

# PMOC Comprehensive Monitoring Report

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

Maryland Transit Administration (MTA)

December 2019

PMOC Contract Number	DTFT60-15-D-00003		
Task Order Number	05	Project Number	FTA- DC-27-5312
Work Order Number	05		
OPs Referenced	25		

APTIM  
17 Princess Road  
Lawrenceville, NJ 08648

Deborah A. Boe

(b) (6)

## 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 is forecasting substantial design completion for civil packages in February 2020, and for systems packages in March 2020. The original Baseline Schedule anticipated design completion by late fall 2017. The current progress through mid-December 2019 reflects that 158 of the 212 planned Civil and Utility design packages have been issued as RFC. The Systems packages are tracked separately by PLTC and the number of planned System packages planned remains fluid.
- MTA, PLTC and CSX reached conceptual agreement on the remaining CSX design issues. The implementing final design submittals are in process or are already in review by CSX, although several late CSX requests continue to be resolved.
  - Design of the mezzanine connector pedestrian bridge as “building concourse” space so that CSX will accept a 23-foot vertical clearance above the CSX tracks (non-FFGA), pending resolution of CSX’s request for an additional 10-foot high fence.
  - New drainage connection relocated from the CSX yard area to Montgomery County-owned property (non-FFGA), pending Montgomery County accepting responsibility for some of the connections.
  - Final design for the new access road into the CSX yard (non-FFGA)
  - Stabilizing the existing WMATA-owned MSE wall near the Silver Spring Transit Center (SSTC) to meet crash wall standards; written concurrence has been received from CSX and the implementing designs are being prepared.

- MTA and Washington Suburban Sanitary Commission (WSSC) continue evaluating the Veterans Highway median as the alignment into which to relocate the 66-inch water main that currently runs through the Glenridge Operation and Maintenance Facility (OMF). This relocation is not schedule-critical work and will likely be implemented separate from the Purple Line FFGA project.
- The Alternate Technical Concepts (ATC) offered during the proposal process for the use of jet fans at the Bethesda Station in lieu of vent shafts is not yet at Released for Construction (RFC) status. However, PLTC has been reviewing the near final design with the Fire Marshall and has been addressing comments with design revisions as applicable. PLTC has contracted with a nationally reputable Fire Protection consultant to perform an independent review, on behalf of the Fire Marshall, of PLTC's Computation Fluid Dynamics analysis that supports the PLTC design. The design will be considered "final" once the Fire Marshall is satisfied.
- MTA continues implementing its non-P3 construction contract activities:
  - Prince George's County Parks Polk Street Maintenance Facility Design-Build (D-B) contract. The D-B contractor, Forrester, submitted the final design package on December 4, 2019 for MTA concurrence to issue as RFC. Forrester plans to mobilize for construction in mid-December 2019.
  - Off-site Wetlands Mitigation (Ken-Gar). The Design-Bid-Build construction contract was awarded and NTP was issued on September 5, 2019. Kickoff meetings were conducted, and the contractor applied herbicides for invasive species before the end of the fall season. The contractor plans to mobilize in December 2019 and start site surveys and the installation of Erosion and Sedimentation (E&S) Controls. Clearing and grubbing is scheduled to start in January 2020.
  - Off-site Stream Mitigation (Paint Branch). The Design-Bid-Build construction contract was awarded and NTP was issued on September 5, 2019. The contractor mobilized in late November 2019 and site surveys and the installation of E&S Controls are currently ongoing.
- PLTC's construction activities continued throughout the corridor. Utility relocations, drainage work and retaining and noise wall construction continue in various locations. Retaining walls and abutment construction for the rail overpass structure at Connecticut Avenue continued, as did support of excavation and mass excavation continues in process to lower the LRT and Capital Crescent Trail elevation for the underpass at Jones Mill Road. Demolition of the Faulkland Apartment building is nearing completion. Pile driving and temporary trestle construction for the Rock Creek Bridge continued. Construction of the abutments and piers for the flyovers continued at the Silver Spring Transit Center. Waterproofing of the slab and installation of foam block commenced at the eastern cut and cover section of Plymouth Tunnel. At Manchester Place Station, all planned wall pours and all planned columns to support the station ceiling structure were completed. Excavation commenced at the Bethesda Enclosed Trainway. Utility relocations including water, sewer, gas, electrical and communications continue along University Boulevard and multiple locations along Campus Drive, River Road and Kenilworth Avenue. Relocation of the Medco (electrical) underground utilities on the UMD campus is ongoing. Construction of the abutments and piers for the new Northwest

Branch Anacostia Bridge continued. Drainage was installed for the relocation of the “M” on the UMD campus. Bearing pads were installed on the Northeast Branch Anacostia Bridge and placement of the steel girders commenced. Sub-ballast installation is in process along River Road. Traffic signal modifications continued along Riverdale Road and Veterans Parkway. The precast arches for the northbound and southbound Baltimore-Washington (B-W) Parkway bridges were delivered and set in place. Retaining wall construction along Veteran’s Parkway and drilled shafts for the aerial structure along Annapolis Road continued. Installation of communications ductbank is in process at various locations at the east end of the alignment. At the Glenridge OMF, building brickwork, window and door installations, interior finishing, and mechanical and electrical systems work continue.

- 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. MTA’s review of the Safety Certification documents, which addressed all 174 requirements from the Technical Provisions of the P3 contract that are applicable to the vehicles, currently has several outstanding comments for CAF resolution. Regarding carshell manufacturing in Spain, seventy-two carshell segments have been completed to date, including those already shipped to the U.S., with multiple additional LRVs are in the manufacturing process. The fifth of the five carshells for LRV 6, plus the first three carshells for LRV 7 were shipped from Spain and are in transit to Elmira, NY. The last two carshells for LRV 7 are being prepared for shipment.
  - Vehicle final assembly is taking place in CAF’s facility in Elmira, NY. There are currently 29 carshells (five full vehicles plus four carshells of the sixth vehicle) in Elmira. CAF assembled all five carshell segments of the first vehicle together, placed the vehicle on its trucks on the Elmira test track and started performing static testing in June 2019. CAF completed modifying the power supply to its Elmira test track from 750 Volts to 1500 volts, and LRV 1 was operated on the Elmira test track under its own power in December 2019. All five carshells of LRV 2 have been coupled together and the vehicle is undergoing final assembly of seats, cameras, and the driver’s desk. All five segments of the third, fourth and fifth vehicles and the first four segments of the sixth vehicle are in various stages of final assembly activities in Elmira, undergoing activities including installation of flooring, windows, insulation, ceiling raceways and conduit.
  - Shipment of the first vehicle to the project site is dependent on readiness of on-site storage space, such as the test track, and available traction power, and may occur in early 2020.
  - 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 performed its own research by conferring with other agencies that have extended length vehicles but did not find enough justification to reverse its decision. The climate test is a qualification test and only needs to be performed on one vehicle, which does not need to be the first vehicle. CAF submitted an

updated procedure for testing one half the vehicle and performing analysis for accepting the complete vehicle. CAF is proceeding at risk to test an early completed vehicle in the existing test chamber, and then submit the report with full analysis for MTA approval. If MTA still does not accept the deviation, sufficient time will remain in the schedule to test in accordance with the current contract requirements.

- MTA has continued to submit environmental re-evaluations as required based on design advancement and other causes. To date, PLTC and MTA have prepared multiple packages, primarily for minor Limits of Disturbance (LOD) cases, which were submitted to FTA for review and have received FTA concurrence. There are currently no packages in FTA review and no packages in PLTC/MTA preparation.
- MTA is responsible for providing offsite stormwater mitigation in Montgomery County. MTA had previously received MDE approval greater than the 5 acres required of off-site Stormwater Management (SWM) capacity in place by June 30, 2018 in accordance with the P3 contract. In late October 2019, MTA received MDE approvals for the next 5 acres to be added to the “bank”, satisfying contract requirements for 2019. MTA’s subsequent discussions with MDE indicated that construction can proceed provided there is a positive balance of credits to construction impact; since this is the case, MTA will not be seeking any further additions to the current credit “bank” at this time. MTA is awaiting PLTC’s final approved on-site mitigation capacity, since MTA may not need to actually construct any of the sites if PLTC provides sufficient on-site mitigation.
- Right of Way (ROW) acquisition activities continue for the required 465 private parcels and 137 public parcels, for 602 parcels total. As of December 11, 2019, all of the original P3 contract Exhibit 9 FFGA scope private parcels are in MTA possession. To date, 325 of the 465 private properties have completed settlement.
- 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 173 parcels, of which 123 are private and 50 are public. To date, 167 of the additional 173 properties are in MTA possession through rights of entry, options and/or agreements. The remaining private parcels are not for utility relocations and are not as immediately needed. The cost responsibility for these additional parcels has not yet been negotiated.
- To date, all the identified 176 required relocations have been completed. However, the Post Office was initially relocated to an interim short-term space in the Silver Spring Library Building, and work is now in process to complete build out of its final site in advance of the final relocation, scheduled for January 13, 2020.

#### Cost

- Due to an intensified negotiation effort with the P3 concessionaire to resolve claimed cost impacts due to the delayed FFGA execution, MTA effort has been diverted from recent formal updates to its project cost report, and the latest issued report is for data through July 31, 2019.
- The project’s documented expenditures are \$1,074.9 million through July 2019.

- There is significant risk that change order negotiations and mitigation to recover the schedule could result in substantial 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 to address the one-year delay to the start of construction caused by the environmental lawsuit. 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 negotiations as of August 2018 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.
- Due to an intensified negotiation effort with the P3 concessionaire to resolve claimed schedule impacts due to the delayed FFGA execution, MTA effort has been diverted from recent formal progress updates to its master project schedule, and the latest issued update has a July 15, 2019 data date.
- 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 (most recent) July 15, 2019 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; July 15, 2019 update
All Significant ROW Acquisition & Relocation	As needed by construction	---	---
Commencement of Trial Running	---	03/09/2022	05/13/2022
P3 Ready to Commence Revenue Service	TBD	10/28/2022*	12/20/2022
MTA Opens for Revenue Service	3/2022	---	12/20/2022
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 earlier MTA/P3 Concessionaire negotiations, but which will likely be superseded by the most recent fully resource loaded phased schedule currently under negotiation (see **Major Problems/Issues**, below).

## Core Accountability

FFGA Core Accountability Items			
Project Status:		Original at FFGA:	Current Estimate (EAC):
<b>Cost</b>	Cost Estimate	\$2,407,030,289	\$2,407,030,289
<b>Contingency</b>	Unallocated Contingency	\$90,535,748	\$44,896,572
	Total Contingency (allocated plus Unallocated)	\$150,035,748	<b>NOTE 5</b>
<b>Schedule</b>	Revenue Service Date (FFGA)	December 31, 2022	December 31, 2022
	MTA Target Revenue Service Date	March 31, 2022	December 20, 2022 <b>NOTE 6</b>
		<b>Amount (\$)</b>	<b>Percent (as percent of total)</b>
<b>P3 Planned Value to Date</b>	Total budgeted cost of work scheduled to date (if available) <b>NOTE 1</b>	Not Available	---
<b>P3 Earned Value to Date</b>	Budgeted cost of work completed to date, i.e., actual total value of work earned or done (if available) <b>NOTE 1</b>	Not Available	---
<b>P3 Actual Cost</b>	Total cost of P3 work completed to date (actual total expenditures)	\$647,177,643	35.7%
<b>Total Project Actual Cost</b>	Total cost of work completed to date (actual total expenditures)	\$1,074,875,576	44.7%
<b>Contracts</b>		<b>Amount (\$)</b>	<b>Percent</b>
	Total contracts awarded to date ( <b>Note 2</b> )	\$2,275,549,182	94.5%
	Total construction contract awarded to date (construction contracts only) ( <b>Note 3</b> )	\$1,052,244,417	100.0%
	Physical construction work completed (amount of construction contract work actually completed) ( <b>Note 4</b> )	\$234,328,319	22.3%
<b>Major Issues</b>	<b>Status</b>	<b>Comments / Action / Planned Action</b>	
	See discussion below		
<b>Date of Next Quarterly Meeting (if known):</b>		November 21, 2019	

**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). MTA is in the process of updating its cost estimate to complete the project, which is indicating significant increases in MTA's professional services costs at completion. These changes, in addition to the Change Orders processed to date on the P3 contract, are currently being reviewed by the PMOC and will be further analyzed with MTA over the next month. The revised forecast is expected to result in a reasonably large drawdown of the total project contingency, of which some is already evidenced above in the consumption of unallocated contingency.

**NOTE 6** (Core Accountability Table). The Current Estimate (EAC) for the Schedule (MTA Target Revenue Service Date) of December 20, 2022 is from MTA's working version of an updated integrated master project schedule progressed through July 15, 2019, 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**

- Due to the impacts of the initial lawsuit filed by the Friends of the Capital Crescent Trail, it has been challenging for MTA to strictly follow the procedures and practices established in the Purple Line Project Management Plan (PMP) and its sub-plans.
- 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 as of August 2018 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 most recently issued schedule update (July 15, 2019) of the MTA Master Project Schedule continues to show the start of revenue service prior to the FFGA RSD of December 31, 2022, the current MTA forecasted PLTP Commencement of Revenue Service date is December 20, 2022, which provides essentially no schedule contingency for the 3+ remaining years of construction, testing and commissioning.
- The intensity of the schedule negotiations heightened in fall 2019, and the P3 concessionaire submitted a revised fully cost-loaded schedule in response to the terms of the negotiations. The submitted P3 schedule, which continues under MTA review and negotiation and has not yet been provided to the PMOC, reportedly reflects a phased project opening with the first phase opening at the end of 2022, and the second phase opening in the first half of 2023.



- Concurrent with schedule negotiations, MTA also continues negotiations on the Change Order submitted by the P3 concessionaire claiming cost impacts from the delayed FFGA execution. Final resolution of the cost and schedule impacts will depend on the resolution of the schedule, above.
- Negotiations between MTA and PLTP to resolve the Purple Line cost and schedule impacts discussed in the two preceding bullets are currently ongoing in earnest and may conclude by the end of 2019 or early 2020. There is significant risk that the project cost and schedule as reflected in the FFGA could be affected.
- A MTA Purple Line Project Recovery Plan, including adequate cost and schedule contingency to address remaining project risks, will likely be required.
- Both MTA's delivery of properties to Purple Line Transit Constructors (PLTC) and PLTC's progress toward needing those properties for construction were significantly behind the schedule anticipated in the P3 contract. MTA managed this through weekly meetings of an MTA/PLTC right of way task force that evaluated the needs of the dynamic construction schedule "early start" and "late start" dates for construction activity on each property and determined work around plans to avoid impacts to the extent possible.
- PLTC's forecasted substantial completion of its design scope has slipped until February 2020 for civil packages and March 2020 for systems packages, 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 slipped as well.

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## MONTHLY MEETING REPORT

### Introduction

*The Project Management Oversight Contractor (PMOC) visited MTA's Purple Line project site and met with project staff on December 12, 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 Transit 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. Several design adjustments were subsequently made based on further MDE comments up until the time that the construction contract was advertised on March 8, 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. Several design adjustments were subsequently made based on further Montgomery County comments up until the time that the construction contract was advertised on May 3, 2019. See the **Environmental Mitigation** subsection of this report for additional details.
- Montgomery County off-site 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. In late October 2019, MTA received MDE approvals for the next 5 acres to be added to the “bank”, satisfying contract requirements for 2019. *MTA's subsequent discussions with MDE indicated that construction can proceed provided there is a positive balance of credits to construction impact; since this is the case, MTA will not be seeking any further additions to the current credit “bank” at this time. MTA may not need*

*to actually construct any the sites, depending on PLTC's ability to provide on-site mitigation. See the **Environmental Mitigation** section of this report for the current requirements.*

MTA also completed the design to support a D-B 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** and the **Construction (MTA Scope)** sections 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 was approved by MTA subject to required approvals by authorities having jurisdiction, 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 issued and reviewed. *As of mid-December 2019, the design package by PLTC is not yet at Released for Construction (RFC) status.* However, PLTC has been reviewing the near final design with the Fire Marshall and has been addressing comments with design revisions as applicable. PLTC contracted with a nationally reputable Fire Protection consultant to perform an independent review, on behalf of the Fire Marshall, of PLTC's Computation Fluid Dynamics analysis that supports the PLTC design. The design will be considered "final" once the Fire Marshall is satisfied. PLTC has advanced the design assuming the Fire Marshall will find the jet fan approach acceptable, however MTA is considering this as a PLTP risk on the project until the Fire Marshall's approval is received. If the jet fan ATC is found to be acceptable and is approved by the Fire Marshall, it would eliminate the need for vent towers and their associated Right of Way (ROW) acquisitions, which to date have not been provided for on the project. Also, if this ATC is accepted, PLTC will prepare the documentation substantiating that this change has no impact on the environmental decision on this project for MTA to submit for FTA's review and concurrence.

MTA and Carr Properties in Bethesda, MD 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. The construction box was turned over to PLTC on May 31, 2019 in advance of PLTC's readiness to access it for construction. The construction box is now being used by both PLTC and Carr to provide construction access needed for their respective projects.

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 continued to work to resolve the applicable design criteria and affected project areas until mutually agreeable paths forward were defined for all areas by July 2019. *The following is the current status of the issues and their resolutions:*

- To address CSX comments that would have disallowed passenger amenities (fare gates and ticketing kiosks) on the Silver Spring Transit Center (SSTC) Purple Line mezzanine connector pedestrian bridge above CSX tracks, and that would have required a 25-foot vertical clearance, MTA, PLTC and CSX reached consensus on a design to interpret this area as a “building concourse”. In its review of the final design submittal, CSX requested the addition of a ten-foot high fence structure. *MTA and PLTC plan to meet with CSX in mid-December 2019 to resolve these comments.*
- CSX provided review comments disallowing revised drainage networks related to the Capital Crescent Trail work, which is non-FFGA and separately funded by Montgomery County, to connect to CSX’s existing drainage culverts. By working with Montgomery County, the connections have been relocated from CSX property to Montgomery County property to eliminate them as a CSX issue. *To do so, Montgomery County would need to accept responsibility for several of the connections currently under CSX responsibility, which continues under the County’s evaluation.* This change affects the Capital Crescent Trail and is a non-FFGA change.
- Details for a new access road into the CSX yard that minimizes impact to both Purple Line and CSX operations were developed using Fenwick Lane for access with the trail crossing paved and marked as if it were a crosswalk. *PLTC has generated the final design concepts, which are acceptable to CSX and are being confirmed with Montgomery County.* This change affects the Capital Crescent Trail and is a non-FFGA change.
- CSX has commented that an existing MSE retaining wall near the Silver Spring Transit Center needs to meet CSX requirements for a crash wall. It was resolved that the existing MSE wall, which is owned by WMATA and is not on CSX property, will be stabilized with concrete in front of it to meet CSX crash wall standards. Then the Purple Line project can build its own MSE wall behind it. PLTC prepared a “white paper” on the acceptableness of this design and of the existing MSE walls, *to which CSX has provided written concurrence, subject to review of final designs.*
- Regarding the electrification / crash barrier to be placed atop the new Talbot Avenue Bridge parapet, MTA, PLTC, the community and CSX have reached agreement on a concept. The concept employs a “laminated” of an ornamental wrought iron-looking fence and the CSX standard chain link fence, except over the overhead contact system (OCS), where a laminate of the wrought iron-looking fence and Buy America compliant clear solid barrier will be used. The RFC design package was updated to reflect the agreed upon barrier *(although the design package continues to undergo additional adjustments and reviews by CSX)* and this issue is considered closed.

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

*PLTC is forecasting design substantial completion for Civil packages in February 2020, and substantial completion of Systems packages in the March 2020. The original Baseline Schedule anticipated design completion by late fall 2017. The current progress through mid-December 2019 reflects that 158 of the 212 planned Civil and Utility design packages have been issued as RFC. The Systems packages are tracked separately by PLTC and the number of System packages planned remains fluid.*

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, conducting in-person comment resolution workshops and assisting with MDE approvals where required. The PMOC noted 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 (which is part of the real estate effort and budget), wetlands mitigation, stream mitigation and possibly some offsite stormwater management sites. Forest mitigation has been accomplished by MTA without the need for additional construction. *The following is the current status of the MTA construction contracts.*

#### **Prince George’s County Parks Replacement Maintenance Facility**

This Design-Build contract was awarded after the March 20, 2019 BPW construction contract award approval. NTP for the base scope was issued to the D-B contractor, Forrester Construction Company, on April 5, 2019, and NTP for the “Add” and “Alternative” options was issued after award of those scopes in May 2019.

After resolving MTA review comments on the 65% design package, Forrester submitted the 100% design package on October 25, 2019. *Forrester addressed MTA’s review comments and on December 4, 2019, submitted the draft final design package for MTA concurrence prior to issuing the RFC package. Forrester plans to mobilize for construction in mid-December 2019.*

It was recently identified that the existing building roof, which was to be re-used, requires complete replacement, which will be separately funded by Prince George’s County. MTA requested and received a priced proposal from the D-B contractor, Forrester, for this scope. The proposal was found to be reasonable, *and the Change*

*Order to the contract for the roofing, to be funded by Prince George's County, was approved by BPW on December 4, 2019.*

#### Off-site Wetlands Mitigation (Ken-Gar)

The Wetlands Mitigation construction contract was awarded after the September 4, 2019 BPW award approval and NTP was issued to Environmental Quality Resources, LLC on September 5, 2019. Kickoff meetings were conducted during the week of September 9, 2019 and the contractor applied herbicides for invasive species. An inspection by the arborist was completed on November 7, 2019. *The contractor plans to mobilize in December 2019 and start site surveys and the installation of Erosion and Sedimentation (E&S) Controls. Clearing and grubbing is scheduled to start in January 2020.*

#### Off-site Stream Mitigation (Paint Branch)

The Stream Mitigation construction contract was awarded after the September 4, 2019 BPW award approval and NTP was issued to Environmental Quality Resources, LLC on September 5, 2019. The pre-construction meeting was conducted on October 24, 2019. *The contractor mobilized in late November 2019 and site surveys and the installation of E&S Controls are currently ongoing. Construction is planned to extend through 2021 due to separate seasonal moratoriums for forests and for streams that will affect construction of this project.*

### P3 Scope

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

*Area 1: Utility relocations, drainage work and retaining and noise wall construction continue in various locations. Retaining walls and abutment construction for the rail overpass structure at Connecticut Avenue continued in process. Support of excavation and mass excavation continues in process to lower the LRT and Capital Crescent Trail elevation for the underpass at Jones Mill Road. Demolition of the Faulkland Apartment building is nearing completion. Pile driving and temporary trestle construction for the Rock Creek Bridge continued. Access was prepared to start pile driving for the Talbot Avenue Bridge. Construction of the abutments and piers for the LRT and Capital Crescent Trail flyovers continued at the Silver Spring Transit Center.*

*Area 2: At Plymouth Tunnel, waterproofing of the slab and installation of foam block commenced at the eastern cut and cover section. At Manchester Place Station, all 15 of the planned wall pours were completed, and six of the six planned columns to support the station ceiling structure were completed. Excavation commenced at the Bethesda Enclosed Trainway.*

- Area 3: Utility relocations continue at various locations throughout Area 3, including water, sewer, gas, electrical and communications along University Boulevard and multiple relocations along Campus Drive, River Road and Kenilworth Avenue. Relocation of the Medco (electrical) underground utilities on the UMD campus is ongoing. Construction of the abutments and piers for the new*

*Northwest Branch Anacostia Bridge (combined highway and LRT) continued. Drainage was installed for the relocation of the "M" on the UMD campus. Bearing pads were installed and the steel girders for the Northeast Branch Anacostia Bridge were delivered; placement of the steel girders commenced. Sub-ballast installation is in process along River Road. Traffic signal modifications continued along Riverdale Road and Veterans Parkway. The precast arches for the northbound and southbound Baltimore-Washington (B-W) Parkway bridges were delivered and set in place. Retaining wall construction along Veteran's Parkway and drilled shafts for the aerial structure along Annapolis Road continued. Installation of communications ductbank is in process along River Road and Kenilworth Avenue, as well as Veterans Parkway and Ellin Road. At the Glenridge OMF, building brickwork, window and door installations, interior finishing, and mechanical and electrical systems work continue.*

*See Appendix 10 of this report for construction photographs.*

### **Real Estate Activities**

*As of December 11, 2019, the total number of planned property acquisitions is 602, including 465 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 of the original P3 contract Exhibit 9 FFGA scope private parcels are in MTA possession, some of which are properties that have been filed for condemnation under the State Highway Administration (SHA) process, and 325 properties have completed settlement. Currently, 281 properties are in process for condemnation, and of these, condemnation is filed for 110 properties, excluding those that have been optioned or settled. In August and September 2019, Montgomery County acquired the Woodmont Plaza property (formerly owned by Street Retail) in Bethesda for which MTA had a construction Rights of Entry (ROE). Montgomery County continues to prepare a deed of transfer of the Woodmont Plaza to MTA in return for MTA transferring the Caldis property (acquired to provide project access during the construction phase) to Montgomery County at the end of project construction. As of December 11, 2019, the two private parcels owned by a developer in the Bethesda Station area for which MTA previously did not have possession have been resolved. MTA finalized remaining issues and executed the settlement agreement with the building owner for the final acquisition of Bethesda Montgomery Tower property. For the second Bethesda property (Bethesda Crossing), MTA accepted PLTC's alternative design for avoiding attachments to the building, which eliminated the need to acquire the property (hence the reduction by one in the total private property acquisitions required for the project). For the developer's property in Silver Spring (Silver SM), FTA concurrence on the administrative settlement was received and the final agreement continues in the condemnation process in accordance with the terms of the mediated settlement. In the interim, the 6-month ROE for the construction of the shared footing for the Capital Crescent Trail and the LRT flyover aerial structures to the Silver Spring Transit Center remains in effect through January 2020, allowing construction to proceed, and full possession is anticipated prior to expiration of the ROE. All required public properties have been available for construction when needed.*



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 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 December 11, 2019, the list of additional acquisitions was further reduced by one to 173 parcels. Of these, 50 are public property and will be acquired by agreement and 123 are private acquisitions. 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 December 11, 2019, 167 of the total additional 173 public and private properties are in MTA possession through rights of entry, options and/or agreements. The remaining additional parcels are not for utility relocations and are not as immediately needed. 57 of the properties are filed for condemnation, excluding those that were subsequently optioned or settled and 59 properties have completed settlement. 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 requires a total of 176 relocations, of which 57 are residential and 119 are businesses. To date, all 176 move outs have been completed. The Post Office, which was the last remaining tenant in the Spring Center Shopping Center, signed a lease and temporarily relocated to the Silver Spring Library building in August 2018 for the short term until its final location was decided and ready. The Silver Spring Library space is not available for the Post Office for the long term, but Montgomery County extended the current lease in the Silver Spring library building *until the Post Office relocates*. In July 2019, the Post Office signed a lease for its permanent location. Work is in process to complete build out of the new space in advance of the final relocation of the Post Office, *which is now scheduled for January 13, 2020*. The Post Office submitted an estimate of its final relocation costs, which has been accepted by MTA. The Purple Line project is responsible the interim and the final relocation, as well as rent while at the interim location.

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 approximately 36% higher than the Standard Cost Category (SCC) budget less contingency, with a significant number of high-value settlements yet to be reached. Assessment of forecasted costs yet to be expended for acquisition and relocation activities indicate that the remaining ROW allocated contingency will likely not be sufficient, and that some of the project's unallocated contingency will need to be applied to the completion of the Purple Line ROW scope.*

Certain parcels of property that were owned by WMATA and needed for the Purple Line project (at Bethesda, Silver Spring, College Park and New Carrollton) were acquired via easements from WMATA, as approved by WMATA's Board in late January 2018. In lieu of monetary compensation, MTA provided 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, ROW access is available. PLTC developed the Exhibits and redlines of the plats for the New Carrollton property, and MTA advanced the property transfer based on these, and received BPW approvals by late March 2019. Since MTA identified that federal (Highway) funding sources were used for the acquisition of the New Carrollton property, on May 7, 2019, MTA submitted a package of documentation to FTA with the requested documentation to appropriately record responsibility for parcels with federal funding assistance. *MTA received comments from FTA and subsequently submitted a revised package and follow-up documentation in November and December 2019, which was accepted by FTA.*

MTA's delivery of properties to PLTC fell 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 assembled a task force of Purple Line project team members specializing in right of way, construction management, scheduling, risk management and third party agreements. During the peak property turnover periods of the project, the task force met on 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.

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 led the Design-Build (D-B) contract solicitation for the Prince George's County facility. Refer to the **Construction** subsection of this report for the current status of this contract. Until construction is completed, 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.

### **Utility and 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. MTA is of the opinion that this is a betterment, and therefore the added cost is Verizon's responsibility, but Verizon has not yet accepted that position. PLTC submitted its cost estimate to place these 34 locations underground, and after extended cost negotiations between MTA and PLTC while the physical relocations were being implemented, a final Change Order value of approximately \$5.5 million was agreed in early March 2019. *MTA plans to negotiate the cost responsibility with PLTC and Verizon after all major Verizon relocations are completed, and in the interim continues to carry this cost as betterment outside the FFGA scope.*

In early June 2018, MTA and PLTP completed negotiation of all remaining third party agreements with the smaller utility and fiber companies. 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, the need for amendments for existing executed agreements continue to be evaluated, with current significant items including:

- To date, the resolution of the design differences with CSX as discussed earlier in this report have been adequately handled through design review and concurrences and has not resulted in the need to amend to the CSX agreement.
- WSSC wants the project to relocate a 66-inch underground water main that runs through the Glenridge OMF site. The designers have shown that it is acceptable remaining in place, but it would be under significantly deeper cover if access is ever required. MTA agreed that the line will be relocated and MTA and WSSC continue evaluating relocating it into an alignment in the median of Veterans Parkway. This relocation is not schedule-critical since the existing line would be abandoned in place after the relocation, and the work will likely be implemented separate from the Purple Line FFGA project.

The project has been addressing its interface with the Montgomery County Schools through the Third Party Agreement already in place with Montgomery County. However, due to the specific concerns related to the schools and the safety and security of the children, MTA drafted a separate Memorandum of Understanding (MOU) with the Montgomery County School system which was approved by the School Board, signed by the new School Superintendent, Montgomery County and MTA. In the interim, work continued under an executed Right of Entry. A similar MOU was negotiated between MTA and the Rosemary Hills School and was approved at the School Board meeting on February 12, 2019; *it remains with the school for signature.* Rosemary Hills school also provided an interim ROE and work there also continued unimpeded.

## **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.

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. To date, PLTC and MTA have prepared multiple packages, primarily for minor Limits of Disturbance (LOD) cases, which were submitted to FTA for review and have received FTA concurrence. *There are currently no packages in FTA review and no packages in PLTC/MTA preparation.* However, PLTC indicated that a few more isolated cases of LOD changes may be required but no package is currently in preparation.

The ATC for the Bethesda station jet fan will be submitted for FTA review after that change is formally accepted by MTA.

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. On March 5, 2019, the judge ruled in favor of the FTA.

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). Defense is being provided by the USACE legal staff and the Office of the Attorney General. MTA filed a motion to intervene on behalf of USACE. In early May 2019, the Plaintiffs filed an objection to MTA's motion, but during the week of July 15, 2019, the Court authorized MTA to intervene on behalf of the USACE. In October 2019, USACE filed for a summary judgment to dismiss the case and the plaintiffs filed their response, and the hearing date has been set for March 23, 2020. The lawsuit is not expected to impact the Paint Branch Stream Mitigation construction.

### **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 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 was received in mid-June 2019.

The project team is addressing the environmental mitigation for wetlands through the development of the off-site Ken-Gar location implemented by a separate design-bid-build construction contract administered by MTA. The construction contract was advertised on May 3, 2019, bids were received on June 10, 2019 and underwent MTA Procurement Department review, and BPW approval of the award was received on September 4, 2019. See the **Construction** section of this report for further progress on this contract.

The project team is addressing the environmental mitigation for streams through the development of the off-site Paint Branch location implemented by a separate design-bid-build construction contract administered by MTA. MTA advertised the Paint Branch Stream Mitigation construction contract on March 8, 2019. After the bid due date was extended several times, proposals were received on May 21, 2019 and underwent MTA review and evaluation. BPW approval of an award was received on September 4, 2019. See the **Construction** section of this report for further progress on this contract.

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 essentially no needed off-site mitigation, 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. On June 14, 2018, MTA received final MDE approvals for a total of 5.53 acres, satisfying the contract requirement for 2018. In addition, in accordance with P3 contract requirements another 5 acres of credit was to be added to the "bank" by June 2019. The Purple Line GEC subsequently identified additional sites and by the end of October 2019, received MDE approval for a total of 10.02 acres, satisfying the P3 contract requirements for 2018 and 2019. *MTA's subsequent discussions with MDE indicated that construction can proceed provided there is a positive balance of credits to construction impact; since this is the case, MTA will not be seeking any further additions to the current credit "bank" at this time.* MDE has also been reviewing PLTC's on-site mitigation for Montgomery County, which will determine the amount of construction, if any, of offsite mitigation required. *As of mid-December 2019, MTA continues to forecast that on-site mitigation will be sufficient and that none of the off-site mitigation in Montgomery County will need to be constructed.* The project plans to continue to hold off advertising any construction of off-site mitigation sites until and unless it determines that the onsite mitigation is not sufficient. The implementation of the Prince George's County offsite stormwater mitigation sites is included within the scope of the P3 contract, although MTA assisted 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. In June 2019, the final approval package for this site was fully executed by Prince George's County, the MDE and the Prince George's County Soil Conservation District. The Montpelier site generates 6.13 acres of credit; current estimates of Prince George's County offsite stormwater mitigations needs are for approximately one to two 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 following is the status of key items:

- The noise and 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. *PLTP submitted a proposed less-than-full-campus alternative, which continues under discussion between the Working Group and the Purple Line Transit Operators segment of PLTP.*
- CAF submitted its vehicle noise analysis report, *to which the Working Group provided comments. The comments continue under resolution between CAF and PLTC prior to resubmittal of the report.*

The Purple Line project team is submitting quarterly Environmental Mitigation Monitoring Reports (MMR) for the project. The most recent report was for the second quarter CY2019 and was submitted on November 14, 2019. *MTA anticipates submitting the report for the third quarter CY2019 by the end of December 2019.*

## **B. Project Management Plan and Subplans**

### **Project Management Plan (PMP)**

Purple Line PMP Version 10, was reviewed in accordance with Oversight Procedure (OP) 20 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 completed its review in accordance with OP20 for a project in the construction phase and submitted a draft OP20 report to FTA for review on

May 9, 2019. FTA review comments were received, and the report was issued final on June 13, 2019, requiring revision and resubmittal.

Due to the impacts of the lawsuit filed by the Friends of the Capital Crescent Trail, it has been challenging for MTA to strictly follow the procedures and practices established in the Purple Line PMP. 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)**

Purple Line SSMP Version 6 dated October 22, 2014 was reviewed by the PMOC in accordance with OP22 for a project at the FFGA execution stage in February 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. FTA review comments were received, and the report was issued final on July 3, 2019, requiring revision and resubmittal. MTA reports that Revision 10 of the SSMP is in process to address the PMOC/SSOA comments of SSMP Revision 8 and is expected to be distributed for review in January 2020.

### **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 could be addressed during the next update. The updated Concessionaire's plans (CQP Revision 03, CDQP Revision 4 and CCQP Revision 3.1) have all been finalized by PLTP and approved by MTA. Also, the latest updated PMC's QAP (Revision 9) and Document Control Plan (Version 5) have been approved by MTA. In September 2019, MTA submitted the collection of plans to FTA/PMOC. *The PMOC completed the OP24 review of all submitted documents and in November 2019, provided the draft OP24 report to FTA review and comment prior to issuing it final.*

### **Real Estate Acquisition Management Plan (RAMP)**

Purple Line project RAMP Version 10 dated January 2, 2019 was reviewed by the PMOC in accordance with OP23 for a project in the construction phase. The PMOC's draft OP23 report was submitted for FTA review and comment on January 31, 2019. After receiving FTA comments, the final OP23 report was issued on February 22, 2019, documenting acceptance of Purple Line RAMP Version 10 for a project in the construction phase.

### **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, due to impacts of the lawsuit filed by the Friends of the Capital Crescent Trail, 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 continues to conduct subsequent periodic updates, with copies provided to the PMOC. 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). MTA reports that the updated MTA SSCP will be submitted with the next revision of the SSMP.

## **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 (November-December 2019) Purple Line staffing activity has included the following:*

- MTA continues to work through its internal process to create a position for another Deputy Director (MTA employee) to assist the current Project Director on the Purple Line project.
- The Purple Line Project Deputy Real Estate Director (MTA employee) *continues to serve as acting Director until the vacancy is filled.*
- *MTA selected its preferred candidate for the Project Administrative Assistant (contractor) position, who will be located in the Riverdale Project Office.*

*Although not a member of the immediate project team, the Maryland Secretary of the Department of Transportation announced his retirement, to be effective mid-January 2020. The Secretary has been leading the Purple Line project negotiations related to cost and schedule impacts of the delayed FFGA execution on behalf of the project and the State. His deputy has been named to replace him and would continue the efforts; however, the goal is to conclude negotiations prior to the current Secretary's departure.*

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**

*Due to an intensified negotiation effort with the P3 concessionaire to resolve claimed cost impacts due to the delayed FFGA execution, MTA has not issued a recent formal update to its project cost report and the project costs reported herein are the same as the October and November 2019 PMOC reports.*

Appendix 6 of this report summarizes the project's current 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 \$1,074.9 million through July 2019. 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 October 10, 2019, there is a cumulative added commitment of \$2,677,659 in approved Change Orders to date under the P3 contract for SCC 10-50 construction scope, as well as a forecasted increase in the P3 professional services (SCC 80). In addition, MTA is in the process of updating the Estimate at Completion for its scope on the project and is

indicating significant increases in its professional services costs (SCC 80). These changes, which are currently being reviewed by the PMOC and will be further analyzed with MTA over the next month, are expected to result in a reasonably large drawdown of the available contingency.

In addition, there are also multiple Change Orders pending or proposed under the P3 contract that have potential additional cost impact on the 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.

*MTA also continues negotiating in earnest on the Change Order submitted by the P3 concessionaire claiming cost impacts from the delayed FFGA execution. Final resolution of the cost impacts will also depend on the resolution of the schedule (see the **Project Schedule** section of this report, below). There is significant risk that the project cost as reflected in the FFGA could be affected, and that a MTA Purple Line Project Recovery Plan, including adequate cost contingency to address remaining project risks, will likely be required.*

### **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

	<b>Costs Attributed to Source of Funds Dollars</b>	<b>Federal/ Local Matching Ratio within Source</b>	<b>All Federal Funds Dollars</b>	<b>Local Funds Dollars*</b>
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
<b>Total</b>	<b>2,407,030,286</b>		<b>936,000,000</b>	<b>1,471,030,286</b>
<b>Overall Federal Share of Project</b>			<b>38.9%</b>	
<b>New Starts Share of Project</b>			<b>37.4%</b>	

\* 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 (proposed new baseline) 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 (proposed new baseline), the Purple Line is still scheduled 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.

*Due to an intensified negotiation effort with the P3 concessionaire to resolve claimed schedule impacts due to the delayed FFGA execution, MTA has not issued a recent formal update to its master project schedule and the schedule data reported herein are the same as the October and November 2019 PMOC reports.*

The most recent schedule progress update submitted by MTA is the July 15, 2019 progress update of the MTA Master Schedule. The July 15, 2019 update continues to show the start of revenue service prior to the FFGA RSD of December 31, 2022, with the major interim milestones of the Commencement of Trial Running of May 13, 2022 (improvement of three days from the last report), and the PLTP Commencement of Revenue Service of December 20, 2022 (improvement of five days from the last report). *A copy of the critical path of the July 15, 2019 progress update of the MTA Master Schedule is included in Appendix 8 of this report.* The PMOC advises, though, that this is not yet a contractually enforceable schedule.

*However, once the intensity of the schedule negotiations heightened in fall 2019, the P3 concessionaire submitted a revised fully cost-loaded schedule in response to the terms of the negotiations. The submitted P3 schedule, which continues under MTA review and negotiation and has not yet been provided to the PMOC, reportedly reflects a phased project opening with the first phase opening at the end of 2022, and the second phase opening in the first half of 2023.*

*Accordingly, there is significant risk that the project schedule as reflected in the FFGA could be affected, and that a MTA Purple Line Project Recovery Plan, including adequate schedule contingency to address remaining project risks, will likely be required.*

### **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 July 15, 2019 progress update of the MTA Master Schedule.

<b>National Capital Purple Line LRT Key Milestone Dates</b>			
Activity	Latest (March 15, 2017) Approved Project Schedule	MTA Master Schedule August 2018 (working baseline)	MTA Master Schedule; July 2019 update
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	---	---
Commencement of Trial Running	---	03/09/2022	05/13/2022
P3 Ready to Commence Revenue Service	TBD	10/28/2022*	12/20/2022
MTA Opens for Revenue Service	3/2022	---	12/20/2022
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 earlier MTA/P3 Concessionaire negotiations, *but which will likely be superseded by the most recent fully resource loaded phased schedule currently under negotiation.*

## 90-day Look Ahead

The critical 90-day (*mid-December 2019 to mid-March 2020*) look-ahead activities for the National Capital Purple Line project are:

<b>Scheduled Date</b>	<b>Activity / Event</b>
Ongoing	P3 submittal / MTA review of design packages
Ongoing	MTA and PLTP collaboration for agreement on a mitigated project schedule
<i>December 2019/January 2020</i>	Receipt of the Bethesda Station ATC final design package leading to approval of the ATC
<i>December 18, 2019</i>	<i>Start installation of precast girders for Riverdale aerial structure</i>
December 28, 2019	Glenridge OMF yard ready for track and OCS installation
<i>Early January 2020</i>	<i>Complete Post Office relocation (final planned relocation of the project)</i>
January 6, 2020	Deliver track for Plymouth Tunnel
January 6, 2020	Activate new pump station at UMD Camus Drive
January 13, 2020	Complete columns for piers 1 through 7 of the SSTC LRT aerial structure
<i>February 14, 2020</i>	<i>Set CCT superstructure over railroad tracks and Colesville Rd at SSTC, to be in place before LRT aerial superstructure can be placed</i>
<i>March 4, 2020</i>	<i>Open rebuilt B-W Parkway Bridges to traffic and demolish temporary bridges</i>

## Critical Path Activities

In the MTA Master Schedule July 15, 2019 update, for which final agreement with PLTP has not yet been reached, the critical path remains through Area 1, Segment 1, including construction of Bethesda Station through integration testing, 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 also submitted to FTA the package of inter-related quality plans prepared by the P3 Concessionaire after they were reviewed and approved by MTA.

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, and QA/QC is reviewed with MTA and the PMC at the PMOC's periodic monitoring meetings.

## **G. Safety and Security**

PLTP has conducted forty-three 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 December 18, 2019, during which topics included duplication in the Train Control and Central Instrument Houses PHAs; the Failure Modes, Effects and Criticality Analyses for LRV traction motor bolts; a waiver request for the smoke and toxicity requirements for a LRV suspension system component; and work to resolve issues with PLTP's Safety and Security Certification electronic signature process for the Construction Specification Conformance Checklists. The next meeting is scheduled for January 8, 2020.*

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 RFC packages. MTA reviewed and returned comments on PLTP's Revision 2 of the Certified Elements List (CEL), which now includes Operations and Maintenance and System Integration Testing elements; *comments remain open undergoing resolution.* Regarding the Certified Items List (CIL), PLTP addressed MTA comments, which were resolved and the CIL Revision 1 has been accepted.

PLTC also completed its Threat and Vulnerability Assessment (TVA) process when MTA accepted and verified the comment responses and approved PLTC's TVA on July 15, 2019.

The MTA Purple Line Safety and Security personnel review and comment on the PLTC 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 Fire/life Safety meeting was held on November 21, 2019. At this meeting, the separate fire protection systems for the existing WMATA operations and the new Purple Line operations were reviewed and discussed, with first responders providing feedback. The Prince George's County Fire/Life Safety meeting is scheduled for December 17, 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. *PLTP's project-to-date OSHA statistics through November 2019 are:*

- TCIR (Recordable) Rate:
  - Actual: 0.48
  - PLTP goal: 0.40
  - National Ave. 2.5 (Construction – heavy civil)
- DART (Days Away/Restricted/Transfer, DART-L and DART-R) Rate:
  - Actual: 0.30
  - PLTP goal: 0.15
  - National Ave. 1.5 (Construction – heavy civil)

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. *During December 2019, MTA and the PMOC discussed several requests for design deviations to the SHA accessibility standards, which are more restrictive than the federal ADA requirements. Even with the deviations approved, the design continues to comply with ADA.*

## **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 continues spot checking materials being used in utility relocations, since Buy America compliance of utility-supplied materials has historically been more troublesome and since utility relocation constitutes a significant percentage of the current construction activity. *During November/December 2019, MTA Quality Assurance inspectors issued Quality Oversight Assessment Reports (QOARs) related to two potential Buy America non-compliance cases at the OMF. MTA is awaiting PLTC's responses to the QOARs.*

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. MTA has interpreted that since the vehicle Request for Proposal was advertised prior to December 4, 2015, the 49 CFR 661 Public Interest Waiver that limits domestic content to a minimum of 60%, as opposed to the escalating domestic content requirements of the FAST Act, applies in this case. 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**

The vehicles are 136-foot long, multiple articulated light rail vehicles 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 November through mid-December 2019.*

*In Spain, resolution of MTA comments on Intermediate and Final Design packages continue, with 98% of the Intermediate Design comments and 95% of the Final Design comments now resolved. Regarding carshell manufacturing in Spain, the following is the current status:*

- *Seventy-two carshell segments have been completed to date, including those already shipped to the U.S.*
- *Multiple LRVs are in the manufacturing process in Spain.*
- *The fifth of the five carshells for LRV 6, plus the first three carshells for LRV 7 were shipped from Spain and are in transit to Elmira, NY. The last two carshells for LRV 7 are being prepared for shipment.*

*Vehicle final assembly is taking place in CAF's facility in Elmira, NY. There are currently 29 carshells (five full vehicles plus four carshells of the sixth vehicle) in Elmira. CAF assembled all five carshell segments of the first vehicle together, placed the vehicle on its trucks on the Elmira test track and started performing static testing in June 2019. CAF completed modifying the power supply to its Elmira test track from 750 Volts to 1500 volts, and LRV 1 was operated on the Elmira test track under its own power in December 2019. LRV 1 continues in static and dynamic testing. All five carshells of LRV 2 have been coupled together and the vehicle is undergoing final assembly of seats, cameras, and the driver's desk. All five segments of the third, fourth and fifth vehicles and the first four segments of the sixth vehicle are in various stages of final assembly activities in Elmira, undergoing activities including installation of flooring, windows, insulation, ceiling raceways and conduit.*

Shipment of the first vehicle to the project site is dependent on readiness of on-site storage space, such as the test track, and available traction power, and may occur in early 2020.

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 performed its own research by conferring with other agencies that have extended length vehicles but did not find enough justification to reverse its decision. The climate test is a qualification test and only needs to be performed on one vehicle, which does not need to be the first vehicle. CAF submitted an updated procedure for testing one half the vehicle and performing analysis for accepting the complete vehicle. CAF is proceeding at risk to test an early completed vehicle in the existing test chamber, and then submit the report with full analysis for MTA approval. If MTA still does not accept the deviation, sufficient time will remain in the schedule to test in accordance with the current contract requirements.

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 MTA is performing bi-monthly updates of the Risk Register in accordance with its RCMP. 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 discussed at the PMOC monitoring meetings with the project team and 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, as discussed in the **Real Estate Activities** subsection of this report. *MTA's documentation related to this item was delivered to FTA at the November 2019 Quarterly Progress Meeting and was reviewed by FTA, resulting in the request for further detailed information. MTA provided the additional information and FTA found the documentation acceptable. This Action Item will be on the agenda for close-out at the next Quarterly Meeting, currently scheduled for January 27, 2020.*

## APPENDICES

The following Appendices or placeholders are provided with this report:

- Appendix 1 Safety and Security Checklist  
Per OP25, this item is issued quarterly.
- Appendix 2 Top Project Risks  
Per OP25, this item is issued quarterly.
- Appendix 3 Roadmap to Revenue Operations  
Per OP25, this item is issued quarterly “as a separate attachment”.
- 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.
- Appendix 10 Construction Photographs

## Appendix 1 Safety and Security Checklist

(Updated December 2019)

Project Overview		National Capital Purple Line Light Rail Transit Project	
Project mode (Rail, Bus, BRT, multimode)		Rail	
Project phase (Project Development, Construction, or Start-up)		Construction	
Project Delivery Method (Design/Build, Design/Build/Operate/Maintain, CMGG, etc)		Public Private Partnership (P3)	
Project Plans	Version	Review By FTA	Status
Safety and Security Management Plan	Version 8 dated October 24, 2018	Y	PL submitted Version 8 dated October 24, 2018 to FTA/PMOC on November 1, 2018. Resolution of PMOC and SSOA comments is in process to be incorporated into the next revision. PLTC SSMP Rev D was approved by MTA on November 27, 2016.
Safety and Security Certification Plan	Version 3, November 3, 2014	Y	PL submitted Version 3 dated November 3, 2014 to the PMOC on November 25, 2014. An updated revision of the MTA SSCP is being prepared by MTA. PLTC's supporting contractor-level SSCP Rev. 1 was approved by MTA in April 2019.
System Safety Program Plan (SSPP)	Reviewed annually and revised as required	2019 SSPP signed 7/15/18	The existing MTA SSPP will be revised to incorporate the Purple Line during the late Construction and Testing and Start-Up Phases. Internal Safety Review Audit performed August 2019 on elements 8, 9, & 10 by the Office of Safety Management and Risk Control.
System Security Plan (SSP) or Security and Emergency Preparedness Plan (SEPP)	Reviewed annually and revised as required	2019 SSEPP Signed January 2019	The existing MTA SSP will be revised to incorporate the Purple Line during the late Construction and Testing and Start-Up Phases.
Construction Safety and Security Plan	-	-	PLTC's Site Security Plan was accepted by MTA on November 9, 2016. PLTC's Health & Safety Plan was accepted by MTA on November 9, 2016.

Safety and Security Authority	Y/N	Notes/Status
Is the grantee subject to 49 CFR Part 659 state safety oversight requirements?	Y	
Has the State designated an oversight agency as per Part 659.9	Y	MDOT Rail Safety Oversight Agency (RSOA)

<b>Safety and Security Authority</b>	<b>Y/N</b>	<b>Notes/Status</b>
Has the oversight agency reviewed and approved the Project Sponsor's Security Plan or SSPP as per 49 CFR Part 659.17?	Y	RSOA oversees MTA's SSPP and SSP in compliance with 49 CFR Part 659
Did the oversight agency participate in the last Quarterly Program Review Meeting (QPRM)?	Y	The oversight agency typically attends the QPRM.
Has the grantee submitted its safety certification plan to the oversight agency?	-	The final Safety Certification Plan will be submitted in accordance with MTA's SSPP.
Has the grantee implemented security directives issues by the Department Homeland Security (DHS), Transportation Security Administration (TSA)?	Y	MTA has, and will continue to, implement DHS/TSA Directives as indicated in SSMP Section 11.

<b>SSMP Monitoring</b>	<b>Y/N</b>	<b>Notes/Status</b>
Is the SSMP project-specific, clearly demonstrating the scope of safety and security activities for this project?	Y	
Grantee reviews the SSMP and related project plans to determine if updates are necessary?	Y	Specified in SSMP
Does the grantee implement a process through which the Safety Manager and Security Manager are integrated into the overall project management team? Please specify.	Y	Specified in SSMP; the Safety Manager and Security Managers participate in project meetings and are involved in the project.
Does the grantee maintain a regularly scheduled report on the status of safety and security activities?	Y	Safety and Security activities are regularly reported in the monthly progress report.
Has the grantee established staffing requirements, procedures and authority for safety and security activities throughout all project phases?	Y	Specified in SSMP
Does the grantee update the safety and security responsibility matrix/organizational chart as necessary?	Y	Specified in SSMP.
Has the grantee allocated sufficient resources to oversee or carry out safety and security activities?	Y	Specified in the SSMP; evaluating need for future resources.
Has the grantee developed hazard and vulnerability analysis techniques, including specific types of analysis to be performed during different project phases?	Y	Specified in SSMP.
Does the grantee implement regularly scheduled meetings to track to resolution of any identified hazards and/or vulnerabilities?	Y	Specified in SSMP.
Does the grantee monitor the progress of safety and security activities throughout all project phases? Please describe briefly.	Y	Specified in SSMP.
Does the grantee ensure the conduct of preliminary hazard and vulnerability analyses? Please specify analyses conducted.	Y	Specified in SSMP. PHA is complete and signed by all parties. TVA is complete and signed by all parties.



SSMP Monitoring	Y/N	Notes/Status
Has the grantee ensured the development of safety design criteria?	Y	Specified in SSMP. MTA developed criteria are in the Design Criteria Manual Version 3 that was issued in September 2014. <i>Revision C of the PLTC safety and security criteria is in comment resolution.</i>
Has the grantee ensured the development of security design criteria?	Y	Specified in SSMP. MTA developed criteria are in the Design Criteria Manual Version 3 that was issued in September 2014. Specific draft safety and security criteria have been submitted by PLTP for review and comment.
Has the grantee ensured conformance with safety and security requirements in design?	Y	Specified in SSMP. P3 Concessionaire will develop the Design Conformance Checklists in its engineering phase. Ninety-one Design Criteria Conformance Checklist (DCCC) have been submitted to date.
Has the grantee verified conformance with safety and security requirements in equipment and materials procurement?	-	Procurement documentation such as product data sheets and product cut sheets has been reviewed. These items are submitted to the Document Control System for multi-disciplinary review.
Has the grantee verified construction specification conformance?	N	P3 Concessionaire is developing the Construction Specification Conformance Checklists as the project advances. Construction Specification Conformance Checklists have not yet been submitted.
Has the grantee identified safety and security critical tests to be performed prior to passenger operations?	Y	P3 Concessionaire <i>has begun to identify safety and security critical tests in its Project Test Program Plan.</i>
Has the grantee verified conformance with safety and security requirements during testing, inspection and start-up phases?	N	P3 Concessionaire will verify conformance in its Testing and Start-Up Phase activity These requirements have not yet been submitted.
Does the grantee evaluate change orders, design waivers, or test variances for potential hazards and /or vulnerabilities?	Y	Specified in SSMP.
Has the grantee ensured the performance of safety and security analyses for proposed work-arounds?	-	Specified in SSMP; these activities will not begin until Testing and Start-Up
Has the grantee demonstrated through meetings or other methods, the integration of safety and security in the following: <ul style="list-style-type: none"> <li>• Activation Plan and Procedures</li> <li>• Integrated Test Plan and Procedures</li> <li>• Operations and Maintenance Plan</li> <li>• Emergency Operations Plan</li> </ul>	-	Specified in SSMP; these activities will not begin until late Construction and Testing and Start-Up Phases
Has the grantee issued final safety and security certification?	-	Specified in SSMP; this activity will not begin until end of Testing and Start-Up Phase
Has the grantee issued the final safety and security verification report?	-	Specified in SSMP; these activities will not begin until end of Testing and Start-Up Phase

<b>Construction Safety</b>	<b>Y/N</b>	<b>Notes/Status</b>
Does the grantee have a documented /implemented Contractor Safety Program with which it expects contractors to comply?	Y	Specified in SSMP; P3 Concessionaire has developed a Safety and Health Plan. P3 contract requires compliance with MTA's Contractor Health and Safety Plan Guidelines.
Does the grantee's contractor(s) have a documented company-wide safety and security program plan?	Y	P3 Concessionaire main Joint Venture partner, Fluor, has company-wide safety and security plans.
Does the grantee's contractor(s) have a site-specific safety and security program plan?	Y	Concessionaire has developed a System Safety Plan and a Concessionaire Security Plan (TP Book2A Section 8.4). MTA has approved both plans.
Provide the grantee's OSHA statistics compared to the national average for the same type of work?	Y	Through <i>November 2019</i> : <ul style="list-style-type: none"> <li>• Recordable Rate: <i>0.48</i></li> <li>• DART Rate: <i>0.30</i></li> <li>• DART (lost workday): <i>0.13</i></li> </ul>
If the comparison is not favorable, what actions are being taken by the grantee to improve its safety record?	N/A	Performance is favorable.
Does the grantee conduct site audits of the contractor's performance versus required safety/security procedures?	Y	This will be a construction phase activity. Grantee has hired oversight personnel who are conducting the construction safety oversight.

<b>Federal Railroad Administration</b>	<b>Y/N</b>	<b>Notes/Status</b>
If shared track: has grantee submitted its waiver request application to Federal Railroad Administration (FRA)? (Please identify specific regulations for which waivers are being requested)	N/A	There is no shared track.
If shared corridor: has grantee specified specific measures to address shared corridor safety concerns?	Y	Future FRA coordination may be required if a currently unused freight Right of Way is reactivated.
Is the Collision Hazard Analysis underway?	N	If required, will be responsibility of new freight operator.
Other FRA required Hazard Analysis – Fencing, etc.?	-	Future FRA coordination may be required if a currently unused freight Right of Way is reactivated.
Does the project have Quiet Zones?	N	
Does FRA attend the Quarterly Review Meetings?	N	

## Appendix 2                      Top Project Risks

As documented in the most recent (Revision 3) of the Purple Line Risk Register as updated by the Purple Line Risk Management process in June 2019, the following are the Purple Line cost and schedule risks that are rated “Significant” or “High”. Of these, MTA’s December 2019 monthly review of project risks identified the items noted below in **bold** as the current top project risks and status as of December 2019 is provided.

- Area 1 ROW - With approximately 15 out 18 private parcels acquired, there may be insufficient time in the schedule to clear the ROW for a project of this size and scope consistent with commitments made to PLTP
- Lack of utility information and/ or incorrect information could lead to additional costs and schedule delay.
- As the design progresses, PLTP continues to identify additional ROW which could lead to schedule and cost delays.
- PLTP underestimates the magnitude/value of the work due to incorrect assumptions, misinterpretation of the TP’s and/or Agreement, thus formally seeking relief of work requirements or lowering quality standards and build to those lower standards without MTA approval; or b), embarks on a campaign of claims to recoup losses or increase revenue.
- If Concessionaire is unable to utilize select backfill, then additional rock may need to be acquired.
- **Glenridge 66-inch diameter water main. PLTP identified that the water main would remain in place and in their opinion as demonstrated that water main can withstand the proposed live and dead loads associated with the Project. However, MTA has agreed to reroute the water main off Purple Line property and then abandon the existing line. This is currently planned to be an off-project activity.**
- Area 3 ROW - With approximately 39 out 40 private parcels acquired, there may be insufficient time in the schedule to clear the ROW for a project of this size and scope consistent with commitments made to PLTP
- WSSC has a waterline not within their easement. Question is who pays for the relocation, whether MTA, WSSC, OR PLTP. Potential Cost. Location is in Glenridge Yard, 66" diameter water main.
- **Potential risk noise and vibration mitigation at University of Maryland. Noise and vibration outside of UMD. PLTP is claiming several million dollars for this. Potential cost implications for MTA.**
- **Approval of Traffic Design submittals. Long, sequential review and approval process for traffic design submittals threatening availability of RFC Packages. There is a schedule risk in delaying construction of traffic related items.**

- **Right of Entry at Silver SM Building. MTA has provided a limited ROE with a short duration for an Exhibit 9 property. MTA and the building owner reached a settlement agreement, and FTA concurrence was obtained for the administrative settlement amount. MTA is now expediting the condemnation filing process with the goal of finalizing it prior to the expiration of the ROE to avoid impact to construction.**

In addition to the top risk items in the Purple Line Project Risk Register noted above, the following risk items were also discussed at the Purple Line PMOC project review meetings:

- MTA is managing the project based on 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, but the update is not yet based on a mutually agreed upon P3 contract schedule. As a result, project management decisions are not fully informed until an acceptable recovery schedule is finalized with the P3 Concessionaire. Serious negotiations on project schedule resumed in summer/fall 2019, but finalization of a mutually agreeable revised baseline schedule will likely require until early 2020.
- Achievement of a recovery schedule that is agreeable to both MTA and the P3 Concessionaire under the P3 contract will likely consume most, if not all, of the current schedule contingency, and is expected to slip the project completion date beyond the current FFGA Revenue Service Date.
- Achievement of a recovery schedule that is agreeable to both MTA and the P3 Concessionaire under the P3 contract will likely result in additional project costs.
- As a result, it is anticipated that MTA will be required to prepare a Recovery Plan in accordance with the terms of the FFGA.

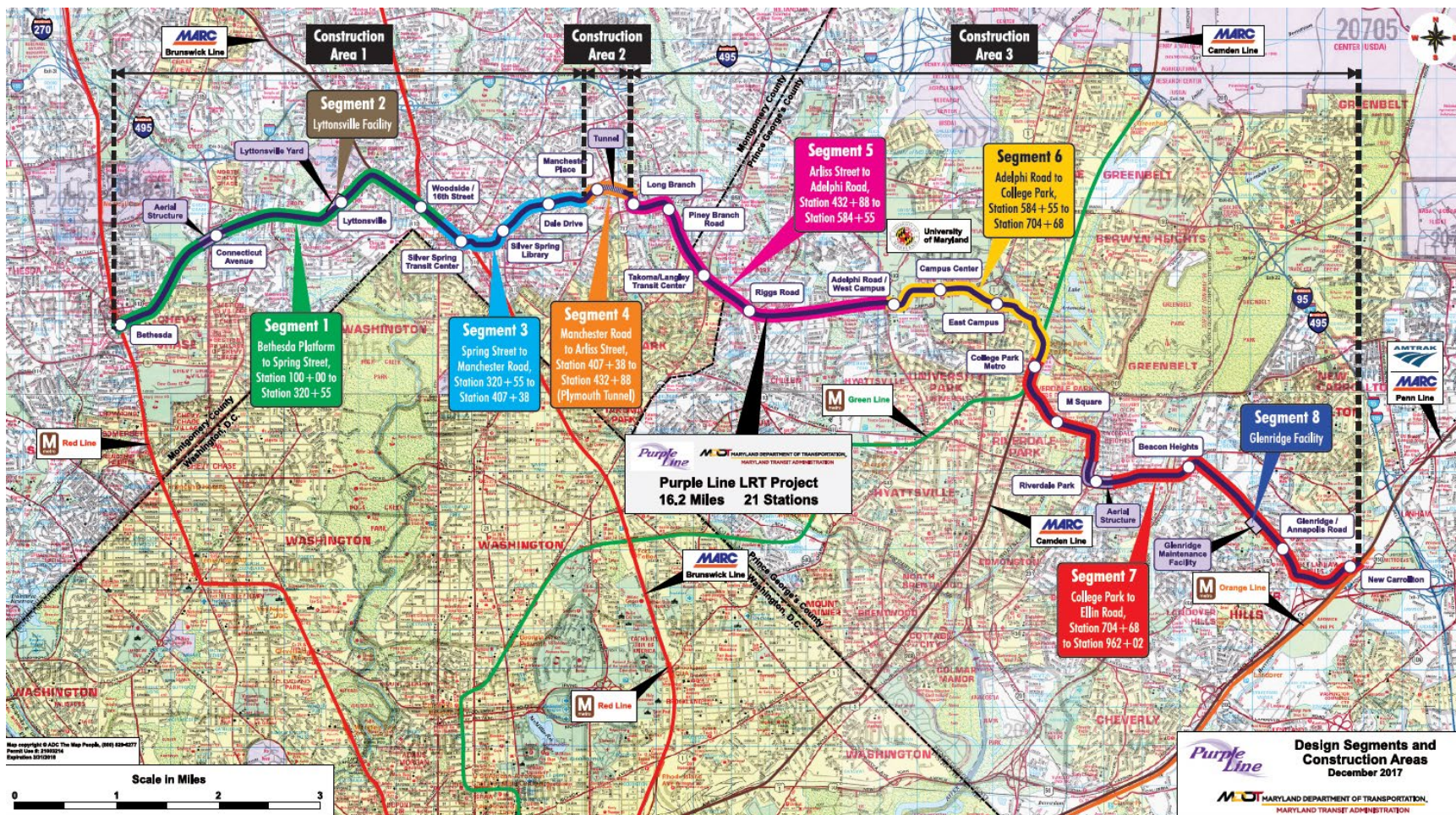
### **Appendix 3                      Roadmap to Revenue Operations**

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 separately issued Appendix 3 file.



# 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
CCQP	-	Concessionaire's Construction Quality Plan
CDQP	-	Concessionaire's Design Quality Plan
CEL	-	Certified Elements List
CIL	-	Certified Items List
DART	-	Days Away, Restricted or Transferred
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
E&S	-	Erosion and Sedimentation
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
MOT	-	Maintenance of Traffic
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
OCS	-	Overhead Contact System
OMF	-	Operation and Maintenance Facility

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
QOAR	-	Quality Oversight Assessment Report
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
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 July 2019 compared with the project budget as reported in MTA's June 1, 2016 SCC Workbook and MTA's current Working Budget.

(in \$1,000)

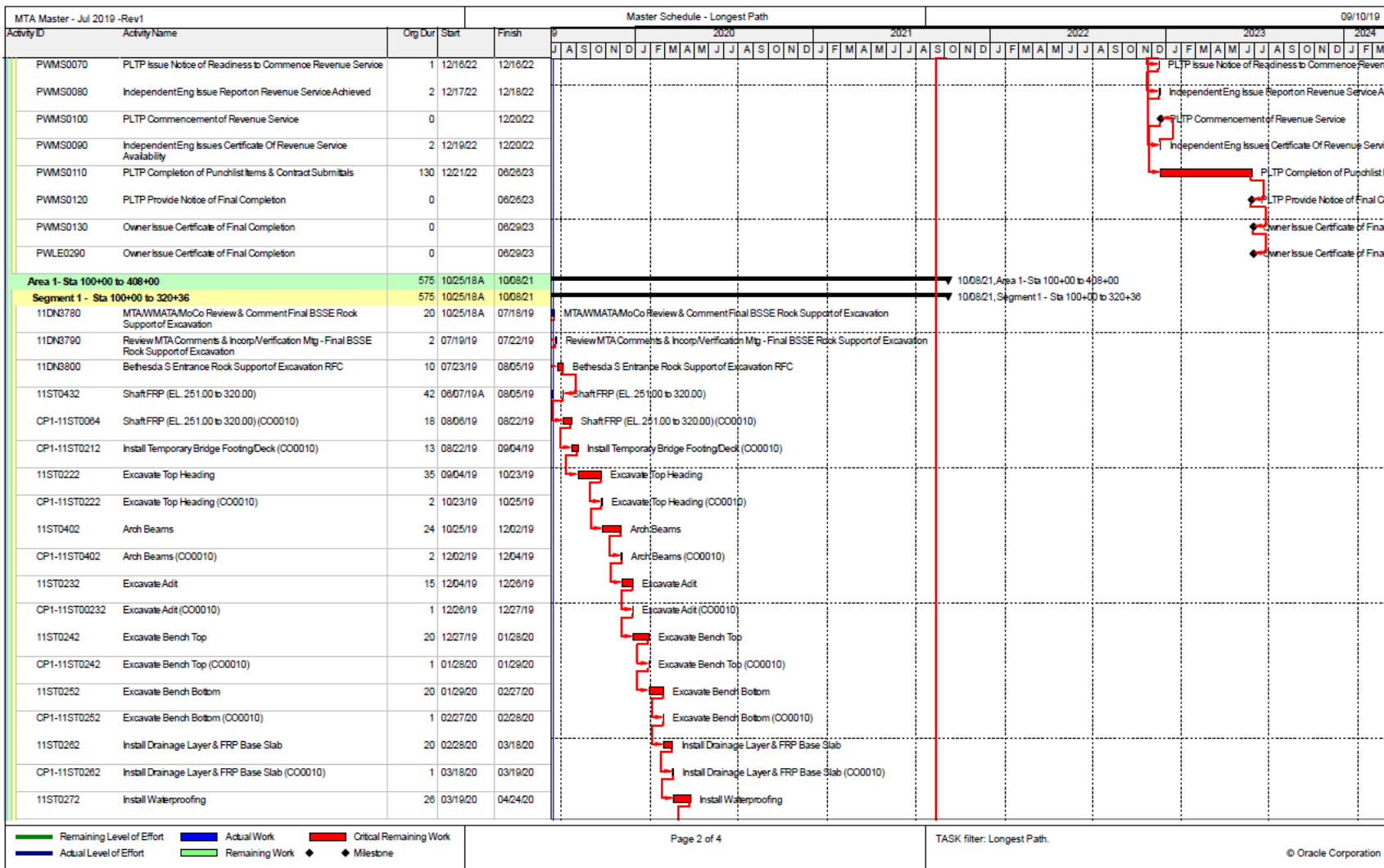
SCC	Cost Category	Budget (June 1, 2016 SCC Workbook)	Working Budget* (Jan. 1, 2017 SCC Workbook)	Expended	Forecast at Completion
10	Guideway and Track	280,620,726	258,782,885	66,743,431	259,082,885
20	Stations	114,857,016	116,127,445	5,450,790	116,127,445
30	Maintenance Facility	94,155,591	94,155,591	15,539,403	94,155,591
40	Sitework	521,968,990	315,482,782	113,855,224	340,814,931
50	Systems	263,887,313	263,887,313	32,739,470	256,887,313
	Subtotal 10 thru 50	1,275,489,636	1,048,436,017	234,328,319	1,067,068,166
60	Right-of-Way	229,600,000	229,600,000	211,652,105	229,600,000
70	Vehicles	212,940,927	212,940,927	31,124,636	212,940,927
80	Professional Services (total)	571,658,114	798,711,733	597,770,516	825,718,758
80.01	Project Development (PD)	87,149,878	87,149,878	85,469,312	85,469,312
80.02	Engineering	139,766,036	114,618,846	114,415,737	119,336,900
80.03	Project Management for Design and Construction	148,555,323	227,047,206	183,301,032	286,606,320
80.04	Construction Administration & Management	83,269,280	255,349,776	153,036,611	204,769,341
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	21,111,788	25,196,151
80.07	Surveys, Testing, Investigation, Inspection	15,164,346	16,798,570	11,444,420	16,798,570
80.08	Start up	57,413,338	53,007,367	235,200	53,007,367
	Subtotal 10 - 80	2,289,688,678	2,289,688,678	1,074,875,576	2,335,327,851
90	Contingency	90,535,748	90,535,748	-	44,896,572
100	Finance Charges	26,805,863	26,805,863	-	-
	Total	2,407,030,288	2,407,030,288	1,074,875,576	2,407,030,288

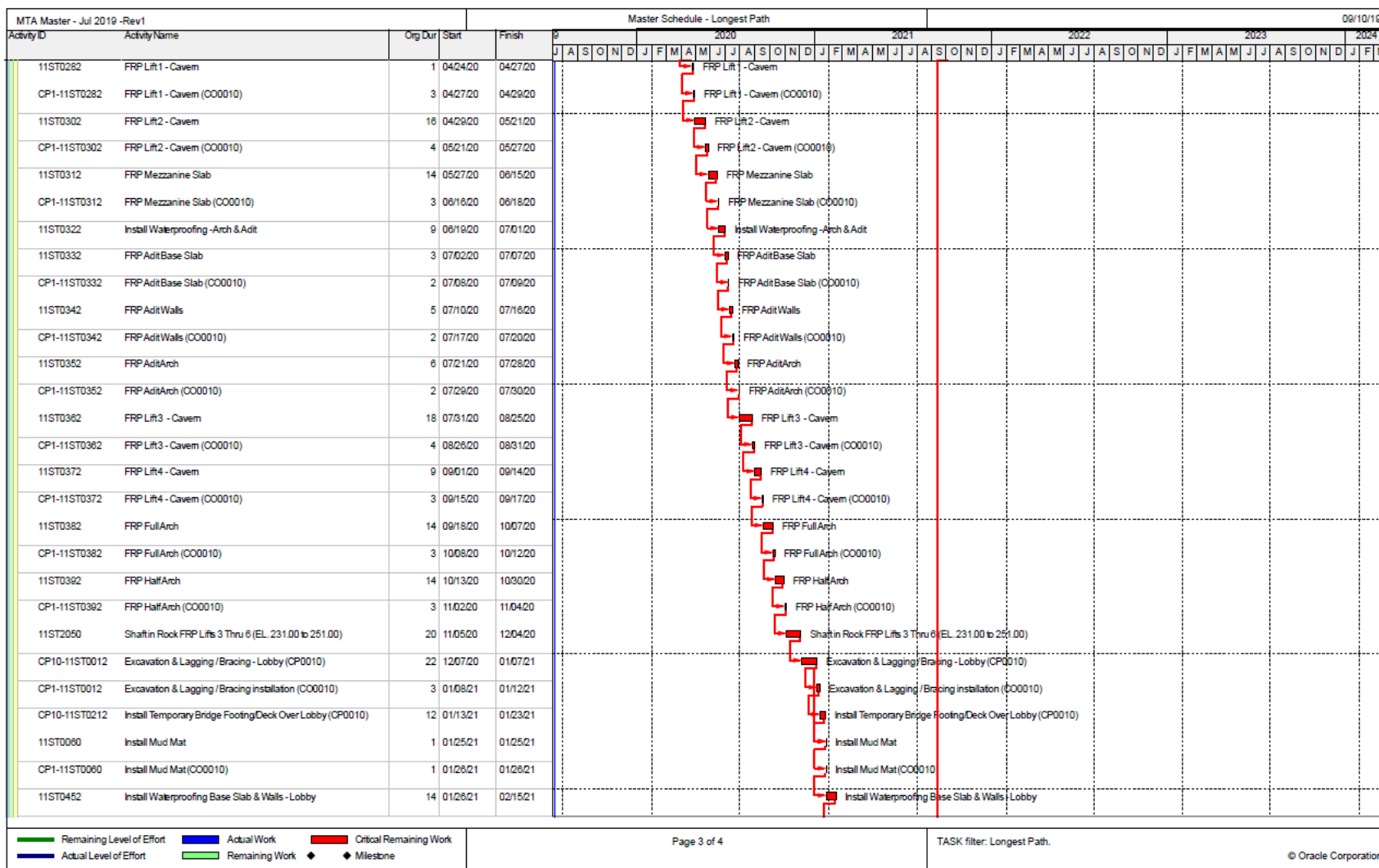
\* NOTE: The Purple Line Working Budget is based on the current approved (December 2016) cost and resource loaded Baseline Project Schedule, which is undergoing mitigation and revision. Once the project schedule is re-baselined, the budget can be accordingly updated.

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

<b>MAIN WORKSHEET - BUILD ALTERNATIVE</b>									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)	
<b>10 GUIDEWAY &amp; TRACK ELEMENTS (route miles)</b>	<b>16.20</b>	<b>259,766</b>	<b>0.00</b>	<b>259,766</b>	<b>\$16,035</b>	<b>22%</b>	<b>12%</b>	<b>280,621</b>	
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	
<b>20 STATIONS, STOPS, TERMINALS, INTERMODAL (number)</b>	<b>21</b>	<b>103,621</b>	<b>0</b>	<b>103,621</b>	<b>\$4,930</b>	<b>9%</b>	<b>5%</b>	<b>114,857</b>	
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	
<b>30 SUPPORT FACILITIES: YARDS, SHOPS, ADMIN. BLDGS</b>	<b>16.20</b>	<b>87,590</b>	<b>0</b>	<b>87,590</b>	<b>\$5,407</b>	<b>7%</b>	<b>4%</b>	<b>94,156</b>	
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	
<b>40 SITEWORK &amp; SPECIAL CONDITIONS</b>	<b>16.20</b>	<b>481,579</b>	<b>2,405</b>	<b>483,984</b>	<b>\$29,876</b>	<b>41%</b>	<b>22%</b>	<b>521,969</b>	
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'l, 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	
<b>50 SYSTEMS</b>	<b>16.20</b>	<b>225,424</b>	<b>10,376</b>	<b>235,800</b>	<b>\$14,556</b>	<b>20%</b>	<b>11%</b>	<b>263,887</b>	
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	
<b>Construction Subtotal (10 - 50)</b>	<b>16.20</b>	<b>1,157,880</b>	<b>12,781</b>	<b>1,170,661</b>	<b>\$72,263</b>	<b>100%</b>	<b>52%</b>	<b>1,275,490</b>	
<b>60 ROW, LAND, EXISTING IMPROVEMENTS</b>	<b>16.20</b>	<b>186,092</b>	<b>37,187</b>	<b>223,279</b>	<b>\$13,783</b>		<b>10%</b>	<b>229,600</b>	
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	
<b>70 VEHICLES (number)</b>	<b>25</b>	<b>192,691</b>	<b>0</b>	<b>192,691</b>	<b>\$7,708</b>		<b>9%</b>	<b>212,941</b>	
70.01 Light Rail	25	186,771		186,771	\$7,471			206,351	
70.02 Heavy Rail	0	0		0				0	
70.03 Commuter Rail	0	0		0				0	
70.04 Bus	0	0		0				0	
70.05 Other	0	5,920		5,920				6,590	
70.06 Non-revenue vehicles	0	0		0				0	
70.07 Spare parts	0	0		0				0	
<b>80 PROFESSIONAL SERVICES (applies to Cats. 10-50)</b>	<b>16.20</b>	<b>535,369</b>	<b>6,032</b>	<b>541,401</b>	<b>\$33,420</b>	<b>46%</b>	<b>24%</b>	<b>571,658</b>	
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	
<b>Subtotal (10 - 80)</b>	<b>16.20</b>	<b>2,072,032</b>	<b>56,000</b>	<b>2,128,032</b>	<b>\$131,360</b>		<b>95%</b>	<b>2,289,689</b>	
<b>90 UNALLOCATED CONTINGENCY</b>				<b>81,652</b>			<b>4%</b>	<b>90,536</b>	
<b>Subtotal (10 - 90)</b>	<b>16.20</b>			<b>2,209,684</b>	<b>\$136,400</b>		<b>99%</b>	<b>2,380,224</b>	
<b>100 FINANCE CHARGES</b>				<b>24,128</b>			<b>1%</b>	<b>26,806</b>	
<b>Total Project Cost (10 - 100)</b>	<b>16.20</b>			<b>2,233,812</b>	<b>\$137,890</b>		<b>100%</b>	<b>2,407,030</b>	
Allocated Contingency as % of Base Yr Dollars w/o Contingency				2.70%					
Unallocated Contingency as % of Base Yr Dollars w/o Contingency				3.94%					
Total Contingency as % of Base Yr Dollars w/o Contingency				6.64%					
Unallocated Contingency as % of Subtotal (10 - 80)				3.84%					
YOE Construction Cost per Mile (X000)								\$78,734	
YOE Total Project Cost per Mile Not Including Vehicles (X000)								\$135,438	
YOE Total Project Cost per Mile (X000)								\$148,582	









**Appendix 9                      Vehicle Status Report**

**Purple Line Project Light Rail Vehicles**

**Vendor:**            Construcciones y Auxiliar de Ferrocarriles (CAF)

**Model:**            Multiple-section 136-foot articulated vehicle, used in single-car consist (vehicle total length is 142 feet coupler-to-coupler)

**Year:**             First vehicle delivery is currently scheduled for 2020, once storage and testing facilities are sufficiently construction complete

**Quantity:**        25

**Identification:**        The LRVs will be numbered from 101 through 126

**New Technologies:**

                        None planned (all major suppliers have service proven equipment)

**Upcoming Significant Events:**

- Continue dynamic testing of the first vehicle on the test track in Elmira, NY
- Commence static and dynamic testing of the second vehicle in Elmira, NY
- Continue final assembly of the third, fourth, fifth, sixth and seventh vehicles in Elmira, NY
- Continue to manufacture carshells for additional vehicles in Spain and ship them to the US for final assembly

**Bus Vehicle Testing:** Not Applicable



**Appendix 10 Construction Photographs**



(photo: MTA)

**Photo 1:** Installation of reinforcing steel in the Pump Station at the University of Maryland Campus Drive underpass under the CSX/WMATA tracks.



(photo: MTA)

**Photo 2:** Placement of the new precast concrete arch section of the southbound Baltimore-Washington Parkway Bridge, widening the span to accommodate the Purple Line.