contract was initially advertised on September 21, 2016 and resulted in two proposals that significantly exceeded the Engineer's Estimate. The RFP was canceled. MTA worked with Prince George's County to revise the scope to reduce pricing expected on a re-solicitation, and to secure an additional \$2 million commitment from Prince George's County in October 2017 to address the remaining funding gap. The additional costs and funding were processed in an amendment to the Memorandum of Agreement (MOA) with Prince George's County, which was executed on July 11, 2018. The amendment also includes a clause holding Prince George's County Maryland National Capital Parks Commission responsible for up to an additional \$2 million in the case that proposals received exceed the Engineer's Estimate. The updated design package incorporating the agreed cost saving measures was completed, including five bid alternates to allow flexibility in the final award and associated cost. The solicitation package was advertised on August 28, 2018 and MTA received responsive submissions on the November 21, 2018 due date. (b) (5)

BPW action is scheduled for March 20, 2019.

The selected contractor's schedule maintains MTA's scheduled 16-month design and construction period, which will achieve construction completion in 2020. In the interim, the Prince George's County Maintenance facility functions have been relocated to a

temporary facility, and are currently not being impacted by events related to the construction of the replacement facility.

Third Party Agreements

All major third party agreements, specifically, those agreements with Washington Gas, Verizon, Potomac Electric Power Company (Pepco), CSX Railroad, the University of Maryland (UMD), Montgomery County Parks, Prince George's County Parks, Washington Metropolitan Area Transit Authority (WMATA), Washington Suburban Sanitary Commission (WSSC), Montgomery County and Prince George's County, were executed as of June 7, 2016.

After execution of its Third Party Agreement, Verizon required that certain currently overhead lines be placed underground when they cross the alignment. To minimize the total cost impact of this change, MTA and Verizon reduced the number of occurrences to 34 locations. PLTC submitted its cost estimate to place these 34 locations underground, and that cost estimate continues in negotiation between MTA and PLTC. [REDACTED]

[REDACTED] Cost responsibility will be negotiated after agreement is reached on the final estimated cost, for which MTA and PLTC continue to exchange comments.

In early June 2018, MTA and PLTP completed negotiation of all remaining third party agreements with the smaller utility and fiber companies, recently executing agreements with Verizon Business and MEDCO. According to MTA, most of the minor fiber / telecom utilities are not co-located with the electrical utilities, and where they are, Pepco's arrangement with the fiber / telecom utilities does not require Pepco's relocation schedule to be driven by that of the minor fiber / telecom companies.

In addition, amendments for existing executed agreements continue as needed, with current significant items including:

- With CSX, for various issues as discussed earlier in this report
- A security agreement amendment with UMD to address shared data and "mutual aid". Since this would be for the operations phase, focused final negotiations will occur closer to the start of revenue service.

The project has been addressing its interface with the Montgomery County Schools through the Third Party Agreement already in place with Montgomery County. [REDACTED]

Project Delivery Method, Contract Packaging and Procurement

The MTA project team identified Public Private Partnership (P3) as the project delivery method for the Purple Line. The majority of the capital cost of the Purple Line project has been packaged into a Design-Build-Finance-Operate-Maintain (DBFOM) P3 contract. This delivery method fits the State's legal definition of a P3 in that it involves a long-term, performance-based agreement between MTA and a private entity (the P3 "Concessionaire") where appropriate risks and benefits are allocated in a cost-effective manner between the contractual partners. The concessionaire is performing some functions normally undertaken by the transit agency, but MTA remains ultimately accountable for the Purple Line and its public function.

The Request for Qualifications (RFQ) for the P3 contract was issued on November 8, 2013 and resulted in the receipt of submittals from six teams. An RFP was issued to four proposers on July 25, 2014. After multiple addenda, including requests for Alternative Technical Concepts and requests made by the Maryland Secretary of Transportation for scope cost reduction concepts and commercial/financial cost reduction concepts, technical and financial proposals were received from all four P3 proposing teams in November 2015 and December 2015, respectively. MTA negotiated an approximate 36-year P3 contract, including nearly 6 years of construction and 30 years of operations, and on March 2, 2016, announced that Purple Line Transit Partners (PLTP) had been selected as the P3 concessionaire. Commercial Close occurred on April 7, 2016, and Financial Close of the P3 occurred on June 17, 2016.

Environmental

The FTA issued a Record of Decision (ROD) on March 19, 2014. The National Park Service (NPS) issued its ROD on July 16, 2014. MTA has continued to submit re-evaluations as required based on design advancement and other causes. Approximately 65 Limits of Disturbance (LOD) cases were initially submitted to FTA and approved. The project team then identified over 600 additional LODs, which were packaged into two additional submittals. The first expedited package of approximately 20 high priority cases was submitted to FTA and was approved by FTA on February 9, 2018. In addition, an emerging urgent need for approval of an LOD change associated with one specific property acquisition (the Kaldis property) was submitted to FTA and approved on June 8, 2018. MTA submitted the remaining cases at that time in a large package of several hundred cases to FTA on June 21, 2018, and after several iterations of resolving comments, it received FTA concurrence on December 12, 2018. [REDACTED]

LOD adjustments associated with the Montpelier stormwater management facility were submitted to FTA in late October 2018 for review. The signed version was subsequently submitted in December 2018 at FTA's request, *but FTA action has been delayed as a result of the federal government shutdown.*

The Purple Line team referred to the change in construction approach represented in the recently approved ATC for the Baltimore-Washington (B-W) Bridge with a prior NEPA documentation package; however, (b) (5)

[REDACTED]

(b) (5)

[REDACTED]

On August 3, 2016 in response to the lawsuit filed by the Friends of the Capital Crescent Trail against the FTA, a federal judge filed his Order and accompanying Memorandum Opinion. In those documents, it was ordered that the ROD for the Purple Line was vacated and remanded, and that a Supplemental Environmental Impact Statement (SEIS) be prepared, in accordance with the accompanying Memorandum Opinion. In a subsequent Order and Opinion filed on November 22, 2016, the judge in part revised the earlier Order by remanding to FTA the responsibility to determine if an SEIS is required, however, the ROD remained vacated. On May 30, 2017, the judge issued his ruling that dismissed the lawsuit except for the reassessment of the impact of declining Washington Metro ridership on the Purple Line Project's Environmental Impact Statement. The Washington Metro ridership aspect of the ruling was immediately appealed by the Maryland Attorney General. On July 19, 2017, the U.S. Court of Appeals reversed the vacation of the ROD, and set an expedited schedule for the appeals process. The appeals hearing occurred on November 1, 2017. The Appeals Court ruling was issued on December 19, 2017, in which the judges ruled in favor of FTA and the project, and that the transit agencies would not have to conduct a new environmental study to examine other potential routes for the Purple Line.

A second lawsuit was filed by the Friends of the Capital Crescent Trail after the FFGA signing and groundbreaking ceremony was held on August 28, 2017. The September 19, 2017 Preliminary Hearing resulted in no temporary injunctions or restraining orders, and project construction is proceeding as the case progresses through the court system. On December 5, 2017, FTA and MTA filed a Motion to Dismiss. The plaintiffs subsequently amended and significantly revised the complaint in December 2017, and on March 1, 2018, MTA and FTA filed a Motion to Dismiss. On March 29, 2018, the Plaintiffs filed their response. *Both parties continue to await the judge's decision.*

A third lawsuit was filed by The Friends of the Capital Crescent Trail in January 2019, this time against U.S. Army Corps of Engineers (USACE).

[REDACTED]

Environmental Mitigation

Required mitigation for reforestation was achieved through the purchase of 82.5 acres of off-site credits. This is expected to be more than needed, which will be confirmed by the design performed by the P3 Concessionaire. The Forest Conservation Plan (FCP) was formally submitted to the Maryland Department of Natural Resources (DNR) in August 2016 for approval. The DNR concurred with the FCP on January 31, 2017, and the final approved FCP was received from DNR on July 31, 2017. As LOD cases are identified, they are also reviewed against the FCP credits to maintain an accurate accounting of the reforestation mitigation.

The Joint Permit Application (JPA) for Wetlands and Stream mitigation was formally submitted to the U.S. Army Corps of Engineers (USACE) and the MDE in August 2016. In late February 2018, MDE issued its Non-Tidal Wetlands and Waterways permit in advance of the USACE permit, even though it was a joint application. However, due to the passage of time since the permit had been drafted, MDE updated and issued the finalized permit the first week of April 2018. The USACE completed its National Environmental Policy Act (NEPA) and conditions review and public interface, receipt of comments and comment resolution, and issued the Section 10 404 Permit on March 14, 2018. This timing supported MTA's planned advertisement for the Wetlands and Streams mitigation construction contracts. In October 2018, the project submitted a request to USACE and MDE to extend the duration of the permits until December 2021 to accommodate potentially extending construction periods resulting from construction moratoriums for forests and streams. The approval from MDE was received during the week of December 3, 2018, and the USACE approval letter continues in process, possibly affected by the federal government shutdown.

The project team continues to address the environmental mitigation for wetlands through the development of the off-site Ken-Gar location. The Ken-Gar final plans were submitted to the Maryland Department of the Environment (MDE) and the USACE in June 2017, completing the requirements for permits to be issued by these agencies. Wetlands mitigation will be implemented by a separate design-bid-build construction contract administered by MTA. MTA reviewed the JPA permits as issued, and found nothing that would cause a change in the wetlands mitigation design as developed; however, MDE had several minor comments which MTA addressed and subsequently received MDE approval for site development in July 2018. *Additional Montgomery County comments on the design required minor changes and additional reviews by MDE through the end of 2018.* Advertisement of the construction contract is targeted for *March 2019, with NTP anticipated by late summer 2019* to allow the application of herbicides on non-native grasses.

Stream mitigation is continuing through the development of Paint Branch. The Paint Branch final plans were also submitted to the MDE and the USACE in June 2017. Stream mitigation will also be implemented by a separate design-bid-build construction contract administered by MTA. MTA reviewed the JPA permits as issued, and found nothing that would cause a change in the stream mitigation design as developed. MDE also concurred

with the design. Since some of the property that will be affected during construction is controlled by the local airport, MTA included requirements from Department of Homeland Security, especially those related to security for accessing the air side of the airport, in the contract solicitation documents. *MTA advertised the Paint Branch Stream Mitigation construction contract on February 14, 2019, with bids due in 45 days.* Construction is planned to extend through 2021 due to separate seasonal moratoriums for forests and for streams.

The project continues with plans to address stormwater mitigation beyond what can be mitigated on the project site, through retrofitting off-site locations in both Montgomery County and Prince George's County. For Montgomery County, the off-site stormwater mitigation sites, if needed, will be implemented via MTA stand-alone contracts. The Purple Line project initially estimated that approximately 17 acres of offsite mitigation would be required in Montgomery County in total. However, as PLTC advanced the project design, that estimate dropped significantly to approximately one acre, although the estimate continues to oscillate up and down as project details are finalized during design advancement. The Purple Line project committed to providing 5 acres of offsite mitigation for Montgomery County in place (i.e., approved by MDE) within the first two years after Financial Close of the P3 contract, which was by June 30, 2018. MTA received conceptual approvals from MDE, and then advanced site development of sites to provide at least 5 acres and submitted them to MDE for final review. On June 14, 2018, MTA received final MDE approvals for a total of 5.53 acres, satisfying the contract requirement. *In addition, in accordance with P3 contract requirements, MTA is in the process of identifying and obtaining MDE approval of another 5 acres by June 2019.* (b) (5)

However, PLTC requested that MDE instead focus on its submittals for Erosion and Sedimentation control to allow construction to commence in additional areas, and MDE review/approval of PLTC's on-site mitigation is trending significantly behind schedule. *As of mid-February 2019, PLTC's on-site mitigation for Segments 2, 3 and 4 are getting close to MDE approval. The remaining 5 segments have various dam safety, water management and other related questions from MDE remaining to be resolved.* The project plans to hold off advertising any construction of off-site mitigation sites until and unless it determines that the onsite mitigation is not sufficient. Although onsite mitigation had previously been trending to be sufficient, MTA has recently observed increased need for offsite mitigation, and is forecasting that the available "credit" is being reduced from the 5.53 acres of initial offsite capacity to currently approximately 1/3 acre.

The implementation of the Prince George's County stormwater mitigation sites is included within the scope of the P3 contract, although MTA had been assisting in the identification of potential sites. One of the two large Prince George's County Montpelier Basin sites identified during the P3 procurement phase has been determined to be the only site, if any, needed in Prince George's County. The site development phase design package for this

Prince George's County Montpelier Basin site was submitted to MDE, who also involved the Prince George's County Soil Conservation District for review and approval. The project received MDE Delegated Authority approval contingent on approval by the Maryland Soils Conservation District for the Montpelier Basin site. Currently, all comments from the Soils Conservation District have been resolved (b) (5)

The Montpelier site is estimated to generate 4 to 5 acres of credit; current estimates of Prince George's County offsite stormwater mitigations needs are for approximately three acres. For the stormwater mitigation sites, once each 100% design package is submitted to and approved by the MDE delegated authority/Soil Conservation District, the credit represented by that package is available to support construction of the project, even though construction of the stormwater mitigation site, if needed, would not yet have been completed.

The joint MTA and University of Maryland (UMD) technical board continued its efforts on the mitigation of noise, vibration and electro-magnetic interference (EMI) at the UMD facilities. The vibration report was received in December 2017, but only evaluated areas near critical campus buildings, resulting in approximately 1,300 feet of mitigation, whereas the UMD agreement required the entire campus to be evaluated, which would lead to approximately 6,100 feet of mitigation. *The technical board has scheduled its next meeting for February 19, 2019* (b) (5)

Additional pending PLTP submittals include Traction Power Magnetic Fields, a resubmittal of the final vibration report and a resubmittal of the LRV noise calculations.

The Purple Line project team is submitting quarterly Environmental Mitigation Monitoring Reports (MMR) for the project. *Report #3 was issued to FTA during the week of February 4, 2019, and incorporates changes recommended by the FTA Region 3 reviewer. PLTP is currently working on Report #4.*

B. Project Management Plan and Subplans

Project Management Plan (PMP)

The most recent FTA/PMOC reviewed version of the PMP is Version 10, which was submitted on May 10, 2016. After completing its review, the PMOC issued its Oversight Procedure (OP) 20 PMP review report on May 28, 2016, finding that the PMP Version 10 met the FTA requirements for a PMP at the FFGA execution stage of the project. Certain areas of the PMP were noted as needing to be updated after development of the relevant documents by the Concessionaire in accordance with P3 contract requirements, and the PMOC recommended that the PMP be revised and resubmitted after execution of the FFGA. MTA commenced an update of the PMP on December 2017 submitted the PMP Version 11 in mid-August 2018. However, since another major update was imminent, the PMOC review was deferred to PMP Version 12 once submitted. On January 3, 2019 MTA

submitted PMP Version 12 dated December 14, 2018. *The PMOC review in accordance with OP20 continues.*

[REDACTED], it has been challenging for MTA to strictly follow the procedures and practices established in the Purple Line PMP Version 10. The most significant deviations from the PMP continue to relate to the project schedule and to any costs associated with schedule recovery. According to the PMP, the Master Schedule is to be updated monthly; however, the most recent approved Master Schedule update is as of March 15, 2017. Now that the FFGA has been executed, MTA and the P3 Concessionaire have produced a plan to collaborate on schedule recovery and to update the project schedule accordingly, and have started to work on those objectives. See the **Project Schedule** section of this report for further details. After MTA reaches agreement with PLTP on schedule recovery, the impact to project cost, if any, will be negotiated.

Safety and Security Management Plan (SSMP)

The most recent FTA/PMOC reviewed version of the SSMP is Version 6 dated October 22, 2014. [REDACTED] the PMOC completed its review and issued its OP22 SSMP review report on February 5, 2016. The PMOC review found that the SSMP was compliant with FTA content requirements for execution of the FFGA, but requested MTA to resubmit the SSMP after FFGA execution, addressing comments in the PMOC report with updated information from the P3 Concessionaire. MTA completed an update of the SSMP incorporating the P3 Concessionaire involvement, and submitted SSMP Version 7, dated June 14, 2018, on August 13, 2018. Since there had been significant project advancement subsequent to the most recent prior review of the Purple Line SSMP, the PMOC first conducted a preliminary or “cursory” review to assure completeness before investing the effort of a detailed review. The PMOC completed the cursory review of SSMP Version 7 in accordance with OP22 and submitted comments to MTA on September 7, 2018. MTA Updated the SSMP to address the cursory review comments and on November 1, 2018, submitted SSMP Version 8, dated October 24, 2018. The PMOC forwarded a copy of SSMP Version 8 to Maryland Department of Transportation (MDOT), the State Safety Oversight Agency (SSOA) for this project, who conducted a review concurrent with the PMOC’s OP22 review. The PMOC met with the SSOA in December 2018 and found that the SSOA comments were similar to the PMOC’s findings. A draft PMOC OP22 report that also incorporates the SSOA review was submitted for FTA review on January 4, 2019.

Quality Assurance Plan (QAP)

In August 2017, MTA submitted for FTA/PMOC review a complete Quality Assurance Plan update, the MTA Purple Line Quality Assurance Plan Revision 8.0 dated May 2017, which supersedes the Purple Line Project Document for Quality that had been previously reviewed and accepted with comments. The MTA Purple Line Quality Assurance Plan Revision 8.0 incorporates the Concessionaire Quality Program, the Concessionaire’s Design Quality Plan (CDQP) and the Concessionaire Construction Quality Plan, as well as

an updated Document Control Plan. The PMOC completed its review of QAP Revision 8.0 in accordance with OP24 in October 2017, and found that the documents generally conformed to the OP. Minor comments were provided which can be addressed during the next update, *which is currently in process, as are the PLTP Quality Program (CQP), the Concessionaire's Design Quality Plan (CDQP) and the Concessionaire Design Services During Construction Plan (DSDC).*

Real Estate Acquisition Management Plan (RAMP)

Purple Line RAMP Version 7, dated May 2016, was reviewed in accordance with OP23 and met the requirements of OP23 for the execution of an FFGA. MTA subsequently prepared an update of the RAMP, and submitted Purple Line RAMP Version 8, dated April 18, 2018 for FTA/PMOC review. The PMOC completed its review and issued its OP23 report dated June 2018, which required revision and resubmittal of the RAMP. MTA subsequently addressed the comments and in mid-August 2018 submitted RAMP Version 9 and Appendices F and H in response. The PMOC review of the RAMP Version 9 submittals confirmed that all PMOC comments had been addressed, but a detailed OP23 review and report were deferred until the next RAMP update, which was imminent. On January 3, 2019, MTA submitted RAMP Version 10 dated January 2, 2019, including Appendices H and N. *The PMOC completed its review in accordance with OP23 and submitted a draft OP23 report for FTA review and comment on January 31, 2019. After receiving FTA comments, the final OP23 report was issued on February 22, 2019.*

Fleet Management Plans

The current FTA/PMOC reviewed version of the Purple Line Rail Fleet Management Plan (RFMP) is RFMP Version 7.0, dated February 15, 2016, which incorporates information from the selected P3 Concessionaire's proposal. The PMOC completed review of RFMP Version 7.0, and documented in its OP37 RFMP review report issued on May 27, 2016 that Version 7.0 met the requirements of OP37 for execution of an FFGA. The review also recommended that MTA submit an update to RFMP Version 7.0 to FTA and the PMOC to reflect the P3 Concessionaire's own Rail Fleet Management Plan after MTA review has confirmed that it meets Purple Line project requirements. The P3 contract requires PLTP to submit its RFMP for MTA review and approval within 90 days after the June 17, 2016 P3 contract Financial Close, to submit the RFMP with the LRV Preliminary Design submittal, to submit an updated RFMP with the LRV Final Design submittal, to submit a further updated version no later than six months prior to the scheduled beginning of Revenue Service, and to update the RFMP annually once in revenue service. MTA received, reviewed and approved PLTP's Purple Line Rail Fleet Management Plan Revision 0 dated June 22, 2016 after Financial Close, in accordance with contract requirements. At the time of the LRV Preliminary Design submittal, MTA and PLTP reviewed the RFMP again and determined that Revision 0 dated June 22, 2016 was still valid. MTA submitted PLTP's RFMP Revision 0 dated June 22, 2016 to the FTA/PMOC. This PLTP Revision 0 version of the RFMP had not yet had the benefit of any significant engineering by PLTP after contract award, and has not been reviewed by the PMOC in accordance with OP37.

The current version of the Bus Fleet Management Plan (BFMP) is BFMP Version 8.1, which was submitted for FTA/PMOC review on February 12, 2016. The PMOC completed its review of BFMP Version 8.1 and issued the final OP37 BFMP Review Report on March 4, 2016, concluding that the BFMP met the requirements of OP37 for the execution of a FFGA for the Purple Line project.

Risk and Contingency Management Plan (RCMP)

The current version of the RCMP is Version 10, dated May 2016. The PMOC's OP40 review found that Version 10 met the requirements of OP40 for an RCMP at the FFGA stage of a project. However, [REDACTED] MTA had not been able to establish routine bi-monthly Risk Management Committee meetings or formal updates of the Risk Register as required by the RCMP. MTA resumed bimonthly meetings in October 2017 after the lawsuit was resolved and the FFGA was executed. MTA completed an update of the Purple Line Risk Register in March 2018 and provided a copy to the PMOC. MTA also completed preparation of an RCMP revision and submitted it to FTA/PMOC for review in April 2018. On January 3, 2019, MTA submitted RCMP Version 12 dated January 2019 as part of its annual update of the major PMP subplans. The PMOC is awaiting FTA Programmatic task authorization to conduct the OP40 RCMP review of Version 12. Also see the **Project Risk** section of this report.

Safety and Security Certification Plan (SSCP)

The current version of the Purple Line SSCP is Version 3 dated November 4, 2014, which was reviewed as a companion document to the SSMP. The PMOC review found that Version 3 met the FTA requirements in support of the FFGA application. An updated version incorporating requirements from the P3 Concessionaire should be submitted for review after the updated SSMP submittal (see SSMP above); formal SSCP review will be by the State Safety Oversight Agency (SSOA).

C. Project Management Capacity and Capability

Through the PMOC's observations and discussions with MTA, especially MTA Transit Development and Delivery (TDD) and Purple Line project management personnel, the PMOC has noted that MTA has been responsive to finding and assigning management capacity and capability as needed to sufficiently complete the project in compliance with applicable FTA requirements. This has included bringing talent, either MTA or Maryland Department of Transportation (MDOT) personnel or consultants, onto the project to manage the current needs, such as planning, P3 procurement and contracting, real estate acquisition, construction, etc.

Recent (January-February 2019) Purple Line staffing activity has included the following:

- *The MTA PMC team is recruiting a Construction Manager for Train Systems and Electrification, to be on board when those construction activities get underway.*

The PMOC continues to monitor the effectiveness of the MTA staff and the added personnel resources from consultants, MDOT and other modal administrations as they have been integrated into overall MTA project management of the Purple Line Project. *To date the PMOC has found the staff changes/additions to be appropriate and effective.*

D. Project Cost

Appendix 6 of this report summarizes the project's actual expenditures and forecast at completion compared with the project budget as reported in MTA's June 1, 2016 Standard Cost Category (SCC) Workbook, which is the basis of the Purple Line FFGA. The project documented expenditures of \$944.4 million through November 15, 2018 (for PLTP costs) /November 30, 2018 (for MTA costs). Refer also to the FFGA Core Accountability table in the Executive Summary section of this report for details on the planned and actual expenditures on the project.

In the cost estimate presented in the June 1, 2016 SCC Workbook, which is the basis for the FFGA, contingency in Year of Expenditure (YOE) dollars is as follows:

Allocated Contingency	\$59,500,464
Unallocated Contingency (SCC 90)	\$90,535,748
Total Contingency	\$150,036,212

Through November 30, 2018, there have been 13 Change Orders and one Change Order Amendment executed under the P3 contract, which have resulted in a \$292,507 net cost increase to the estimated cost of the FFGA project and an associated drawdown on contingency. Accordingly, the remaining contingency is now \$149,743,705. There are also multiple Change Orders pending or proposed under the P3 contract that have potential cost impact on the P3 project. Working with the PMOC, the Purple Line project team developed a three-part change tracking system that documents:

- Executed Change Orders
- Pending Change Orders that are pending execution, and Proposed Change Orders that are currently either being priced by the contractor or are in various stages of negotiation
- Potential Change Orders that the contractor has formally submitted to protect specific rights and privileges, but which have not been either fully developed by the contractor or accepted by MTA

The PMOC monitors the executed, pending, proposed and potential changes reflected in monthly updates to these change logs and reviews any noteworthy changes with the project team.

In addition to the Change Orders above, mitigation to recover the schedule (see the **Project Schedule** section of this report, below) may potentially result in added costs to the project, which will need to be negotiated with PLTP.

Project Funding

The funding for the Purple Line project, as reflected in Attachment 3 for the FFGA, is as follows:

Sources of Federal Funding and Matching Share Ratios

	Costs Attributed to Source of Funds Dollars	Federal/ Local Matching Ratio within Source	All Federal Funds Dollars	Local Funds Dollars*
Federal 5309 New Starts	2,362,030,286	38/62	900,000,000	1,462,030,286
Federal Other (FTA Section 5307)	45,000,000	80/20	36,000,000	9,000,000
Total	2,407,030,286		936,000,000	1,471,030,286
Overall Federal Share of Project			38.9%	
New Starts Share of Project			37.4%	

* Local includes costs funded by the MDOT TTF as well as the P3 concessionaire funded costs. The P3 concessionaire uses Transportation Infrastructure Finance and Innovation Act (TIFIA), private financing, and equity to fund its costs. The P3 concessionaire funded costs are treated as Local Match for the 5309 New Starts funds.

Standard Cost Category (SCC) Worksheets

Appendix 7 presents the Purple Line project cost estimate, based on the June 1, 2016 update of the SCC Workbook in FTA's Standard Cost Category format, which is the basis of the FFGA.

E. Project Schedule


The PMOC receives copies of the master project schedule updates, including the native Primavera scheduling software files, once the update has been approved by MTA. The March 15, 2017 progress update of the master project schedule was approved as noted in May 2017, *and continues to be the latest approved version of the schedule, as later submissions of schedule updates from PLTC have not been approved for various reasons.* However, in response to a letter that FTA issued to MTA in early August 2018 expressing concern with the amount of time that the project has advanced without an approved schedule, MTA prepared a working schedule update of the master project schedule. The update is based on the current negotiations of the P3 contract schedule, which have been ongoing with PLTP since late 2017 and which have been detailed in prior PMOC Monthly Monitoring reports; but the update is not yet based on a mutually agreeable P3 contract schedule. The schedule is titled "MTA Master Schedule August 2018", and was progressed through August 31, 2018. Although the

MTA Master Project Schedule August 2018 is not yet the final recovery schedule with the mutual agreement of MTA and PLTP, it does provide a more accurate presentation of the current Purple Line project status than the latest approved project schedule (March 15, 2017).

The most significant differences between the last approved project schedule (March 15, 2017) and the MTA Master Schedule August 2018 were a change in the schedule critical path from through Segment 4 (Plymouth Tunnel) to through Segment 7 (Riverdale aerial structure), and a slip in the “PLTP Commence Revenue Service date” from March 11, 2022 to October 28, 2022. However, according to the MTA Master Schedule August 2018, the Purple Line is still forecasted to start revenue service earlier than the FFGA Revenue Service Date (RSD) of December 31, 2022.

MTA reports that PLTC is currently submitting monthly schedule progress updates for its scope in accordance with the P3 contract. MTA then performs monthly progress updates of the MTA Master Project Schedule based on the progress updates received from PLTP as well as from its internal staff, relative to the MTA Master Schedule August 2018 baseline.

MTA submitted the November 15, 2018 progress update of the MTA Master Schedule, which was reviewed by the PMOC. Although the November 15, 2018 update continues to show the start of revenue service prior to the FFGA RSD of December 31, 2022, several major interim milestones have slipped in the past month since the October 15, 2018 schedule update, including approximately two week slippage in the forecasted Commencement of Trial Running date from to April 9, 2022 to April 22, 2022, and approximately four week slippage in the forecasted PLTP Commencement of Revenue Service date from November 18, 2022 to December 13, 2022. (b) (5)



The PMOC advises, though, that this is not yet a contractually enforceable schedule, and that MTA/PLTP contractual agreement on the schedule is not anticipated soon. In addition, any costs associated with schedule recovery will need to be determined and assigned responsibility.

A copy of the summary level of the November 15, 2018 progress update of the MTA Master Schedule is included in Appendix 8 of this report.

Key Milestones

The following are the current key milestone dates for the project, showing the last approved (March 15, 2017) progress update of the master project schedule, the MTA Master Schedule August 2018 (proposed rebaseline) and the November 15, 2018 progress update of the MTA Master Schedule.

National Capital Purple Line LRT Key Milestone Dates			
Activity	Latest (March 15, 2017) Approved Project Schedule	MTA Master Schedule August 2018 (working baseline)	MTA Master Schedule; <i>November 15, 2018 update</i>
Locally Preferred Alternative (LPA) Approval Date	08/04/2009 (A)	---	---
FTA Approval to Enter PE	10/07/2011 (A)	---	---
FTA Record of Decision	03/19/2014 (A)	---	---
Issue Final RFP for P3 Concessionaire	07/28/2014 (A)	---	---
FTA Approval to Start enter Engineering Phase	08/28/2014 (A)	---	---
Issue Addenda 4 through 6 to the P3 RFP	07/2015 through 11/2015 (A)	---	---
P3 Technical Proposals Due	11/17/2015 (A)	---	---
P3 Financial Proposals Due	12/08/2015 (A)	---	---
Evaluation and Announcement of Selected P3 Proposer	01/02/2016- 03/02/2016(A)	---	---
Board of Public Works (BPW) Approval-P3	04/06/2016 (A)	---	---
P3 Commercial Close	04/07/2016 (A)	---	---
Limited Notice to Proceed (LNTP) for P3 Engineering	04/07/2016 (A)	---	---
MTA submit Full Funding Grant Agreement Application	05/24/2016 (A)	---	---
P3 Financial Close	06/17/2016 (A)	---	---
Full Funding Grant Agreement signed	08/22/2017 (A)	---	---
Start of First Major Construction Activity	08/28/2017 (A)	---	---
All Significant ROW Acquisition & Relocation	As needed by construction	---	---
<i>Commencement of Trial Running</i>	---	03/09/2022	04/22/2022
P3 Ready to Commence Revenue Service	TBD	10/28/2022*	12/09/2022
MTA Opens for Revenue Service	3/2022	---	12/13/2022
Revenue Operations Date (includes contingency)	12/31/2022	---	---
FFGA Revenue Service Date (includes contingency)	12/31/2022	12/31/2022	12/31/2022

* P3 Revenue Service date is based on MTA's working version of an updated integrated master project schedule based on MTA/P3 Concessionaire negotiations to date, but for which final agreement with the P3 Concessionaire has not yet been reached.

90-day Look Ahead

The critical 90-day (*mid-February to mid-May 2019*) look-ahead activities for the National Capital Purple Line project are

Scheduled Date	Activity / Event
Ongoing	P3 submittal / MTA review of design packages
Ongoing	Completion of critical Real Estate acquisitions and relocations
Ongoing	MTA and PLTP collaboration for agreement on a mitigated project schedule
<i>Late February 2019</i>	Shipment of LRV #3 carshells from Spain to Elmira, NY for final assembly

Scheduled Date	Activity / Event
March 2019	Receipt of the Bethesda Station ATC final design package leading to approval of the ATC
March 2019	Advertise Wetlands Mitigation construction
March 2019	Award DB contract for County Parks Polk Street Maintenance Facility
March 2019	Bethesda “box” to be available to PLTC for PL construction activities
April 2019	Second of two required BPW approvals for MTA to convey property at New Carrollton to WMATA (MTA currently has ROE to work on WMATA property; conveyance will be completed later)
April 2019	Bids due for the Stream Mitigation construction contract
April 2019	Start test running of LRV#1 up to 25 mph on test track in Elmira
April 2019	Complete SSTC Mezzanine design / RFC (critical path)

Critical Path Activities

In the MTA Master Schedule November 15, 2018 update, for which final agreement with PLTP has not yet been reached, the critical path has shifted from through LRV delivery and Area 3, Segment 7 construction to a critical path through Area 1, Segment 3 construction of the Silver Spring Transit Center Mezzanine/Connector, through Trial Running and into Revenue Service.

F. Quality Assurance / Quality Control (QA/QC)

The Purple Line QA/QC is addressed in Section 10 of the PMP, Quality Program Plan, and the updated MTA Quality Assurance Program Revision 8.0, which incorporates the implementing Quality Plans prepared by PLTC. The most current versions of the PMP, the Purple Line Document for Quality and the QAP are as discussed in the **Project Management Plan and Subplans** section of this report. *MTA has been reviewing the multiple updated Quality Assurance plans being updated and resubmitted by PLTC.*

The Purple Line project continues to conduct its monthly meeting to review the QA/QC activities performed by the Purple Line project team, including those by the P3 Concessionaire, PMC and the GEC. Documentation from these meetings is distributed separately. The PMOC performs an overview of each distributed package, with more detailed reviews conducted on periodic basis.

The project’s Monthly Progress Report to FTA also contains a brief summary of the significant current QA/QC activities/events on the project, including quality audits and quality reviews of PLTC submittals.

G. Safety and Security

PLTP has conducted forty Preliminary Hazard Analysis (PHA) workshop sessions to date. Workshops continue to be held to resolve MTA comments on the PHAs completed to date. PLTP's Safety and Security Working Group (SSWG) continues to oversee the hazard management process. MTA has representation on the group to provide comments and insight, but does not vote on topics before the PLTP SSWG.

MTA chairs a Safety and Security Certification Committee (SSCC) that reviews, comments on, and approves PLTP hazard management and certification issues. The first meeting of the MTA SSCC was conducted on March 20, 2018. Starting with July 11, 2018, the meeting has been held on a monthly basis on the second Wednesday of the month until the level of activity requires more frequent meetings. *The most recent meeting of the SSCC was held on February 13, 2019 and addressed the PHA approvals, blast analysis (anti-terrorism) submittals and reviews.*

The PLTP System Safety team completed development of its first Design Criteria Conformance Checklist (DCCC) in May 2017 and submitted it for MTA approval. However, it did not meet MTA expectations and was returned for revision and resubmittal. PLTP had not been preparing DCCCs until January 2018, when they resumed preparing them, since MTA stated it would reject any Final Design Packages submitted without an associated DCCC. MTA (assisted by the PMC) reviews the DCCCs as part of the Final Design Package according to the established submittal review process. Per PLTP, the DCCCs are being verified prior to the issuance of Released for Construction (RFC) packages. *MTA reviewed and returned comments on PLTP's Revision 1 of the Certified Elements List (CEL), which was submitted by PLTP on January 9, 2019. PLTP continues to address MTA comments on the Certified Items List (CIL) Revision D, which is to be revised and resubmitted. Revisions to the CEL and CIL could affect DCCCs that have already been issued with RFC packages, and require them to be revised.*

PLTP also completed its initial Threat and Vulnerability Assessment (TVA) process and submitted the draft TVA report for MTA review and comment. MTA's review resulted in a significant number of comments, which were returned to PLTP to be addressed. TVA Revision D was subsequently submitted by PLTP, reviewed by MTA and returned with 3 comments to be revised and resubmitted. *The TVA continues in the comment resolution process.*

The MTA Purple Line Safety and Security personnel review and comment on the PLTP design submittals, including those of the vehicle supplier.

MTA continues to conduct Fire/Life/Safety meetings with each Montgomery and Prince George's Counties on bi-monthly basis. The meetings provide a basis for the County emergency responders to understand the features of the Purple Line systems, and to resolve any concerns. *The Montgomery County meeting scheduled for January 17, 2019 was canceled due to lack of current topics. The Prince George's County meeting is scheduled for February 21, 2019.*

As required by the P3 contract, the P3 concessionaire, PLTP, is responsible for directly implementing many of the safety and security requirements for the project, including construction safety and the collection and maintenance of the Occupational Safety and Health Administration (OSHA) safety statistics for the project. *PLTC statistics as reported through January 2019 were as follows:*

- Recordable Rate (Construction – heavy civil):
 - Actual: 0.35
 - PLTP goal: 0.45
 - National Ave. 2.8
- Lost Time Rate:
 - Actual: 0.00
 - PLTP goal: 0.00

See Section B of this report for the status of the safety and security related subplans of the PMP. Appendix 1 of this report includes extensive additional safety and security-related information for the Purple Line project on a quarterly basis.

H. Americans with Disabilities Act (ADA)

The PMOC confirmed that the Design Criteria Manual applicable to the Purple Line project addresses ADA requirements, including references to the requirements in the Maryland Accessibility Code (MAC), the ADA Accessibility Guidelines for Buildings and Facilities (ADAAG), and the ADA Standards for Transportation Facilities.

Accessibility and compliance with ADA are required as part of the functional requirements for stations and guideway and as part of the codes and standards for light rail vehicles within the P3 contract (Book 2 Part 2) for the Purple Line project. The design packages prepared in accordance with the P3 contract by PLTC are reviewed by MTA and its consultants. In project reviews conducted by the PMOC, MTA has confirmed that it includes ADA compliance in its QA Oversight reviews of PLTC's design packages. ADA compliance is included in the PMOC periodic project reviews, during which timely project ADA-related items are discussed. *In January 2019 through mid-February 2019, there were several reported minor ADA infractions in ramp slopes for temporary construction accesses that were identified by MTA's field forces, but the contractors corrected each within several hours of being notified. No ADA issues were identified with the vehicles.*

I. Buy America

The PMOC has discussed Buy America requirements with the Purple Line project team during the PMOC project review meetings, and has confirmed that MTA understands that Buy America compliance applies not only to the rail vehicles but is also required for procurement of all manufactured products, including all iron and steel. MTA is also aware that domestic manufacture of all federally-funded procurements is required and should be certifiable.

Compliance with Buy America is contained in MTA standard clauses for its procurements, and the P3 contract contains explicit Buy America language in its Appendix 16.

As designs are reaching finalization, PLTC is starting to encounter more occurrences wherein Buy-America compliant supply of as-designed commodities may not be available. However, since PLTC is responsible for the design and has committed to compliance with Buy America provisions, MTA is holding PLTC responsible for complying with the regulations and the P3 contract in this respect. The Purple Line project team has recently started spot checking materials being used in utility relocations. (b) (5)

. MTA recently received some resistance from Verizon who didn't want to segregate fasteners (bolts, nuts, washers) to assure that only Buy America compliant products were used, but MTA responded that they need to comply.

PLTC passed the Buy America requirements on to the vehicle supplier, Construcciones y Auxiliar de Ferrocarriles (CAF). The Buy America Pre-Award audit was conducted by Virginkar and Associates, who concluded that there is reasonable certainty that CAF will satisfy the Buy America requirements as stated in 49 CFR 661.

An intermediate post-award Buy America audit for added confidence that the post-delivery audit will not identify issues was conducted of CAF's Elmira, NY facility during the week of October 2, 2017. There were no significant findings, and based on the audit, the domestic content of the LRVs is currently estimated at approximately 62% as compared to the required 60% for these vehicles. CAF is targeting 65% domestic content in the completed vehicle. MTA has also been in communication with the U.S. Maritime Administration regarding the use of US Flagship carriers for the transport of carshells from Spain to the United States for final assembly.

J. Vehicles and Vehicle Technology

Based on the contract negotiated with PLTP, the vehicles will be 136-foot long, multiple articulated light rail vehicle operated as single car maximum length trains. Due to the vehicle's extended length, only 25 vehicles (21 plus 4 spares) will be provided under the FFGA for opening year.

PLTP executed the LRV contract with CAF on June 17, 2016 and issued CAF Notice to proceed on July 5, 2016.

Vehicle carshell manufacturing activities, coordinated with design progress, continued in Spain and in Elmira, NY in January and early February 2019.

(b) (5)

Regarding carshell manufacturing, the following is the current status:

- *LRVs 102 through 106 continue in manufacture, with several being readied for shipment to the U.S.*
- *LRV 103 is expected to arrive in the U.S around the beginning of March 2019*
- *The structural test was completed on LRV 102, but the test report has not yet been received by MTA*
- *Floor fire endurance testing is scheduled to be performed on March 6, 2019*
- *Roof fire endurance testing has not yet been scheduled; CAF reports that it is awaiting parts to perform the test.*

MTA (b) (5) sent a letter of concern regarding the LRV manufacturing schedule to PLTP in December 2018. *No response has yet been received.* MTA also has not yet received the Fire, Smoke and Toxicity test results. In addition, although the P3 contract requires solar-powered wayside track lubricators, CAF's design included only on-board lubricators. MTA and PLTC continue to evaluate the relative benefits of the two systems. However, if a wayside system is found to be preferred, MTA will need to verify that acquired right of way can accommodate wayside installation before approving the change, since PLTP's reviews to date for potential changes to the Limits of Disturbance has not taken wayside equipment into consideration.

Vehicle final assembly is taking place in CAF's facility in Elmira, NY. All five carshell segments of the first vehicle, modules A, B, C1, C2 and D, continue undergoing final assembly activity, including installation of wireway trays and harnesses, wiring and Nora rubber flooring, and production of the undercar and roof assemblies. MTA rejected CAF's requested design deviation to utilize the current environmental test chamber in Elmira, which is shorter than the overall vehicle, for a second time. CAF has stated that it will resubmit its request with justification for testing in the existing test chamber, which can accommodate 4 of the 5 segments at a time, but MTA has not yet received the resubmittal, *nor a proposed climate test procedure.* (b) (5)

Additional Vehicle Status information is included as Appendix 9 of this report on a quarterly basis.

PROJECT RISK

MTA has established a risk management organization, which is defined in the project's Risk and Contingency Management Plan, and which is overseen by MTA's Risk Management Committee. Two major elements of the RCMP are the periodic performance of Quantitative Risk Assessments and the maintenance and use of a Risk Register.

During the approximately one-year period of time in which the ROD had been vacated by the federal judge in his decision related to the Friends of the Capital Crescent Trail lawsuit, MTA did not conduct formal Risk Management Committee meetings, conduct additional Quantitative Risk Assessments or perform formal updates of the Risk Register. Though, the Purple Line project management team did assess and respond to the risks associated with that unforeseen chain of events.

The project team resumed formal risk meetings in October 2017, including individual updates of each risk on the current Risk Register by the risk owner. An overall update of the Risk Register was completed as draft in January 2018, and updated further and reissued in March 2018. Updating of the Risk Register is an ongoing process throughout a project's duration, and according to MTA's current RCMP, is to be performed bi-monthly. The current status of the RCMP is discussed in Section B, Project Management Plan and Subplans, of this report.

MTA provides copies of significant updates of the Purple Line Risk Register to the FTA and PMOC. The top risks from the project's latest issued update of the Risk Register and PMOC-assessed risks are included as Appendix 2 of this report on a Quarterly basis.

ACTION ITEMS

Action Items are identified at MTA/FTA Quarterly Progress Meetings, at MTA/PMOC Monthly Progress Meetings and at MTA/FTA Biweekly New Starts Progress Conference Calls. Separate lists for each are included. Items identified as closed are removed from the subsequent monthly report. *There is currently one open Action Item applicable to the Purple Line project, related to providing FTA documentation regarding the exchange of MTA property with federal interest at New Carrollton in return for easements from WMATA.*

APPENDICES

The following Appendices or placeholders are provided with this report:

- Appendix 1 Safety and Security Checklist
Per OP25, this item is issued quarterly.
Refer to the December 2018 Monitoring Report for the most recent quarterly issuance.
- Appendix 2 Top Project Risks
Per OP25, this item is issued quarterly.
Refer to the December 2018 Monitoring Report for the most recent quarterly issuance.
- Appendix 3 Roadmap to Revenue Operations
Per OP25, this item is issued quarterly “as a separate attachment”.
Refer to the December 2018 Monitoring Report for the most recent quarterly issuance.
- Appendix 4 Project Map
- Appendix 5 Acronyms
- Appendix 6 Cost vs. Budget
- Appendix 7 FTA SCC Workbook – BUILD Main Worksheet
- Appendix 8 Project Schedule
- Appendix 9 Vehicle Status Report
Per OP25, this item is issued quarterly.
Refer to the December 2018 Monitoring Report for the most recent quarterly issuance.
- Appendix 10 Construction Photographs

Appendix 1 Safety and Security Checklist

Per OP25, this item is issued quarterly. Refer to the December 2018 Monitoring Report for the most recent quarterly issuance.

Appendix 2 Top Project Risks

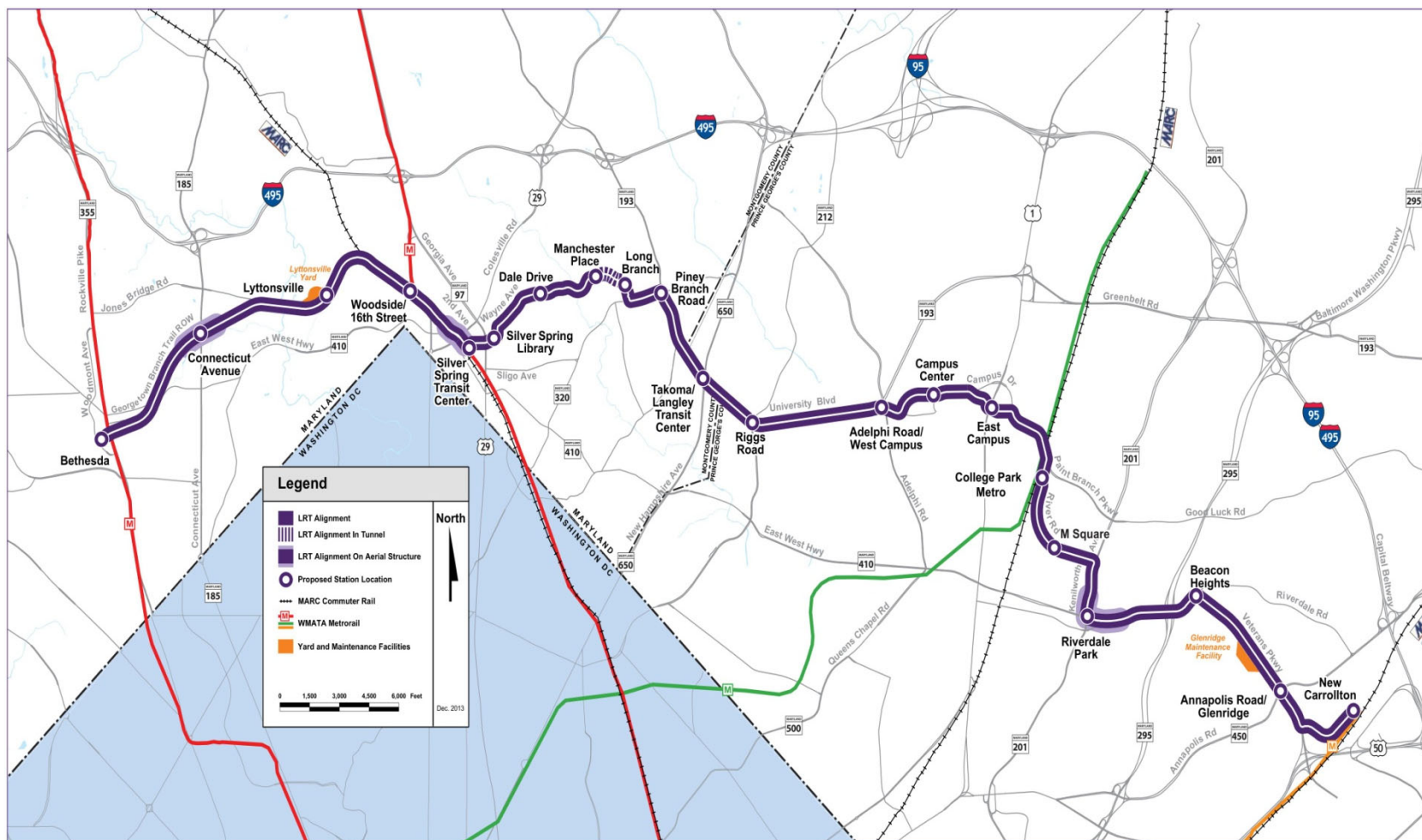
Per OP25, this item is issued quarterly. Refer to the December 2018 Monitoring Report for the most recent quarterly issuance.

Appendix 3 Roadmap to Revenue Operations

In accordance with OP25, the Roadmap to Revenue Operations, prepared from the Project Sponsor's Master Schedule, is issued quarterly as a separate electronic file. Since the Project Sponsor's Master Schedule is undergoing a major revision for schedule recovery, the dates currently shown on this issue of the roadmap are likely to change.

Refer to the December 2018 Monitoring Report for the most recent quarterly issuance.

Appendix 4 Project Map



Appendix 5**List of Acronyms**

ADA	-	Americans with Disabilities Act
ADAAG	-	ADA Accessibility Guidelines for Buildings and Facilities
ATC	-	Alternate Technical Concepts
B-W	-	Baltimore-Washington
BFMP	-	Bus Fleet Management Plan
BPW	-	Board of Public Works
CAF	-	Construcciones y Auxiliar de Ferrocarriles
CDQP	-	Concessionaire's Design Quality Plan
CEL	-	Certified Elements List
CIL	-	Certified Items List
CQP	-	Concessionaire Quality Program
D-B	-	Design-Build
DBFOM	-	Design/Build/Finance/Operate/Maintain
DCCC	-	Design Criteria Conformance Checklist
DNR	-	Maryland Department of Natural Resources
DSDC	-	Design Services During Construction
EMI	-	Electro-Magnetic Interference
FCP	-	Forest Conservation Plan
FFGA	-	Full Funding Grant Agreement
FTA	-	Federal Transit Administration
GEC	-	General Engineering Consultant
JPA	-	Joint Permit Application
LNTP	-	Limited Notice to Proceed
LOD	-	Limits Of Disturbance
LPA	-	Locally Preferred Alternative
LRT	-	Light Rail Transit
LRV	-	Light Rail Vehicle
MAC	-	Maryland Accessibility Code
MARC	-	Maryland Area Regional Commuter
MDE	-	Maryland Department of the Environment
MDOT	-	Maryland Department of Transportation
MMR	-	Mitigation Monitoring Report
MOA	-	Memorandum of Agreement
MSE	-	Mechanically Stabilized Earth
MTA	-	Maryland Transit Administration
NEPA	-	National Environmental Policy Act
NFPA	-	National Fire Protection Association
NPS	-	National Parks Service
NTP	-	Notice to Proceed
OP	-	Oversight Procedures
OSHA	-	Occupational Health and Safety Administration
P3	-	Public Private Partnership
PD	-	Project Development
PEPCO	-	Potomac Electric Power Corporation

PHA	-	Preliminary Hazards Analysis
PLTC	-	Purple Line Transit Constructors
PLTP	-	Purple Line Transit Partners
PMC	-	Project Management Consultant
PMOC	-	Project Management Oversight Contractor
PMP	-	Project Management Plan
QA/QC	-	Quality Assurance/Quality Control
QAP	-	Quality Assurance Plan
RAMP	-	Real Estate Acquisition and Management Plan
RCMP	-	Risk and Contingency Management Plan
RFMP	-	Rail Fleet Management Plan
RFC	-	Released for Construction
RFP	-	Request for Proposal
RFQ	-	Request for Qualifications
ROD	-	Record of Decision
ROE	-	Right of Entry
ROW	-	Right-of-Way
RSD	-	Revenue Service Date
SCC	-	Standard Cost Category
SEIS	-	Supplemental Environmental Impact Statement
SHA	-	State Highway Administration
SOE	-	Support of Excavation
SSCC	-	Safety and Security Certification Committee
SSCP	-	Safety and Security Certification Plan
SSMP	-	Safety and Security Management Plan
SSOA	-	State Safety Oversight Agency
SSTC	-	Silver Spring Transit Center
SWM	-	Stormwater Management
SSWG	-	Safety and Security Working Group
TDD	-	Transit Development and Delivery
TIFIA	-	Transportation Infrastructure Finance and Innovation Act
TVA	-	Threat and Vulnerability Assessment
UMD	-	University of Maryland
USACE	-	United States Army Corps of Engineers
WMATA	-	Washington Metropolitan Area Transit Authority
WSSC	-	Washington Suburban Sanitary Commission
YOE	-	Year of Expenditure

Appendix 6 Cost vs. Budget

The following are project budgets, actual expenditures and forecast at completion amounts through November 15, 2018 (for PLTP costs) and November 30, 2018 (for MTA costs), compared with the project budget as reported in MTA's June 1, 2016 SCC Workbook and MTA's current Working Budget.

(in \$1,000)

SCC	Cost Category	Budget (June 1, 2016 SCC Workbook)	Working Budget* (Jan. 1, 2017 SCC Workbook)	Expended	Forecast at Completion
10	Guideway and Track	280,620,726	258,782,885	43,623,204	258,782,885
20	Stations	114,857,016	116,127,445	4,682,614	116,127,445
30	Maintenance Facility	94,155,591	94,155,591	10,169,455	94,155,591
40	Sitework	521,968,990	315,482,782	81,045,962	315,775,289
50	Systems	263,887,313	263,887,313	32,733,765	263,887,313
	Subtotal 10 thru 50	1,275,489,636	1,048,436,017	172,255,000	1,048,728,524
60	Right-of-Way	229,600,000	229,600,000	202,408,230	229,600,000
70	Vehicles	212,940,927	212,940,927	16,508,094	212,940,927
80	Professional Services (total)	571,658,114	798,711,733	553,548,777	798,711,733
80.01	Project Development (PD)	87,149,878	87,149,878	87,149,878	87,149,878
80.02	Engineering	139,766,036	114,618,846	103,823,037	114,618,846
80.03	Project Management for Design and Construction	148,555,323	227,047,206	138,289,121	227,047,206
80.04	Construction Administration & Management	83,269,280	255,349,776	177,510,886	255,349,776
80.05	Professional Liability; other Non-Construction Insurance	34,534,796	34,534,796	28,756,417	34,534,796
80.06	Legal; Permits; Review Fees by other agencies, cities, etc.	5,805,117	10,205,293	8,510,290	10,205,293
80.07	Surveys, Testing, Investigation, Inspection	15,164,346	16,798,570	9,509,148	16,798,570
80.08	Start up	57,413,338	53,007,367	-	53,007,367
	Subtotal 10 - 80	2,289,688,678	2,289,688,678	944,720,101	2,289,981,185
90	Contingency	90,535,748	90,535,748	(292,507)	90,243,241
100	Finance Charges	26,805,863	26,805,863	-	26,805,863
	Total	2,407,030,288	2,407,030,288	44,427,594	2,407,030,288

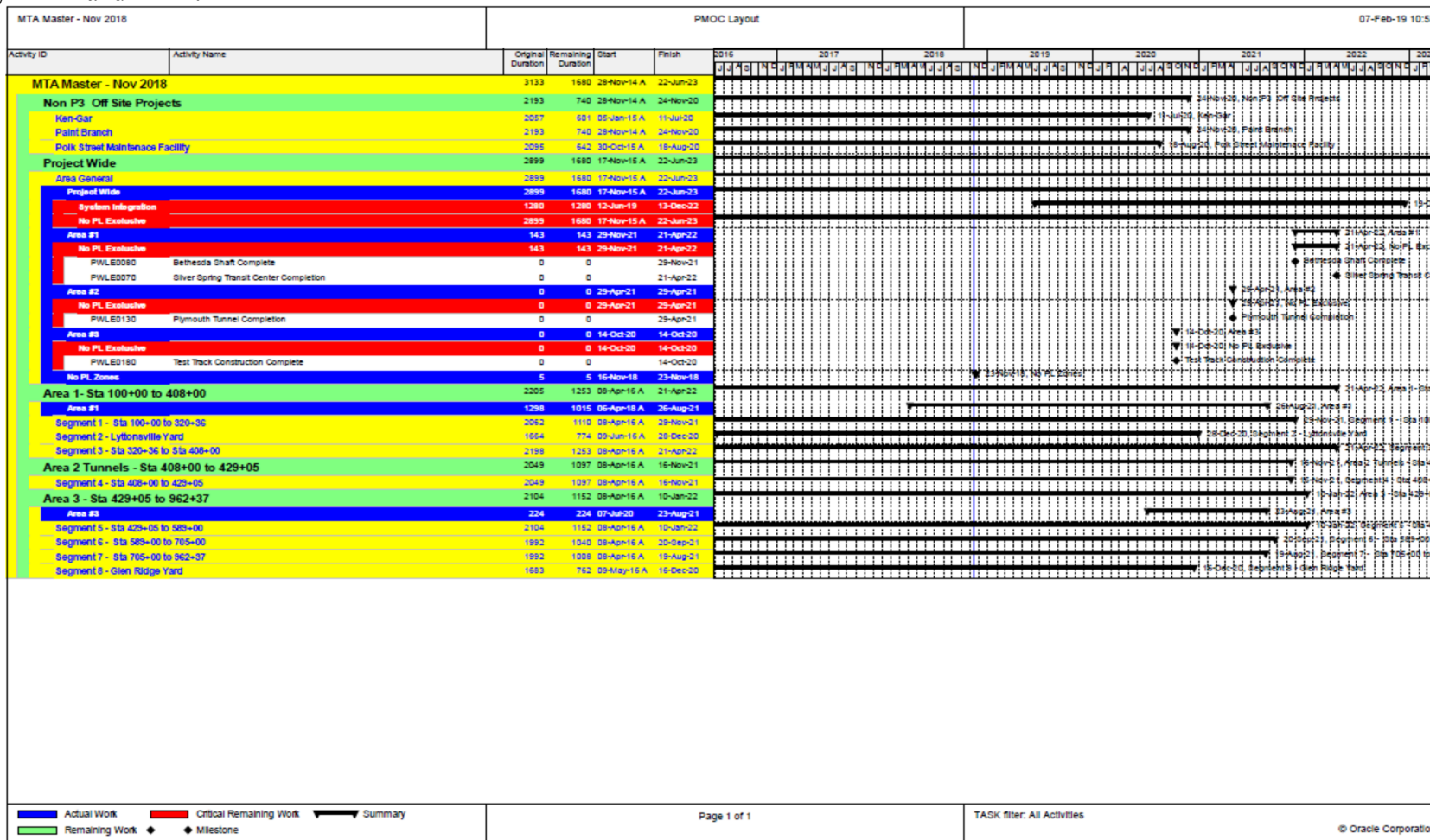
* NOTE: The Purple Line Working Budget is based on the current approved (December 2016) cost and resource loaded Baseline Project Schedule, which is undergoing mitigation and revision. Once the project schedule is re-baselined, the budget can be accordingly updated.

Appendix 7 FTA SCC Workbook – BUILD Main, June 1, 2016 Update

MAIN WORKSHEET - BUILD ALTERNATIVE									0
Maryland Transit Administration							Today's Date	5/24/16	
Maryland National Capital Purple Line							Yr of Base Year \$	2016	
FFGA Application							Yr of Revenue Ops	2022	
	Quantity	Base Year Dollars w/o Contingency (X000)	Base Year Dollars Allocated Contingency (X000)	Base Year Dollars TOTAL (X000)	Base Year Dollars Unit Cost (X000)	Base Year Dollars Percentage of Construction Cost	Base Year Dollars Percentage of Total Project Cost	YOE Dollars Total (X000)	
10 GUIDEWAY & TRACK ELEMENTS (route miles)	16.20	259,766	0.00	259,766	\$16,035	22%	12%	280,621	
10 01 Guideway At-grade exclusive right-of-way	3.26	2,978		2,978	\$913			3,244	
10 02 Guideway At-grade semi-exclusive (allows cross-traffic)	9.67	12,497		12,497	\$1,292			13,205	
10 03 Guideway At-grade in mixed traffic	1.20	12,862		12,862	\$10,718			13,961	
10 04 Guideway Aerial structure	0.46	67,018		67,018	\$145,692			73,222	
10 05 Guideway Built-up fill	0.00	0		0				0	
10 06 Guideway Underground cut & cover	0.00	0		0	\$0			0	
10 07 Guideway Underground tunnel	0.36	58,344		58,344	\$162,068			62,735	
10 08 Guideway Retained cut or fill	1.25	20,805		20,805	\$16,644			22,693	
10 09 Track Direct fixation		6,948		6,948				7,570	
10 10 Track Embedded		29,159		29,159				30,811	
10 11 Track Ballasted		30,012		30,012				32,575	
10 12 Track Special (switches, turnouts)		19,141		19,141				20,606	
10 13 Track Vibration and noise dampening		0		0				0	
20 STATIONS, STOPS, TERMINALS, INTERMODAL (number)	21	103,521	0	103,521	\$4,930	9%	5%	114,857	
20 01 At-grade station stop shelter mall terminal platform	16	23,884		23,884	\$1,493			26,295	
20 02 Aerial station stop shelter mall terminal platform	3	45,703		45,703	\$15,234			51,031	
20 03 Underground station stop shelter mall terminal platform	2	30,698		30,698	\$15,349			33,933	
20 04 Other stations landings terminals Intermodal ferry trolley etc	0	0		0				0	
20 05 Joint development		0		0				0	
20 06 Automobile parking multi-story structure		0		0				0	
20 07 Elevators escalators		3,236		3,236				3,599	
30 SUPPORT FACILITIES: YARDS, SHOPS, ADMIN. BLDGS	16.20	87,590	0	87,590	\$5,407	7%	4%	94,156	
30 01 Administration Building Office sales storage revenue counting		29,571		29,571				31,894	
30 02 Light Maintenance Facility		951		951				1,062	
30 03 Heavy Maintenance Facility		44,357		44,357				47,842	
30 04 Storage or Maintenance of Way Building		0		0				0	
30 05 Yard and Yard Track		12,710		12,710				13,358	
40 SITEWORK & SPECIAL CONDITIONS	16.20	481,579	2,405	483,984	\$29,876	41%	22%	521,969	
40 01 Demolition Clearing Earthwork		45,651		45,651				48,789	
40 02 Site Utilities Utility Relocation		143,356	1,596	144,952				154,044	
40 03 Haz mat/ contam'd soil removal/mitigation ground water treatments		17,099		17,099				18,439	
40 04 Environmental mitigation e.g wetlands historic/archeologic parks		24,936	808	25,744				27,716	
40 05 Site structures including retaining walls sound walls		64,172		64,172				70,248	
40 06 Pedestrian / bike access and accommodation landscaping		22,662		22,662				24,399	
40 07 Automobile bus van accessways including roads parking lots		135,633		135,633				148,189	
40 08 Temporary Facilities and other indirect costs during construction		28,072		28,072				30,145	
50 SYSTEMS	16.20	225,424	10,376	235,800	\$14,556	20%	11%	263,887	
50 01 Train control and signals		53,515		53,515				60,164	
50 02 Traffic signals and crossing protection		32,772		32,772				36,580	
50 03 Traction power supply substations		29,992		29,992				32,849	
50 04 Traction power distribution catenary and third rail		42,788		42,788				47,710	
50 05 Communications		33,620		33,620				37,775	
50 06 Fare collection system and equipment		2,918	10,376	13,294				15,568	
50 07 Central Control		29,819		29,819				33,240	
Construction Subtotal (10 - 50)	16.20	1,157,880	12,781	1,170,661	\$72,263	100%	52%	1,275,490	
60 ROW, LAND, EXISTING IMPROVEMENTS	16.20	186,092	37,187	223,279	\$13,783		10%	229,600	
60 01 Purchase or lease of real estate		166,132	32,483	198,615				203,143	
60 02 Relocation of existing households and businesses		19,959	4,704	24,664				26,457	
70 VEHICLES (number)	25	192,691	0	192,691	\$7,708		9%	212,941	
70 01 Light Rail	25	186,771		186,771	\$7,471			206,351	
70 02 Heavy Rail	0			0				0	
70 03 Commuter Rail	0			0				0	
70 04 Bus	0			0				0	
70 05 Other	0	5,920		5,920				6,590	
70 06 Non-revenue vehicles	0			0				0	
70 07 Spare parts	0			0				0	
80 PROFESSIONAL SERVICES (applies to Cats. 10-50)	16.20	535,369	6,032	541,401	\$33,420	46%	24%	571,658	
80 01 Project Development		87,150		87,150				87,150	
80 02 Engineering		136,688		136,688				139,766	
80 03 Project Management for Design and Construction		131,594	5,872	137,466				148,555	
80 04 Construction Administration & Management		76,410		76,410				83,269	
80 05 Professional Liability and other Non-Construction Insurance		32,697		32,697				34,535	
80 06 Legal Permits Review Fees by other agencies cities etc		5,530	88	5,618				5,805	
80 07 Surveys Testing Investigation Inspection		14,214	73	14,287				15,164	
80 08 Start up		51,086		51,086				57,413	
Subtotal (10 - 80)	16.20	2,072,032	56,000	2,128,032	\$131,360		95%	2,289,689	
90 UNALLOCATED CONTINGENCY				81,652			4%	90,536	
Subtotal (10 - 90)	16.20			2,209,684	\$136,400		99%	2,380,224	
100 FINANCE CHARGES				24,128			1%	26,806	
Total Project Cost (10 - 100)	16.20			2,233,812	\$137,890		100%	2,407,030	
Allocated Contingency as % of Base Yr Dollars w/o Contingency				2.70%				\$78,734	
Unallocated Contingency as % of Base Yr Dollars w/o Contingency				3.94%				\$135,438	
Total Contingency as % of Base Yr Dollars w/o Contingency				6.64%				\$148,582	
Unallocated Contingency as % of Subtotal (10 - 80)				3.84%					
YOE Construction Cost per Mile (X000)									
YOE Total Project Cost per Mile Not Including Vehicles (X000)									
YOE Total Project Cost per Mile (X000)									

Appendix 8 Project Schedule

The following is the Purple Line project Summary Schedule, based on MTA's preliminary updated Integrated Master Project Schedule progressed through November 15, 2018, but for which final agreement with the P3 Concessionaire has not yet been reached. As noted in the body of the report, the schedule as reflected here is subject to change as the fully mitigated schedule is developed and agreed to by PLTP and MTA.



Appendix 9 Vehicle Status Report

Per OP25, this item is issued quarterly. Refer to the December 2018 Monitoring Report for the most recent quarterly issuance.

Appendix 10 Construction Photographs



(photo: MTA)

Photo 1: Placement of the Plymouth Tunnel invert concrete.



(photo: MTA)

Photo 2: Manufacture of a Purple Line LRV carshell in Beasain, Spain