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November 14, 2025

Our File No.: FY25-00061

This is in response to your e-mail of December 13, 2024, requesting information under the Freedom of Information Act (FOIA). Specifically, you requested a copy of "each PMOC report during 2023 and 2024 for 1) The Maryland Transit Administration, and 2) The Maryland Department of Transportation. PMOC is Project Management Oversight Contractor."

A search of the FTA files has disclosed documents responsive to your request which are enclosed. The duplication fee is negligible and is waived pursuant to the FOIA and the Department of Transportation regulations, 49 C.F.R. § 7.43 (c). I hope this information meets your needs.

For additional information, please see the contact information above.

Sincerely,

Nancy Sipes

Nancy Sipes
Office of Management Planning

COMPREHENSIVE MONITORING REPORT
November 2022–January 2023

Metro Fleet and Train Control Replacement Project
MTA Non-New Starts Capital Projects

Maryland Transit Administration
Baltimore, Maryland
Final

Draft Report Delivered to FTA on February 1, 2023
Final Report Delivered to FTA on February 6, 2023

PMOC Contract No.: 69319519D000016
Task Order No.: 69319520F300095
Project No.: 69319519D000016/69319520F300095
Requisition/Reference No.: FTA-TPM20-20-0106
OPs Referenced: 20, 22, 24, 25, 26
CLINs 0001, 0002, and 0005

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Time on Project: 05/18/2020 through 05/17/2025

REPORT FORMAT AND FOCUS

This report is submitted in compliance with the terms of the Federal Transit Administration (FTA) Contract #69319519D000016, Task Order #69319520F300095. Its purpose is to provide information and data to assist FTA as it continually monitors the management capacity and capability of the Maryland Transit Administration (MTA) (the Project Sponsor) to execute the project efficiently and effectively, and hence, whether the Project Sponsor continues to be ready to receive federal funds for further project development. This report covers the project management activities on the Metro Fleet and Train Control Replacement Project and the MTA Non-New Starts Capital Projects managed by MTA as the Project Sponsor. The cost and schedule information in this report was extracted from MTA's January 18, 2023, monthly report, except where noted. This report has been organized to comply with the requirements of updated Oversight Procedure 25 – Recurring Oversight and Related Reports, dated June 2020.

THIRD-PARTY DISCLAIMER

This report and all subsidiary reports are prepared solely for FTA. This report should not be relied upon by any party, except FTA or the Project Sponsor, in accordance with the purposes as described below.

Projects funded by FTA and monitored by its Project Management Oversight Contractor (PMOC) can utilize a risk-based assessment process to review and validate a Project Sponsor's budget and schedule. This risk-based assessment process is a tool for analyzing project development and management. Moreover, the assessment process is iterative in nature; any results of an FTA or PMOC risk-based assessment represent a "snapshot in time" for a particular project under the conditions known at that same point in time. The status of any assessment may be altered at any time by new information, changes in circumstances, or further developments in the project, including any specific measures a Project Sponsor may take to mitigate the risks to project costs, budget, and schedule, or the strategy a Project Sponsor may develop for project execution. Therefore, the information in the reports will change from quarter to quarter, based on relevant factors for the period and/or previous periods.

TABLE OF CONTENTS

1. EXECUTIVE SUMMARY 1
1.1. Project Description 1
1.2. Project Status 1
1.3. Major Issues and/or Concerns 5
1.4. Status of Key Indicators Dashboard (Post-Grant) 7
1.5. Core Accountability Items 8
2. OBSERVATIONS AND FINDINGS 9
2.1. Summary of Monitoring Activities 9
2.2. Oversight Triggers 9
2.3. Project Management Plan and Subplans 9
2.4. Management Capacity and Capability 10
2.5. National Environmental Policy Act Process and Environmental Mitigation 10
2.6. Project Delivery Method and Procurement 10
2.7. Design 10
2.8. Value Engineering and Constructability Reviews 15
2.9. Real Estate Acquisition and Relocation 15
2.10. Third-party Agreements and Utilities 15
2.11. Construction 15
2.12. Vehicle Technology and Procurement 24
2.13. Project Cost 24
2.14. Project Schedule 26
2.15. Project Risk 30
2.16. Quality Assurance/Quality Control 30
2.17. Safety and Security 30
2.18. Americans with Disabilities Act 30
2.19. Buy America 30
2.20. Start-Up, Commissioning, Testing 31
2.21. Before-and-After Study Reporting 31
2.22. Lessons Learned 31
2.23. Actions Items Table 31

ATTACHMENT A – LIST OF ACRONYMS 32
ATTACHMENT B – SAFETY AND SECURITY CHECKLIST 34
ATTACHMENT C – TOP 5 PROJECT RISKS 37
ATTACHMENT D – AWARDED CONTRACTS 38
ATTACHMENT E – ROLLING STOCK VEHICLE STATUS REPORT 39
ATTACHMENT F – PROJECT MILESTONES/KEY EVENTS 40
ATTACHMENT G – ROADMAP TO REVENUE OPERATIONS 41
ATTACHMENT H – PROJECT MAP 44

LIST OF TABLES

Table 1 – Major Issues/Concerns and Action Items 6
Table 2 – Key Indicators Dashboard 7
Table 3 – Core Accountability Items 8
Table 4 – Project Federal Grants 25
Table 5 – Project Funding Summary 25
Table 6 – Project Schedule 29

1. EXECUTIVE SUMMARY

1.1. Project Description

The Metro Fleet and Train Control Replacement Project, as part of the Maryland Transit Administration (MTA) (Project Sponsor) Non-New Starts Capital Projects, renovates the MTA Metro System that consists of a double-tracked train-controlled signaling system that is 15 miles long and a Metro railcar fleet consisting of 100 cars that are now more than 30 years old. The MTA Metro System is located in Baltimore, Maryland. The Metro railcars were designed with a 30-year life and are now due for replacement. The Automatic Train Protection system is currently experiencing reliability problems due to its age and parts obsolescence. The Metro Fleet and Train Control Replacement Project, which is using phased construction, consists of installation of a new Communications Based Train Control (CBTC) system, 78 new railcars (based on a needs assessment), phaseout of the old fleet, and decommissioning of the old train control system. **The project cost is budgeted at $476,851,000, which is unchanged from the value reported in the 2022 Quarter 3 Project Management Oversight Contractor (PMOC) comprehensive monitoring report.**

1.2. Project Status

The contract was awarded to Hitachi Ansaldo Baltimore Rail Partners, LLC (HAB) (now Hitachi Baltimore Rail Partners LLC [HBR]) in July 2017. Notice to Proceed (NTP) was issued on September 1, 2017. HBR is making contract submittals and conducting project training. Submissions of Train Control and Railcar Conceptual Design Reviews (CDRs) and Preliminary Design Reviews (PDRs) and review meetings have been completed. The PDR phase for the Train Control system was completed in February 2019, and the Railcar PDR phase was completed in March 2019 (with the exception of Lighting, which was completed in early May 2019).

Work by HBR to complete the Reliability, Availability, Maintainability, and System Safety (RAMS) documentation for the vehicles continues, and the impacts of COVID-19 have delayed completion of the Final Design Review (FDR) phase from the original September 2020 due date. As first reported in April 2021, the RAMS documentation and the FDR remain under review and revision. **As of January 18, 2023, the RAMS documentation remained incomplete, although HBR's work on it has progressed since July 2022. MTA warns that it will take several months for HBR to supply all the items required for it to complete the RAMS documentation. Late completion of the RAMS documentation and extension of the FDR phase, along with COVID-19-related supply chain material delivery delays, continue to slow the delivery of the first vehicles, which is now expected in April 2023. Based on the proposed baseline schedule, this slow delivery of vehicles is no longer expected to further delay project completion. HBR is actively managing this process to mitigate additional delays.**

- Scope: No significant changes to the scope have been initiated since MTA added axle counters in the existing Metro vehicle yard as part of the Train Control portion of the project.

- Summary of COVID-19-related Items:
    - Most COVID-19 staffing-related delays to the Train Control system ended by September 2021.
    - The final first-round training session for the Solid-state Interlocking (SSI)/Data Communication System (DCS)/Local Automatic Train Supervision (LATS) was postponed and rescheduled for completion to just before startup of the first interlocking.
    - HBR's Italian carshell manufacturer (OMEP) reopened to approximately 95 percent to 100 percent of its normal capacity in June 2020; carshell production work continues.
    - Railcar First Article Inspections (FAIs) did not occur on schedule because of travel restrictions and closed facilities. Railcar FAIs began in late June 2020 and are continuing. Accommodations were made for remote FAIs where needed.
    - Maryland on-site construction and Train Control testing and commissioning were initially shut down in April 2020 and restarted in May 2020; however, these activities experienced another two-week shutdown in December 2020.
    - Factory Acceptance Tests (FATs) for SSI were postponed due to travel restrictions but are now complete.
    - SSI manufacturing was shut down but has resumed.
    - The structural qualification testing required for carshell acceptance that was to be performed on Carshell X, which has a reworked roof, was moved from Italy to Germany as a result of new COVID-19 restrictions that were imposed in October 2020. The beginning of structural qualification testing was delayed from April 2021 to September 2021 due to backlogs and employee COVID-19 exposures at the testing vendor.
    - **MTA has not reported new issues or impacts from COVID-19 since June 2021, with the exception of the global supply chain disruptions that delayed the delivery of vehicle subsystems and materials. *The PMOC recommends that MTA maintain records related to these disruptions in case a claim on this subject should arise in the future.***
- Schedule:
    - MTA approved HBR's February 28, 2018, project baseline schedule (Rev. 3), which showed a project completion date of May 2024, with warranty completion and project closeout scheduled to occur in May 2026. HBR submitted its Project Schedule Update V11, with a data date of March 1, 2019, to address some of MTA's prior comments. In its April 2019 and May 2019 schedule submissions, HBR presented schedule recovery plans to MTA that attempted to recover the

Full Revenue Service date (although these recovery plans did not recover the interim milestones, including the Phased Revenue Service Start date).

- In May 2020, MTA decided to proceed with the addition of axle counters in the yard. Because of uncertainty related to testing requirements for these axle counters, HBR's Project Schedule Update V25 showed a delay of the Full Revenue Service date to February 6, 2024, which MTA rejected.
- After multiple submittals, rejections, and comments, MTA accepted Project Schedule Update V28 from HBR in September 2020 as the new baseline schedule. Project Schedule Update V28 showed the completion of the Train Control construction milestone on May 5, 2025; the "Last Vehicle Final Acceptance" milestone on March 1, 2024; and the "Revenue Service Full Project" milestone on September 15, 2024.
- Starting in April 2021 and continuing through January 2022, MTA reported that the project was delayed compared to the previously accepted baseline schedule. As of January 12, 2022, HBR projected that the "Last Vehicle Final Acceptance" milestone was delayed by 257 days from the baseline schedule to November 13, 2024, and that the "Revenue Service Full Project" milestone was delayed by 258 days from the baseline schedule to November 12, 2024.
- In January 2022, HBR proposed a new baseline schedule to MTA, referred to as Schedule Update 41. **Since January 2022, MTA and HBR have been negotiating the details of the proposed baseline schedule (Schedule Update 41). HBR requested that MTA accept Schedule Update 41 as the new baseline schedule. In the interim, HBR has submitted seven revisions of Schedule Update 41, now designated Schedule Update 41R, in response to comments from MTA; HBR submitted the latest revision in October 2022. MTA remains in negotiations with HBR as it works through the commercial aspects of a change order to officially replace the contract's baseline schedule. MTA is working under the expectation that the milestones in the current revision will be accepted as the new baseline schedule.** Since April 2022, MTA has been reporting that Schedule Update 41R shows that the "First Vehicle Delivery" (aka the "First Married Pair") milestone is delayed until March 2023, which is 18 months later than the current baseline schedule. Schedule Update 41R also shows that the "First Vehicle Final Acceptance" milestone will be delayed until December 2024, and the "Last Vehicle Final Acceptance" milestone will be delayed until March 2026. Both of these dates are 25 months later than those shown in the current baseline schedule. Schedule Update 41R shows that the "Project Closeout" milestone will be delayed until December 2028, which is 16 months later than shown in the current baseline schedule.

- Cost: **On January 18, 2023, MTA reported that $203,790,000 of the $476,851,000 project budget had been expended (through November 30, 2022). Forty-two change**

requests were in various stages of development, negotiation, and authorization; many were credits or no-cost changes, and the scope of two were funded by other sources. The total cost of the change requests is within the $20,000,000 contract contingency included in MTA's $440,517,000 contract with HBR. The change requests include the executed change order adding axle counters in the yard and a no-cost change order to align the period of performance with the September 2020 baseline schedule.

- Significant Project Activities and/or Key Milestones:
    - **As part of the Train Control construction, HBR and MTA put the Portal and Rogers Avenue SSIs into revenue service during the weekend of November 4, 2022, and State Center, Charles Center, and Johns Hopkins SSIs into revenue service during the weekend of December 17, 2022. These were the last of the nine SSIs. The final SSIs entered service about a week behind the date previously reported to the PMOC.**
    - Monthly meetings between Hitachi Rail executives and MTA leadership began in January 2021 to address issues related to vehicle quality and the project schedule. **The most recent meeting occurred on October 26, 2022, and no meeting was planned for November 2022. Meetings planned for December 2022 and January 2023 were canceled to allow the parties to meet specifically to negotiate the schedule baseline change order. The next executive meeting is scheduled for February 10, 2023.**
    - HBR commissioning crews **began work on the aerial structures for the wireless access points and transponders in September 2022 and completed this work in early November 2022. In January 2023, MTA reported that work is continuing on the various cable replacements required for installation of the axle counters on the main line at the yard entrances, requiring some single-track operation, for which HBR is preparing a schedule for MTA approval.**
    - HBR has completed transponder installations in the yard. The testing and commissioning began in April 2022 and was planned to be completed in August 2022. **However, the test results have revealed that 17 of the 71 counter units were installed at incorrect locations relative to the yard signals. The reworking of the counter unit installations at these locations will require modification of the conduits and cabling in these locations. In January 2023, MTA continued to report that this modification work will not delay the completion of the test track, which is on the schedule's critical path.**
    - **Assembly work on Carshells #002 through #016, now designated Cars 200 through 214, in Miami, Florida, has been suspended due to newly discovered corrosion issues in all the carshell bodies. Carshells #017 through #027 have been moved to Miami from the ports in Brunswick, Georgia, and**

Jacksonville, Florida, to be stored; however, these carshells also have corrosion problems.

- **Cars 200 and 201, as the first married pair, are fully assembled and are continuing to go through the FAI process, despite the newly discovered corrosion issues in the carshells. In September 2022, HBR began type testing the first married pair; this type testing was ongoing as of October 2022 and was continuing in January 2023.** As the first married pair, Cars 200 and 201 will be the first vehicles delivered to MTA for operational testing.
- **Due to limited capacity at HBR's Miami facility, ten carshells were stored at the two ports (Brunswick and Jacksonville), which did not have climate-controlled facilities. As these ten carshells were moved to Miami, corrosion was discovered on the carshells, including small holes less than 1/4 inch in diameter in some floor beams, where desiccant packs had been placed prior to shipment from Italy. Although the improper storage appears to have exacerbated the corrosion, MTA reported in December 2022 that closer inspection of the first 16 cars revealed that the calcium chloride from the desiccant packs had also caused corrosion on the floor beams on cars that were in production and FAI. As of January 18, 2023, HBR was assessing whether each car could be repaired or would need to be scrapped. To mitigate the schedule impacts, HBR had shipped or was in the process of shipping seven carshells from storage in Italy, so that it can restart production.**
- **HBR is holding complete Carshell #035 in Italy, and Carshells #036 through #042 are in production in Italy.** MTA has reported only minor manufacturing and assembly quality issues since HBR added quality assurance staff at the carshell manufacturing facility.
- **HBR will be moving the railcar production from Miami to Hagerstown, Maryland, in the first quarter of 2024. MTA reported that HBR plans to keep the existing warehousing facility in Miami for at least six months after the opening of the Hagerstown facility, so that the new facility can be brought to full operation to avoid adding schedule delays. The planned timeline for the transition between the two facilities will result in at least the first seven married pairs (14 railcars) being assembled in Miami.**

1.3. Major Issues and/or Concerns

Table 1 discusses the major issues or concerns impacting the project's scope, schedule, cost, risks, quality, safety, etc., as well as the Project Sponsor actions and the Federal Transit Administration (FTA) and PMOC recommendations.

Table 1 – Major Issues/Concerns and Action Items

Issue/Concern	HBR's schedule updates had been showing slippage of the project baseline schedule interim milestones and the project completion dates. HBR's Project Schedule Update 12 recovery plans, which were submitted and accepted, did not recover all interim milestones but did recover the Full Revenue Service date, and maintained overall project work completion and closeout dates. However, HBR's subsequent schedule updates indicated further slippage of interim milestones and the Full Revenue Service date. Project Schedule Update V28 has been accepted as the new baseline schedule and reflects initial COVID-19-related impacts, but the pandemic has caused further impacts. This September 2020 baseline schedule does not include contingency time or "float." **HBR has now proposed a new baseline schedule (Schedule Update 41R) that delays most vehicle delivery and acceptance milestones by approximately 15 to 25 months from the current baseline schedule**.
Date Identified	June 2020
Status	In progress
Project Sponsor Action	MTA is conducting monthly executive meetings throughout calendar year 2022 to be led by Hitachi Rail's Head of Delivery for North America. Meetings are focusing on HBR's plans to meet the schedule and proposed mitigations for any items that are forecast to be late. MTA prepared independent assessments of the Schedule Updates 39 and 40.
PMOC Recommendation	MTA should continue to perform its schedule analysis to forecast realistic key milestones. This analysis should include a reasonable amount of schedule contingency based on MTA's experience with HBR's performance to date and MTA's professional experience. It should be used as the basis to report schedule status to FTA and the PMOC. MTA should track delays closely and continue to provide monthly updates to assess how delays are being mitigated. MTA should continue to provide FTA and the PMOC with summaries of the executive meetings held with Hitachi Rail.
Issue/Concern	MTA rejected Roof #1 due to significant quality issues. After working with HBR to address the issues, MTA allowed HBR to repair the roof and install it on an alternative carshell (Carshell X) that was shipped to Germany. Structural qualification testing of Carshell X began in September 2021. Minor quality issues then were discovered in later carshells, all of which have been resolved.
Date Identified	July 2020
Status	Ongoing
Project Sponsor Action	MTA and HBR have implemented additional quality oversight. MTA mandated quality staff changes that were made by the manufacturer.
PMOC Recommendation	MTA should continue to fully evaluate the root causes of these issues and revise the associated quality processes accordingly.
Issue/Concern	COVID-19-related challenges have the potential to impact the project budget and schedule.
Date Identified	June 2020
Status	Ongoing
Project Sponsor Action	MTA reports that it is tracking and monitoring COVID-19-related impacts.
PMOC Recommendation	In the opinion of the PMOC, MTA should continue to track, document, and quantify COVID-19-related delays. Obtaining documentation from HBR will help to validate schedule and cost assumptions moving forward. MTA should incorporate a realistic project schedule that is mutually agreed to by MTA and HBR.

1.4. Status of Key Indicators Dashboard (Post-Grant)

Table 2 shows the key indicators dashboard for the project.

Table 2 – Key Indicators Dashboard

Project Sponsor:				Maryland Transit Administration	
Project Name:				Metro Fleet and Train Control Replacement Project/MTA Non-New Starts Capital Projects	
Date:				January 18, 2023	
Project Detail					
Oversight Frequency:				**Monthly**	
Element	**Status**			**Prior Status**	**Issue or Concern**
	● **G**	● **Y**	● **R**		
Project Management Plan (PMP)		●		●	PMP updates are prudent based on recent cost and schedule impacts.
Management Capacity and Capability		●		●	Management capacity and capability reviews are not being performed on this Non-New Starts Project. However, The PMOC is evaluating MTA's project management capacity as a result of the change in staff with the departure of Dave Wilson and the appointment of Mark Davis as Project Manager.
Cost*		●		●	Realistic added costs that will result from schedule delays currently may not be reflected in the project budget.
Schedule			●	●	MTA has accepted a schedule update that has no contingency time or "float," and delays continue. **The currently proposed baseline schedule extends the project by up to 25 more months without float.**
Quality			●	●	**Quality issues related to the improper storage of carshells and corrosion of floor beams during shipping have been discovered. Quality issues also remain in the area of RAMS documentation and testing, and have not improved even with the preparation of "Lessons Learned" documents.**
Safety	●			●	No issues.
Risk			●	●	**Schedule, cost, and quality risks remain high.**
Legend					
Green	*Satisfactory: No corrective action necessary.*				
Yellow	*Caution: Risk/issues exist. Corrective action may be necessary.*				
Red	*Elevated for immediate corrective action: Significant risk to the health of the project.*				

*Note: With regard to cost:
Yellow – Forecast cost exceeds the project budget by up to 3%.
Red – Forecast cost exceeds the project budget by more than 5%.

1.5. Core Accountability Items

Table 3 shows the core accountability items for the project, including the current status of the project and the major issues and how they are being addressed.

Table 3 – Core Accountability Items

		Original (Grant)	Current Forecast	PMOC Assessment of Current Forecast
Cost	Capital Cost Estimate	$465,851,000	$476,851,000	This estimate includes $10 million of additional budget from state funds for construction management and administration due to delays through June 2022.
Contingency	Unallocated Contingency		$53,960,840	This contingency level appears adequate at this point in the project; however, schedule delays are likely to exhaust this amount before project completion.
	Allocated Contingency		$3,762,160	This amount will be exhausted before project completion.
	Total Contingency	$20,000,000	$57,723,000	Values include local and federal funds in the baseline budget.
Schedule	Revenue Service Date	11/29/2022	12/27/2024	This forecasted date is more than 10 months later than shown in the baseline schedule agreed to by the contractor in January 2021.

Project Progress		**Amount ($)**	**Percent of Total**
Total Expenditures	Actual cost of all eligible expenditures completed to date	**203,790,000**	**42.7%**
Planned Value to Date	Estimated value of work planned to date	Not Available	Not Applicable
Actual Value to Date	Actual value of work completed to date	Not Available	Not Applicable

Contract Status		**Amount ($)**	**Percent of Total**
Total Contracts Awarded	Value of all contracts (design, support, construction, equipment) awarded; % of total value to be awarded	**466,767,000***	**97.9%**
Construction Contracts Awarded	Value of construction contracts awarded; % of total construction value to be awarded	408,459,000*	86.0%
Physical Construction Completed	Value of physical construction (infrastructure) completed; % of total construction value completed	**195,091,000**	**43.6%**

Rolling Stock Vehicle Status	**Date Awarded**	**No. Ordered**	**No. Delivered**
200 through 277	11/12/2016	78	0

Next Quarterly Progress Review Meeting:	February 8, 2023

*** Includes change orders issued through January 17, 2023.**

2. OBSERVATIONS AND FINDINGS

2.1. Summary of Monitoring Activities

The PMOC attended monthly virtual meetings on December 21, 2022, and January 18, 2023, with MTA project staff and MTA's Project Management Consultant. The PMOC prepared a trip report for each meeting to document the discussions. Additionally, the PMOC visited the site with MTA project staff on November 1, 2022.

2.2. Oversight Triggers

The oversight triggers most applicable to the project are the Oversight Procedure (OP) 25 schedule, cost, and quality triggers. The project schedule has been in one form of update or another throughout the current quarter. A no-cost change order was agreed upon in January 2021 between MTA and HBR that extended the Project Closeout date by 12 months to May 2027. **Since the September 2020 revised baseline schedule was agreed upon with the contractor in December 2020, nearly every key milestone has been delayed by more than 12 months. The "Revenue Service Full Project" milestone is projected to be delayed an additional ten months.** Project schedule delays typically impact project cost, another significant indicator of project health.

Quality issues in the carshell manufacturing, first noted in July 2020, reportedly have been addressed. A second issue resulted in a roof buckling after it was assembled on Carshell #002 in November 2020. MTA reported additional minor quality issues with the carshells in March, April, June, and July 2021, which HBR has addressed. HBR completed root cause analysis of the nonconforming paint inclusions on frame subassemblies on three carshells and of paint on the F-end mask assemblies. HBR determined that the causes were related to shipping and handling, and painting errors. HBR has not confirmed the corrective actions but was inspecting for paint errors, so that they can be repaired before the mask assemblies arrive at the Miami facility. HBR is addressing a minor quality issue related to seat brackets, as reported by MTA in October 2021. **In November 2022, MTA reported that calcium chloride from desiccant packs had caused corrosion on the floor beams of the carshells, including small holes less than 1/4 inch in diameter in some floor beams where desiccant packs had been placed before shipment from Italy. MTA then reported in December 2022 that, upon closer inspection of the first 16 cars, HBR has found the same corrosion on the floor beams on cars that were in production and FAI. As of January 18, 2023, HBR was assessing whether each car could be repaired or would need to be scrapped. To mitigate the schedule impacts, HBR had shipped or was in the process of shipping seven carshells from storage in Italy, so that HBR can restart production.**

2.3. Project Management Plan and Subplans

Project Management Plan (PMP) Rev. 3, dated August 2019, is the latest formal version issued for this project. MTA continues to update selected sections of the PMP. **As first reported by the PMOC in October 2020, due to significant schedule and budget revisions and the quality issues, MTA should consider updating the PMP. Incorporating lessons learned into MTA's daily management practices could benefit project performance moving forward.**

2.4. Management Capacity and Capability

The PMOC is not performing comprehensive Management Capacity and Capability Reviews for these Non-New Starts Capital Projects.

2.5. National Environmental Policy Act Process and Environmental Mitigation

National Environmental Policy Act process and environmental mitigation are not applicable to this task order assignment.

2.6. Project Delivery Method and Procurement

Project delivery method and procurement reviews are not being performed on this task order assignment.

2.7. Design

MTA awarded the contract to HBR in July 2017 and issued NTP on September 1, 2017. HBR provided a preliminary schedule to MTA in September 2017 and subsequently completed the formal project baseline schedule submittal in accordance with contract requirements. MTA is tracking and implementing design changes.

2.7.1. Train Control

MTA conducted a design review of the technical specifications of Train Control with Ansaldo Signaling and Transportation Systems (Ansaldo STS) on October 3 and 4, 2017. MTA conducted the CDR for Train Control with Hitachi Rail on November 28 and 29, 2017.

All Train Control CDRs were completed in early May 2018. The first PDR meetings were held June 25 through June 28, 2018, and the next meetings were held in mid-July 2018. Additional Train Control system PDR submittals were made in October 2018 through December 2018. Completion of the Train Control PDR phase occurred in February 2019, and the remaining review comments were later resolved. A data warehouse Contract Deliverables Requirements List workshop was held to determine what documents were needed and the status of their development, and to reach agreement on the documents needed for FDR. Initially, COVID-19-related impacts delayed completion of the Train Control FDR. As of January 2022, the work to complete the RAMS documentation had delayed completion of the Train Control FDR phase from the baseline schedule and had delayed the "Design Completion" milestone. MTA reported in June 2022 that the RAMS documentation, FDR, Fire Hazard Analysis (FHA), and construction conformance checklist for the Owings Mills and Old Court SSIs were complete, allowing these two SSIs to enter revenue service on June 25, 2022. **The remaining seven SSIs entered service between September 2022 and December 2022.**

On January 18, 2023, MTA reported that less critical RAMS documentation for the Train Control system was still being finalized, and it expects the "Design Completion" milestone to be met on or before February 28, 2023. This completion date is three months later than the date for this milestone completion reported in the PMOC Comprehensive Monitoring Report for Quarter 2 of 2022.

Automatic Train Supervision (ATS) software development remains a critical item for Train Control. HBR encountered difficulty related to the ATS interface with the existing Supervisory Control and Data Acquisition (SCADA) system and recently received MTA approval to use HBR's own SCADA solution. The CBTC software General Application was released in April 2020, and it now allows HBR to work on the site-specific CBTC software for MTA.

As of October 14, 2020, all Train Control engineering FDR documents had been submitted and reviewed. As of January 13, 2021, HBR had not yet provided the completed engineering documents in order to complete safety certification of the Owings Mills SSI to achieve revenue service in March 2021, as planned. Although approximately 20 of the 40 initial FDR and construction conformance items had been closed, the remainder were due back to MTA for final review by January 15, 2021. As of July 14, 2021, HBR had not completed the three remaining RAMS documents, which included analyses for the Fire, Smoke, and Toxic Inhalation (FST) matrix and the FHA. The FHA requires that the FST matrix be approved before performing the FHA. MTA rejected the FST matrix in March 2021, requiring HBR to revise and resubmit it. In May 2021, MTA and HBR began meeting weekly to address issues and gain clarification on the documents in the FST matrix as efficiently as possible, in an attempt to expedite the approval process for the FST matrix. MTA reported that verification of the design and construction conformance checklists continued and needed to be completed in order to put the Owings Mills SSI into revenue service. MTA estimated in July 2021 that the FST matrix would be approved in August 2021 and that all the RAMS documentation would be approved in October 2021. In October 2021, MTA reported that MTA had accepted the FST matrix and that HBR expected to submit the FHA in late October 2021. MTA also reported that MTA Safety had agreed to remove some documents from the RAMS FDR, because they are dependent on the checklist for the ATS and CBTC software. However, in January 2022, MTA staff reported that HBR was still assembling the design conformance checklist for the RAMS FDR and was again revising the FST matrix for the FHA. MTA also noted that the construction conformance checklist and testing reports and documentation remained incomplete.

As a result of the delay in completing the RAMS documentation, there was another delay in the Owings Mills SSI revenue service date. MTA reported that it was unclear when HBR would put the Owings Mills SSI into revenue service, but it was not expected to occur before March 2022. On April 14, 2022, MTA reported that it did not expect HBR to put Owings Mills SSI into revenue service until after May 2022. MTA reported on July 20, 2022, that Owings Mills and Old Court SSIs entered revenue service on June 25, 2022. MTA reported on October 20, 2022, that Milford Mill and Reisterstown Plaza SSIs entered revenue service the weekend of September 24, 2022. **MTA reported that Portal and Rogers Avenue SSIs entered revenue service during the weekend of November 4, 2022, and State Center, Charles Center, and Johns Hopkins SSIs entered revenue service during the weekend of December 17, 2022. These were the last of the nine SSIs.**

The SCADA-ATS systems remain in development. HBR held two prototyping sessions, one each for November and December 2020, to fully demonstrate the interface of the full ATS functionality in Baltimore. Final demonstration of the graphical user interface of the ATS functionality occurred

in March 2021. The customer-witnessed FAT occurred in July 2021 in Pittsburgh, Pennsylvania. On April 14, 2022, MTA reported that the SSI commissioning tests conducted during the overnight hours were complete at all SSIs as well as on the main line, except for the dynamic testing between Johns Hopkins and Charles Center. On June 13, 2022, MTA reported that the dynamic testing between Johns Hopkins and Charles Center had been completed.

The first release of the full CBTC software package occurred in April 2021. MTA reported in October 2021 that the software was on track to be delivered in time for the April 2022 FAT; however, in December 2021, MTA reported that the full CBTC software package would be delayed until July 2022. On April 14, 2022, MTA reported that the ATS software update was nearing completion and remained in testing by HBR. The testing revealed some interface issues that were then resolved. After the second FAT on September 12, 2022, during which HBR successfully demonstrated many of the ATS functions, MTA reportedly asked HBR for a complete list of the open items remaining to be addressed. **MTA reported on January 18, 2023, that HBR is addressing open items from the earlier two FAT's. Once the open items have been addressed, another ATS FAT and demonstration of functions is planned for April 2023.** MTA continues to receive the required monthly Key Performance Indicator report that it uses to assess progress. The CBTC is being prepared in four phases, and the first three are complete. MTA reported on October 19, 2022, that both the initial FAT and the lab testing for the CBTC software are complete, thus allowing the customer-witnessed FAT for the CBTC to proceed. **MTA reported on January 18, 2023, that MTA and HBR have agreed to perform the final CBTC FAT to coincide with the ATS FAT in April 2023.**

On April 14, 2022, MTA reported that HBR's integration manager position remained vacant, although HBR had assigned three internal resources from other projects to fill in on an interim basis until the position could be filled. HBR's commissioning manager position was also vacant, and HBR had also divided this work among other HBR personnel. On May 11, 2022, MTA reported that HBR had filled both the integration manager and commissioning manager positions with staff outside of the project, but that the train control integration manager position was vacant. On June 13, 2022, MTA reported that HBR had filled the train control integration manager position at the end of May 2022. MTA stated that it was stressing to Hitachi Rail executives that they must not allow staffing levels to lapse in these critical documentation areas. **As of January 18, 2023, MTA had not reported any new key HBR vacancies.** ***Considering the potential negative impacts on the schedule and the potential safety issues of having any of these positions remain vacant for an extended period of time, the PMOC recommends that MTA regularly monitor the status of these positions.***

In June 2022, the PMOC requested and received HBR's System Test Plan that also serves as the commissioning plan.

Initial FAT procedure submissions and reviews were completed in early February 2019 to support the first FAT, which occurred at the end of February 2019. MTA completed the customer-witnessed FATs of the Owings Mills equipment racks and the first DCS ring at the end of February 2019. Testing results were satisfactory, and HBR subsequently addressed the remaining open items, completed the reports, and packed and shipped the hardware to Baltimore.

MTA began conducting biweekly workshops in spring 2019 to focus on the completion of outstanding documentation by HBR, including but not limited to, RAMS documentation for both the PDRs and the FDRs, hazard analyses, and safety certification checklists. MTA Safety commenced biweekly workshops with HBR in Pittsburgh, Pennsylvania, to push safety certification documentation forward and develop a clear path for phased safety certification. This strategy was reflected in what was the current schedule update at that time.

2.7.2. Metro Fleet

MTA held technical review meetings for Railcar with HBR from October 18 through October 20, 2017. MTA held the November 2017 monthly Railcar progress meeting with HBR in Miami, Florida, which included a tour of Hitachi Rail's manufacturing facility as well as the Miami railcars. MTA conducted a tour of the Hitachi Rail car body and truck manufacturing facility in Pistoia, Italy, in April 2018.

HBR completed Railcar CDRs in May 2018 for all elements except Lighting, and HBR commenced PDR work for these items in June 2018. HBR selected a new Lighting supplier and completed the Lighting CDR at the end of June 2018. HBR completed the remaining Railcar PDR submissions in January 2019. HBR held PDRs for Operator Cab, Event Recorder System, and Video Management System (VMS) Trainline in December 2018, and for Communications, Interiors/Operator's Cab/Renderings, and Heating, Ventilation, and Air Conditioning (HVAC) in January 2019. HBR subsequently completed the Train Control PDRs in February 2019, except for Lighting. The PDR session for Lighting occurred on May 13, 2019. HBR held the Railcar FDR for trucks on April 5, 2019, and for car bodies on May 9, 2019. HBR held FDRs for Railcar HVAC and Doors in December 2019, and for Trainline Network and VMS in January 2020. As of June 10, 2020, HBR had completed Railcar FDR meetings for all subsystems except for the Event Recorder System and Interiors. HBR worked with suppliers to schedule the Event Recorder System and Interiors FDR meetings before the end of July 2020 and continued to work on FDR documentation. However, work on completion of RAMS documentation and COVID-19-related impacts delayed completion of the FDR phase until October 2020.

MTA reported on June 10, 2020, that HBR had submitted the Preliminary Hazard Analysis (PHA) for Train Control. MTA had several comments, which were addressed. HBR submitted the revised Train Control PHA to MTA, and it has been approved. HBR also submitted the Railcar PHA to MTA. MTA did not expect significant comments on the Railcar PHA, because MTA had held an in-process workshop with HBR to proactively address issues.

As of October 14, 2020, MTA reported that MTA Safety personnel continued to work with HBR on design conformance checklist verification. The Railcar PHA, which would allow finalization of the RAMS documentation, was not yet approved. As of January 13, 2021, the Railcar PHA had one remaining open item in order to close out the PHA. This remaining item was related to cybersecurity of CBTC software and was expected to be completed before March 2021. At that time, this effort was expected to support the overall safety certification process. In March 2021, MTA reported that the Railcar PHA had been completed and approved. As of April 2021, the milestone for completing the vehicle design, titled "Mfg. Design Complete," was projected to be

complete approximately four months later than indicated in the baseline schedule. As of July 2021, the milestone for completing the vehicle design was projected to be complete in August 2021, approximately six months later than indicated in the baseline schedule. As of October 13, 2021, completion of the vehicle design milestone was delayed further, and vehicle design was projected to be complete on October 26, 2021, approximately eight months later than indicated in the baseline schedule. As of July 20, 2022, the vehicle design milestone had not been reached and was projected by MTA staff to be delayed until after August 2022. **As of January 18, 2023, the vehicle design milestone was projected to be complete on February 28, 2023. This date is three months later than reported in the PMOC's Comprehensive Monitoring Report for Quarter 3 of 2022, and more than 24 months later than shown in the current baseline schedule.** ***The PMOC recommends that MTA continue to analyze the schedule and require the contractor to develop and implement recovery activities, as well as incorporate float and report realistic milestone dates to FTA.***

HBR held a Railcar Requirements Traceability Matrix review in November 2019 and subsequently has made progress in assigning nearly all requirements. MTA also held a seating review meeting with Kustom Seating, which was later put under contract with HBR. Kustom Seating delivered a seat sample at the end of December 2019.

In addition, HBR completed the Traction Power Study in summer 2018, and HBR preliminarily identified no Traction Power issues as part of the study. HBR prepared a plan to address the Traction Power Substation (TPSS) Simulations Study that was required by contract and began testing and simulations in June 2019. HBR completed the TPSS Simulation Study, and the report underwent several months of internal HBR review. HBR reported no issues based on a preliminary review of the study. HBR submitted the TPSS Simulation Study to MTA, discussed the findings, and addressed the review comments in September 2019. MTA found no major issues; however, HBR did not fully evaluate the touch potential as a potential hazard. MTA added extra work for HBR's subconsultant, Burns Engineering, to provide a hazard analysis with respect to the results of the touch potential evaluation. MTA advised at the time that, although it does not expect any issues related to completeness and documentation, a hazard analysis was needed.

HBR performed dynamic load testing and Railcar baseline electromagnetic testing with the existing railcars in July 2018. HBR completed track geometry testing in August 2018. HBR performed exterior-mounted disc brake clearance testing the week of September 17, 2018, and several obstructions were identified. HBR completed a review of the test data and test safety margins (length of test rods) in November 2018 and found them to be overly cautious. Retesting was performed, and no clearance issues were identified.

The new vehicles do not have barriers to guide sight-impaired passengers from mistaking the gap between the vehicles as an entry door. After about six months of planning, MTA installed a sample platform-mounted barrier at Charles Center and held a demonstration for the Federation for the Blind representatives on September 16, 2021, to get their feedback. The demonstration went well, and MTA received only minor comments. MTA has since prepared a change request for HBR, with the intent to procure the materials for the barriers. MTA procured a separate contractor to

install barriers on station platforms during the summer of 2022. This activity was not on the critical path.

2.8. Value Engineering and Constructability Reviews

Value Engineering and constructability reviews are not applicable to this task order assignment.

2.9. Real Estate Acquisition and Relocation

Real estate acquisition and relocation reviews are not applicable to this task order assignment.

2.10. Third-party Agreements and Utilities

Third-party agreements and utilities are not applicable to this task order assignment.

2.11. Construction

2.11.1. Control System Construction

HBR started construction field work to identify available existing conduits and installation of pull strings in April 2018. HBR began inner duct and fiber backbone material deliveries in July 2018. In addition, HBR began demolition work for removal of equipment and unused cable to support the new Train Control system in early September 2018 at the Owings Mills Train Control Center. Construction proceeded generally toward the east, starting from the western terminus at Owings Mills. HBR started cable tray installation in October 2018 and completed this installation at Owings Mills and Milford Mill in November 2018. HBR began installation of the inner duct in December 2018, and continued installation of inner duct, power cable, and fiber each weekend through October 2019.

The project team had been holding monthly status meetings for Owings Mills' entry into revenue service. HBR had been providing a detailed schedule showing only Owings Mills activities. HBR completed static testing of Owings Mills SSI in July 2019. HBR also completed fiber installation for DCS Ring 1 and DCS Ring 2 in December 2019. HBR completed terminations for DCS Ring 2 in the first quarter of 2020. HBR successfully completed the FAT for Rogers Avenue SSI at the end of December 2019. HBR started DCS Ring 1 testing in August 2019 and Owings Mills SSI functional testing in September 2019. The target for Owings Mills commissioning of the SSI/DCS/LATS equipment was the end of December 2019, but commissioning was significantly delayed, also delaying safety certification.

HBR scheduled pilot training for SSI/DCS/LATS to start in October 2019, with regular student training to follow starting in January 2020. However, HBR has since delayed this training to align with the revised Owings Mills SSI/DCS/LATS revenue service date.

HBR provided the DCS pilot training in November 2019, but it did not meet the needs of MTA. MTA and HBR held a workshop, and HBR subsequently updated the DCS pilot training. HBR was able to address all training concerns and provide a rack of hardware identical to that to be used by MTA for a successful dry run of the DCS pilot training, which was held on December 18, 2019.

On January 6, 2020, HBR began actual student training, which included DCS, SSI, and LATS, and the second five-day training session was completed on February 7, 2020.

During March 2020, HBR continued commissioning activities at Owings Mills, McDonogh Road, Old Court, and Milford Mill. However, in early April 2020, HBR shut down all commissioning work due to COVID-19. HBR subsequently resumed commissioning work in May 2020 and continued finalizing tests at Owings Mills, Old Court, and Milford Mill. MTA Metro approved weekend outages throughout 2020 to facilitate testing and commissioning activities.

In June 2020, HBR completed wiring at Reisterstown Plaza and continued wiring at the Rogers Avenue location. HBR completed fiber installation for DCS Ring 2 and continued to progress fiber terminations at Ring 2 locations. HBR was also working to finalize power distribution designs for all of the Train Communication and Control Rooms.

In July 2020, HBR completed wiring at Rogers Avenue and continued wiring at Portal. HBR continued fiber terminations at the DCS Ring 2 locations. Testing and commissioning staff were finalizing tests at Owings Mills, Old Court, and Milford Mill. The SSI manufacturer was working on the equipment for Johns Hopkins. HBR continued train control work in July 2020, working on verification of the construction conformance checklist for SSI/DCS/LATS.

In August through September 2020 and into October 2020, HBR continued work on SSI/DCS/LATS design conformance verification, as well as work on an agreement to proceed with construction conformance verification where approved documents are cited as evidence. HBR completed fiber terminations with DCS Ring 2 and tested at Owings Mills, Reisterstown Plaza, Old Court, Milford Mills, Rogers Avenue, and Portal. HBR performed dynamic testing in October 2020 between Old Court and Milford Mill during nighttime non-revenue hours.

Also, in October 2020, using the TPSS Simulation Study and related touch potential hazard analysis, MTA determined that the Shot Tower TPSS and the Johns Hopkins TPSS are the higher touch risks due to the voltages found. However, the time of the exposure was a critical factor that the simulation did not address. Rather than spend approximately $100,000 for further simulation, MTA elected to purchase a logging Protective Circuit Device (PCD) that can log the actual duration of the high voltage. If the first location was found to require a permanent voltage protective circuit, then the logging PCD would be replaced with a permanent PCD. The logging PCD would then be moved to the next location. If the exposure was short enough that a permanent PCD was not required, MTA would remove it, and no further action at either location would be required. Both the Johns Hopkins TPSS and the Shot Tower TPSS were being considered for the PCD installation, and the first location was to be selected from those two locations based on ease of installation of the logging PCD. In October 2021, MTA advertised for and selected a logging PCD vendor that had submitted a bid of less than $30,000. MTA expected up to eight months of lead time to obtain the logging PCD and to have the unit installed at the Shot Tower TPSS in summer of 2022. As of January 2022, MTA and the PCD vendor were continuing to negotiate terms and conditions. As of April 14, 2022, MTA and the PCD vendor had reached agreement on the terms and conditions for this PCD installation. At that time, MTA expected the logging PCD to be installed at the Shot Tower TPSS by the end of January 2023. After first planning to have

MTA staff install the device, in July 2022 MTA reported that it had concluded that an outside service provider would be needed to perform this installation. MTA also concluded that the logging PCD would be installed at the Shot Tower TPSS. **MTA reportedly approved the purchase order in September 2022 and advertised the installation work in January 2023. MTA expects the installation work to begin in March 2023. If the logging PCD results at the Shot Tower TPSS suggest that unsatisfactory results will also be found at the Johns Hopkins TPSS, MTA will install the logging PCD at the Johns Hopkins TPSS.**

In December 2020, HBR had installed all Train Control wiring racks throughout the project and was wiring the Johns Hopkins racks. HBR continued testing for all control points from Milford Mill through Charles Center. HBR was coordinating the construction and testing with the track replacement efforts at the State Center interlocking. The track replacement work required temporary track circuits and various other temporary Train Control elements, which interfered with new circuits being installed.

As of April 2021, HBR construction crews had turned over the main line locations to the commissioning crews and were using single-tracking during weekends to install wireless access point fiber and power. HBR's construction team was focusing on the axle counters in the yard. Completing the work in the yard was critical to getting the test track ready for the first vehicle in January 2022. MTA reported that the controller hut FAT was completed in June 2021, and the controller hut was installed in July 2021.

MTA reported on June 13, 2022, that all the construction conformance testing was complete at both Owings Mills and Old Court SSIs with the exception of the hardware and software Independent Safety Assessment (ISA) certifications. HBR had not completed these ISA certifications for the later models and versions, which was preventing HBR from completing the hazard tracking log. HBR was working quickly to replace the outdated hardware and software in order to align with the ISA documentation.

MTA reported on July 20, 2022, that it and HBR had put Owings Mills and Old Court SSIs into service on June 25, 2022. At the time, HBR and MTA planned to bring Milford Mill and Reisterstown Plaza SSIs into revenue service by the end of August 2022, followed by Portal and Rogers Avenue SSIs in September and State Center, Charles Center, and Johns Hopkins SSIs near the beginning of November 2022. MTA noted that HBR would once again need to provide the hardware and software ISA certifications for the models and versions installed, which could delay the cutover of Milford Mill and Reisterstown Plaza SSIs to the second weekend in September 2022, but MTA was optimistic that this would not delay the entry into service of the other SSIs.

MTA reported on October 20, 2022, that the Milford Mill and Reisterstown Plaza SSIs entered revenue service the weekend of September 24, 2022, four weeks later than previously reported. **MTA reported on December 21, 2022, that the Portal and Rogers Avenue SSIs entered revenue service during the weekend of November 4, 2022, and reported on January 18, 2023, that State Center, Charles Center, and Johns Hopkins SSIs entered revenue service during the weekend of December 17, 2022. These were the last of the nine SSIs.**

In April 2021, HBR began mobilizing into the yard and began the design review process. In addition, MTA and HBR began holding project meetings specific to the axle counter work. In July 2021, MTA and HBR completed negotiations for the change order for the "Yard Axle Counters" (CN-034) at a final value of $4,999,930. HBR made good progress in July 2021, completing asphalt demolition where cabling conduits would be trenched into place, and had begun installing the conduits after using ground-penetrating radar to avoid inadvertently damaging other underground items. HBR continued raceway and cabling installation into October 2021 because the equipment hut had passed its FAT, and the manufacturer was preparing to ship it from New York. HBR planned to install the hut in October 2021 and to continue installing cabling through November 2021. At the time, MTA reported that the axle counter construction remained roughly on schedule and was expected to be completed in December 2021. Commissioning was planned to begin in January 2022, in time for the test track to receive the first vehicles in May 2022.

As of January 2022, MTA had reported delays in both the yard axle counter construction and vehicle manufacturing. HBR was continuing the axle counter work in the yard, including raceway and cabling. MTA was expecting the work to be complete, and for static testing to begin, in June 2022. This testing was planned to be completed in small blocks totaling 80 hours per week, as negotiated between the MTA Operations staff and HBR. The equipment hut was in place, and the FHA analysis for the hut was complete. HBR began installing the train control interlocking for the yard, which MTA expected to continue through August 2022. Fortuitously, MTA's December 2021 schedule submittal, Schedule Update 41, showed more delays to the vehicle production and testing milestones, thus removing the completion of the testing track in the yard from the critical path.

As of April 14, 2022, HBR was continuing the axle counter work in the yard under an approved change order. MTA expected the installation work to be complete and static testing to begin later in April 2022 and to continue to be completed in small blocks totaling 80 hours per week through August 2022. However, MTA reported on July 20, 2022, that the testing had revealed that as many as 45 of the 71 counter units may have been installed at incorrect locations relative to the yard signals. HBR was working to confirm this with its supplier, Frasier. In September 2022, MTA reported that only 17 of the 71 counter units were installed at incorrect locations. The reworking of the installations at these locations will require modification of the conduits and cabling in many of these locations. MTA reported in October 2022 that these modifications will not delay the completion of the test track. **MTA reported on January 18, 2023, that while HBR had issued a Purchase Order to the subcontractor, the modification work has not begun, and MTA had not received the detailed rework design. MTA noted that HBR has proposed extending cable runs by adding a junction box and adding a splice, a proposal that MTA must still review and may not approve. However, MTA did not expect this work to be significant enough to further delay achieving the "First Vehicle Delivery" milestone, because the actual construction work is expected to take only two weeks.**

2.11.2. Metro Fleet Fabrication and Assembly

HBR completed the Railcar front-end mock-up work in April 2019. HBR modified the mock-up from an oval door to the rectangular door requested by MTA. MTA reviewed the mock-up in

Naples, Italy, and toured the car body manufacturing facility the first week of May 2019. MTA had several comments on the mock-up that HBR continued to address.

HBR delayed stainless steel sheet shipments for the car bodies but received an initial shipment, sufficient for the first several cars, in January 2019. Additional shipments arrived in customs in Italy in early May 2019. The later shipments of stainless-steel sheets reached the HBR facility to continue uninterrupted car body fabrication. HBR and OMEP (the carshell manufacturer) commenced manufacturing of some of the vehicle underframe assemblies in January 2019 and continued this work through March 2020. However, in early April 2020, HBR and OMEP shut down all manufacturing work in their Italian facilities due to COVID-19 restrictions. OMEP subsequently reopened its facility in Italy, and the facility was back to approximately 95 percent of its normal capacity by early May 2020.

Following car body structural/crash testing, HBR expected to complete the manufacture of the first vehicle carshell for a planned delivery to Miami, Florida, in May 2020. However, HBR extended the delivery date to August 2020 as a result of the shutdown of manufacturing work in Italy due to COVID-19 restrictions.

After completing the FAIs for traction motor and carshell subcomponents, HBR canceled FAIs scheduled for March 2020 due to travel restrictions imposed in response to the COVID-19 pandemic. In addition, HBR postponed the full carshell FAI due to COVID-19 restrictions in Italy. HBR and MTA then developed an FAI protocol that allows both in-person and virtual participation. By January 2021, HBR had completed 21 of 48 FAIs and by April 2021 had completed 37 of 55 FAIs. By July 2021, HBR had completed 44 of 55 FAIs, which was unchanged from HBR's June 2021 report. As of October 13, 2021, HBR had completed 49 of 55 FAIs, and planned to schedule and complete the six remaining FAIs in October and November 2021. As of January 2022, HBR had completed one additional FAI, for a total of 50 FAIs, and as of April 2022, it had completed all 55 FAIs on Carshell #002 (aka Car 200). On July 20, 2022, MTA reported that the FAIs on the assembled car for propulsion, auxiliary power, undercar, and the "pre-finishes" interior elements had approximately 60 comments that required closing in order to begin type testing. On September 19, 2022, MTA reported that HBR had begun type testing of the first married pair after completing the FAIs for the propulsion, auxiliary power, undercar, and the "pre-finishes" interior elements. HBR had previously closed all of the 60 comments required to begin type testing, and 100 minor comments remain that can be resolved while the type testing is underway. MTA also reported that it and HBR are continuing to hold regular meetings to address open FAI items in order to expedite FAI completion and substantially close items before the first married pair is shipped from Miami to Baltimore. **On January 18, 2023, MTA reported that after discovering small holes in the floor beams of improperly stored carshells, HBR inspected the cars in production and found floor beam corrosion on all the cars from calcium chloride desiccant packs. These cars included the cars in Married Pair 1 that is the subject of the FAIs. After passing FAIs, HBR intends to ship Married Pair 1 to MTA for operational testing. While MTA does not believe that this corrosion issue will delay the "First Vehicle Delivery" milestone beyond April 2023, it is likely to delay the "Last Vehicle Final Acceptance" milestone. Further, though HBR had taken action to passivate the corrosive**

compound, it had not yet determined which cars or carshells will be repaired and which will be scrapped. Therefore, the cars in Married Pair 1 may be eventually scrapped and replaced with another pair of cars after testing is completed.

On January 18, 2023, MTA also reported that, as a result of the corrosion found in cars both properly and improperly stored in the United States, railcar assembly in Miami has stopped. HBR had shipped three completed carshells that were not impacted by the corrosion from Italy to Miami, so that production can restart in February 2023, and HBR was planning to ship another four carshells by January 20, 2023.

MTA reported on September 21, 2022, that equalization testing, which tests how the car sits on the bolster and how the car operates with excess superelevation, could not be completed in Miami. MTA reported on October 19, 2022, that MTA and HBR had agreed to have one car of Married Pair 3 (Car 204 or Car 205) shipped to Italy, where Hitachi Rail has a testing facility, before sending it to Austria for the climate chamber testing as planned. After looking for a suitable equalization testing facility in the United States as an alternative, HBR assured MTA that the risk of missing the climate testing window at the Austrian facility is minimal and that there is little chance that shipping one car to Italy for equalization testing will delay delivery of railcars to Baltimore. **As noted above, MTA reported on January 18, 2023, that HBR found floor beam corrosion on all the cars in production, including the cars in Married Pair 3. HBR intends to ship one of those cars for equalization and climate chamber testing as planned. As with Married Pair 1, the cars in Married Pair 3 may eventually be scrapped and replaced with another pair of cars after testing is completed.**

HBR completed the carshell roof FAI on June 8, 2020, but open nonconformance reports remained. After a workshop with HBR, MTA rejected Roof #1 because of significant quality issues. In August 2020, MTA agreed to allow HBR to repair the roof and install it on a carshell (Carshell X) to be sent for structural qualification testing in Italy. However, because of COVID-19 restrictions in Italy, Carshell X was shipped to Germany for structural qualification testing. After delays due to backlogs and employee COVID-19 exposures at the testing vendor, the structural qualification testing was completed in September 2021. Following the completion of structural qualification tests, the carshell (now Carshell #001) was shipped back to HBR's facility in Italy. MTA reported in January 2022 that the carshell was being evaluated for acceptance using lasers, and MTA's representatives were present to witness the evaluation for acceptance.

In July 2020, MTA also rejected corrugated sheets for Roofs #2 through #8 due to quality, storage, and other issues. However, HBR presented a repair solution for Roofs #2 through #8 that was accepted by MTA. In September and October 2020, MTA's review of the FAI of the roof on Carshell #002 resulted in minor comments.

HBR assembled Carshell #002 and made it ready for the Carshell FAI. However, in November 2020, MTA rejected the carshell when the roof was improperly positioned during final assembly of the carshell, causing the roof panels to buckle. HBR then terminated the FAI.

MTA executives and Hitachi Rail executives met on November 19, 2020, and the cause of and solutions to the roof panel buckling were presented. Hitachi Rail submitted solutions to MTA,

including the addition of reinforcing ties (or gusset plates) to the frame joints, as well as the addition of HBR staff inspectors at the fabrication shop. HBR has added the reinforcing ties to the joints on Carshells #002 and #004. HBR intended to submit Carshell #004 for FAI if MTA accepted the mitigating measures.

After the November 2020 meeting, HBR made changes to address railcar quality. Following staffing changes at OMEP (the carshell manufacturer) and the meeting with Hitachi Rail executives in December 2020, MTA reported that the quality of the carshells had improved.

In January 2021, after repairing Carshell #002 and strengthening the roof/wall connections that occurred due to the roof buckling, the carshell was in transit to Miami, Florida. HBR and OMEP reworked Carshells #003 and #004, after having the roof-to-wall connections strengthened. All future carshells include this change.

MTA and Hitachi Rail leadership met in January 2021 to review the structural testing results and to decide whether Carshell #003 could be sent to Miami before the FAI on Carshell #004 or whether shipment of Carshell #003 should wait until the FAI on Carshell #004 was complete.

In addition, MTA requested monthly executive meetings throughout calendar year 2021 that would be led by Hitachi Rail's Head of Delivery for North America and include MTA's Administrator and Chief Executive Officer. Meetings were intended to focus on HBR's plans to meet the schedule and propose mitigations for any items that are trending late. The first of these meetings occurred on February 12, 2021, and subsequent meetings occurred on March 12, 2021, April 9, 2021, June 11, 2021, July 9, 2021, August 18, 2021, September 24, 2021, December 10, 2021, February 22, 2022, April 8, 2022, May 13, 2022, June 10, 2022, July 7, 2022, August 12, 2022, September 9, 2022, and October 26, 2022, **but no meeting was planned for November 2022. Meetings planned for December 2022 and January 2023 were canceled to allow the parties to meet specifically to negotiate the baseline schedule change order. The next executive meeting is scheduled for February 10, 2023.** MTA had initially reported in January 2022 that Hitachi Rail executives had agreed to continue to meet through the end of 2022. **As of January 18, 2023, MTA had not reported how long these meetings will continue.** One early outcome of these meetings was the initiation of an internal HBR weekly meeting that focuses on schedule recovery, specifically to address delays of critical path items that are scheduled to begin within 30 days and to organize staff around those activities. In July 2021, HBR reassigned someone from the commissioning group to act as an overall site manager in an effort to free up the Project Director from day-to-day activities and drive progress on critical items, including improving the quality of RAMS and other documentation, which continues to be an issue.

In June 2021, MTA expressed frustration with the results of the first three monthly executive meetings. None of the expectations set forth in the first meeting in February 2021 had actually been met. MTA noted that the quality of RAMS and other documentation was still an issue, and observed that HBR's organization was understaffed, with workers assigned to multiple projects. MTA also noted that, in areas where HBR staff members had been added, such as in the train control field quality area, they appeared to be disorganized.

Since June 2021, as an outcome of the executive meetings, HBR has initiated a number of staff changes aimed at avoiding future delays, including replacing and reassigning the prior Project Director to an advisory role, adding a train control commissioning leader, and adding a verification and validation manager to address the quality issues related to safety certifications. HBR contracted a third party to track and prepare as-built installation drawings for the yard in order to address issues encountered in completing the design conformance for the train control construction. Further, HBR added staff to assist with railcar safety certifications and documentation. MTA continues to note that HBR has high staff turnover in the verification and validation roles.

As another outcome of the executive meetings and to mitigate continued delays in the vehicle assembly, HBR was planning to ship missing subassemblies by air to Miami, Florida, to expedite the "First Vehicle Delivery" milestone. With MTA's concurrence, HBR moved the Interiors FAIs for Cars 200 and 201 to the Miami facility rather than conducting them remotely over disparate time zones. The plan was to address nonconformities in Miami or through air shipment of replacement parts from China.

In January 2021, HBR began assembly of Carshell #002 in Miami, Florida, installing windows, doors, and other appliances and making necessary window gasket adjustments. HBR held qualification tests for side doors, end doors, and door watertightness in February 2021. MTA's inspector remained on-site in Miami to monitor vehicle assembly activities. HBR's assembly team in Miami, MTA's inspector in Miami, and MTA Quality Assurance staff in Maryland held biweekly quality meetings as the work progressed.

MTA staff visited the vehicle production facility in Miami the week of August 30, 2021, and performed quality audits that resulted in no findings and only a few recommendations.

As of October 13, 2021, Carshells #002 through #009 were in Miami, and Carshells #010 through #013 were in transit from Italy. Carshell production was under way in Italy on Carshells #014 through #019. HBR was assembling only Cars 200 through 204 (Carshells #002 through #006), because most of the subassemblies for these vehicles had arrived and were on-hand in Miami. At that time, floors were completed on Cars 200, 201, and 202.

As of January 12, 2022, Carshells #002 through #013 were in Miami, and Carshells #014 through #019 were in transit from Italy. Also as of January 12, 2022, HBR was in production on Carshells #020 through #024 in Italy, and in Miami, HBR was assembling Carshells #002 through #008, designated as Cars 200 through 208. The delays to the assembly process had forced HBR to look for additional weathertight storage options for the carshells arriving from Italy because the Miami facility can store only 16 carshells indoors.

As of April 14, 2022, Carshells #002 through #016 were in Miami, and Carshells #017 through #022 were in transit from Italy. Also as of April 14, 2022, HBR was in production on Carshells #023 through #029 in Italy. HBR was assembling Carshells #002 through #010, designated as Cars 200 through 209, in Miami. Also as of April 14, 2022, floors had been completed on Cars 200 through 207, and undercar work and some interior work continued, though the delayed delivery of subassemblies and interior materials and some materials shortages, such as adhesive for the

flooring, continued to hamper the vehicle assembly process. HBR was continuing to look for additional weathertight storage options for the carshells arriving from Italy as it approached the 16-carshell capacity at the Miami facility.

As of July 20, 2022, Carshells #002 through #016 remained in Miami, and Carshells #017 through #027 were at ports in Brunswick, Georgia, and Jacksonville, Florida, depending on which ship transported them. After being unable to find additional weathertight storage in the Miami area, HBR was holding Carshells #028 through #032 in Italy until assembly of vehicles in the Miami facility progressed. Carshells #033 through #037 were also in production in Italy. HBR was assembling Carshells #002 through #016, designated as Cars 200 through 214, in Miami. Cars 200 and 201, as the first married pair, were fully assembled, and Car 200 was undergoing the FAI process. In addition, floors had been completed on Cars 200 through 214, and undercar and interior work was continuing on Cars 202 through 209.

On July 20, 2022, MTA staff reported that inspections of Carshell #017 in Brunswick and Carshell #018 in Jacksonville revealed non-compliance issues. The inspections found that the protective covers were damaged, either from heavy weather or from breaking down due to sun exposure, and they had some surface rust. Carshell #018 had interior paint scratches and trash inside, suggesting squatters had been using it. While MTA believed that the damage could be repaired, storage of the carshells in this manner does not comply with the contract or the quality plan. As of July 20, 2022, HBR was making room for and making provisions to move all ten carshells stored at these two ports to the Miami facility, but a date for this was unknown.

As of October 19, 2022, Carshells #002 through #016, now designated as Cars 200 through 214, were being assembled in Miami, Florida. Carshells #017 through #020 had been moved to Miami from the ports in Brunswick, Georgia, and Jacksonville, Florida, to be stored until assembly. Carshells #021 through #027 were still at the ports in Brunswick and Jacksonville. HBR was holding Carshells #028 through #035 in Italy until assembly of other vehicles in Miami progresses. Carshells #036 through #042 were in production in Italy. Cars 200 and 201, as the first married pair, have been fully assembled and were undergoing the FAI process. One car from Married Pair 3 (Car 204 or Car 205) was designated to be shipped to Italy for equalization testing, before being shipped to Austria for climate chamber testing.

On October 19, 2022, MTA reported that Carshells #019 and #020 were moved to Miami from the ports in Brunswick and Jacksonville. As was the case when Carshells #017 and #018 were moved from these two ports, minor surface rust from improper storage was discovered. MTA also reported that closer inspection of the carshells revealed that small holes less than 1/4 inch in diameter had formed in some floor beams where desiccant packs, which had been placed in the carshells before shipment from Italy, had ruptured. These desiccant packs had been absorbing moisture from the air, causing the ruptures. HBR had begun designing repairs and examining the carshells that remain at these two ports and was planning to possibly remove the remaining desiccant packs.

As noted above, on January 18, 2023, MTA reported that railcar assembly in Miami has stopped as a result of the corrosion found in cars both properly and improperly stored in the United States. Before stopping production, HBR had been assembling Carshells #002

through #016, now designated as Cars 200 through 214, in Miami, and all carshells stored at the ports in Brunswick and Jacksonville had been moved into storage in Miami. HBR had also been holding Carshells #028 through #035 in Italy. Three of those carshells had been shipped to Miami, and another four were being readied for shipment. Carshells #036 through #042 remained in production in Italy.

MTA first reported in November 2022 that HBR will be moving the railcar production from Miami to Hagerstown, Maryland, in the first quarter of 2024. HBR plans to keep the existing warehousing facility in Miami for at least six months after the opening of the Hagerstown facility, so that the warehousing facility in Hagerstown can be brought to full operation to avoid adding schedule delays. This planned timeline for the transition between the two facilities will result in at least the first seven married pairs (14 railcars) being assembled in Miami. The issues with corrosion will not change this planned transition.

2.12. Vehicle Technology and Procurement

Vendor: Hitachi Ansaldo Baltimore Rail Partners, LLC

Model: Hitachi Rail Italy (HRI)-MTA

Year: 2023 (first vehicle delivery)

Quantity: 78

Identification: 200 through 277

New Technologies: Not applicable

Upcoming Significant Events:

Time Frame	Event
February 2023	**Manufacturer's Design Complete**
April 2023	**First Vehicle Delivery (Married Pair)**

Bus Vehicle Testing: Not applicable

2.13. Project Cost

2.13.1. Project Budget

MTA reported the latest project cost data to the PMOC on January 18, 2023. Based on this data, which is through November 30, 2022, the project has total expenditures of $203.8 million. Table 4 shows the federal grants used for the project, and Table 5 shows the total project funding and the drawdowns on that funding through November 2022, as reported by MTA on January 18, 2023. ***The PMOC recommends that MTA continue to analyze the overall project budget, including administrative and oversight costs, in light of the ongoing schedule delays.***

Table 4 – Project Federal Grants

Federal Grants	Federal Amount	Drawdown
MD-2016-006 (Open)	$34,054,000	$34,054,000
MD-2016-007 (Open)	$3,645,000	$3,645,000
MD-2019-014 (Open)	$19,621,000	$17,824,000
MD-2019-017 (Open)	$5,002,000	$5,002,000
MD-2019-018 (Open)	$5,785,000	$5,785,000
MD-2020-003 (Open)	$16,847,000	$16,847,000
MD-2021-004 (Open)	$13,730,000	**$13,730,000**
MD-2021-013 (Open)	$27,946,000	**$27,490,000**
1401-2021-30 (Pending)	$9,745,000	
1401-2021-30 18 (Under Development)	$38,032,000	
5307-22 (Under Development)	$45,178,000	
5307-23 (Future)	$26,098,000	
5307-24 (Future)	$24,010,000	
5307-26 (Future)	$3,331,000	
1401-2021-1 (Open)	$7,578,000	
ZG08XX (Under Development)	$10,301,000	
CMAQ-23 (Future)	$29,072,000	
B5337-25 (Future)	$12,163,000	
B5337-26 (Future)	$2,469,000	
Total	$334,607,000	**$116,956,000**

Note: Rounding in grant values is not reflected in the total.

Table 5 – Project Funding Summary

Funding Source	Amount	Drawdown
Federal	$334,607,000	**$116,956,000**
State/County	$142,244,000	**$86,834,000**
Total	$476,851,000	**$203,790,000**

MTA continues to manage change orders and change requests. **The following is the status of contract changes as of January 17, 2023, as reported by MTA on January 19, 2023:**

- Forty-five change requests have been initiated to date.
- Three of the change requests were cancelled.
- MTA and HBR have negotiated 34 change orders (with a related net increase to the contract value of $7,942,412), which include two change orders funded by separate MTA projects and the "Yard Axle Counters" (CN-034).

- **Negotiations for a change request for the ground-penetrating radar work for the yard axle counters (CN-42) began in July 2022. The two parties have reached an agreement on the contract value, but the change order is not yet executed.**
- **Negotiations for a change request for the addition of exterior vehicle wraps with an overlaminate (CN-35) are complete, but the change order is not yet executed. While the change order value is significantly higher than MTA had anticipated, the two parties have reached an agreement on it.**
- **HBR is in the process of preparing cost proposals for the six remaining change requests, which are estimated by MTA to total approximately $0.5 million. These change requests have the approval of MTA's Change Control Board. The latest change request is CN-44, which is a request to add a clean agent fire suppression system to the "pit hut" in the yard.**

In addition, a major change to reduce the complexity of the Information Technology architecture system was identified during PDRs. As a result, a more standardized Cisco system will now be used. HBR initially advised that, pending a time impact analysis, this system change was expected to result in a three-month delay to Milestone 18 ("Completion and Acceptance of the Train Control System"). The change does not affect wayside equipment.

2.13.2. Disadvantaged Business Enterprise Performance

The project has the following Disadvantaged Business Enterprise (DBE) goals:

- HRI DBE goal: 8.00 percent (2019)
- Ansaldo STS DBE goal: 9.72 percent

Actual performance relative to these goals is reported separately to FTA by HRI and by Ansaldo STS (as a transit vehicle manufacturer) in accordance with the U.S. Department of Transportation DBE regulations.

2.14. Project Schedule

HBR submitted a preliminary project schedule that was revised to address comments that MTA provided in November 2017. MTA approved the February 28, 2018, Project Schedule (Rev. 3) as the project baseline schedule in March 2018.

After initial delays, HBR submitted the integrated Train Control and Railcar schedule recovery plan (HBR's Project Schedule Update V12) in May 2019. MTA reviewed Project Schedule Update V12 and accepted it as the schedule recovery plan. HBR's Project Schedule Updates through March 2020 continued to show delays to interim milestones and the Full Revenue Service date. Delays due to COVID-19 then began to occur.

In May 2020, MTA decided to proceed with the addition of axle counters in the yard, which MTA understood would result in delays that would be experienced concurrently with delays already resulting from design delays and COVID-19 restrictions.

HBR submitted Project Schedule Update V28 on September 10, 2020. MTA and its consultant reviewed it and returned it to HBR for revision and resubmission. MTA and HBR then met twice to resolve the comments and concerns, and HBR resubmitted Project Schedule Update V28 in October 2020. MTA's comments on Project Schedule Update V28 related to changes to the schedule since the previous update that were not fully documented and to other scheduling practices. HBR's proposed update V28 also included the past delays related to COVID-19, but the documentation to back up the COVID-19-related delays (starts and stops) of each activity was not provided.

In December 2020, MTA accepted Project Schedule Update V28 from HBR as the new baseline schedule. Comparison of the prior baseline schedule to the new baseline schedule indicated that the completion of the Train Control construction was delayed by 343 days (just over 11 months) and the "Revenue Service Full Project" milestone was delayed by 456 days (just under 15 months). MTA reported that this baseline schedule did not include contingency time or "float."

MTA reported in January 2021 that Project Schedule Update V29 showed 71 days of additional delay in the Train Control construction and 101 days of delay to the start of initial revenue service (also known as the "Revenue Service Start, if Phased" milestone). MTA had anticipated these delays, partially because of the amount of time that had elapsed between when the schedule update was accepted as the new baseline schedule and its original "data date." HBR worked to mitigate these delays, which were not related to COVID-19. MTA issued a no-cost change order (CN-037) that extended the project duration to align with the new baseline schedule.

Starting in April 2021 and continuing through January 2022, MTA reported that the project was delayed compared to the previously accepted baseline schedule. MTA reported that, as of January 12, 2022, HBR's most recent schedule update, Schedule Update 41, showed that the milestone titled "First Vehicle Delivery" (aka the "First Married Pair" milestone) was delayed by 302 days from the baseline schedule to June 21, 2022, and that the "Last Vehicle Final Acceptance" milestone was delayed by 257 days from the baseline schedule to November 13, 2024. The "Revenue Service Full Project" milestone was delayed by 258 days from the baseline schedule to November 12, 2024. These milestone dates were one to four months later than reported in the PMOC's Comprehensive Monitoring Report for Quarter 3 of 2021. Further, MTA stated that Schedule Update 41 showed that the "Project Closeout" milestone would be delayed until December 2028, which was 11 months later than the date in Schedule Update 40 and 16 months later than the date in the current baseline schedule at that time.

In January 2022, MTA reported that HBR had proposed that MTA accept Schedule Update 41 as the new baseline schedule, replacing the September 2019 update that MTA had accepted as the new baseline in December 2020. As of April 14, 2022, HBR and MTA had met several times, and HBR had subsequently submitted a revised schedule (Schedule Update 41R) as the proposed new baseline schedule. On July 20, 2022, MTA reported that its negotiations with HBR were continuing, but that they had reached agreement on all the milestone dates. Schedule Update 41R shows that the First Vehicle Delivery (aka the "First Married Pair") milestone is delayed until March 2023, 18 months later than the current baseline schedule. Schedule Update 41R also shows that the "First Vehicle Final Acceptance" milestone is delayed until December 2024, and the "Last

Vehicle Final Acceptance" milestone is delayed until March 2026. These are both 25 months later than the dates in the current baseline schedule. Schedule Update 41R also shows that the "Project Closeout" milestone is delayed until December 2028, which is 16 months later than in the current baseline schedule. **These projected milestones dates remained unchanged as of MTA's January 2023 monthly report to the PMOC; however, on January 18, 2023, MTA reported that the "First Vehicle Delivery" (aka the "First Married Pair") milestone will likely not be met until April 2023, a month later than in the current version of Schedule Update 41R.** Table 6 reflects information from Schedule Update 41R.

MTA reported on July 20, 2022, that a major milestone in the Train Control construction—putting Owings Mills SSI into service—which the current baseline schedule showed as occurring at the end of March 2021, was achieved on June 25, 2022. Old Court SSI also entered service at that time. On October 19, 2022, MTA reported that the Milford Mill and Reisterstown Plaza SSIs entered revenue service the weekend of September 24, 2022, four weeks behind the previously reported date. **MTA reported on December 21, 2022, that the Portal and Rogers Avenue SSIs entered revenue service during the weekend of November 4, 2022, and reported on January 18, 2023, that State Center, Charles Center, and Johns Hopkins SSIs entered revenue service during the weekend of December 17, 2022. These were the last of the nine SSIs.**

Since March 2021, HBR and Hitachi Rail have held weekly meetings that focus on schedule recovery in order to address delays of critical path items that are to begin within 30 days and to organize staff around those activities. These efforts are in addition to the outcomes of the previously discussed executive meetings between MTA and Hitachi Rail.

In October 2021, MTA personnel verbally shared an initial assessment of the overall schedule, stating that, compared to the accepted baseline schedule, the "Revenue Service Full Project" milestone would occur up to 12 months later, in November 2025, in their most conservative view, and as little as three months later, in January 2025, in their most optimistic view. These assessments are based on critical path items.

In December 2021, MTA personnel shared their updated assessment of the overall schedule in more detail. MTA outlined the approach used to assess each HBR schedule update. MTA's assessment focused on safety certification and commissioning activities because those activities have been most problematic. MTA's more conservative assessment of Schedule Update 39 (the most recent schedule update at the time) estimated that the "Revenue Service Full Project" milestone would occur in November 2025, 12 months later than shown in Schedule Update 38. MTA noted that HBR had begun changing activity durations in HBR's Schedule Update 40 without adjusting the logic to allow more overlapping activities. Because MTA's assessment was focused on the projected durations of activities, the unchanged logic made MTA's assessment of Schedule Update 40 overly conservative.

In January 2022, MTA reported that because HBR had proposed using Schedule Update 41 as the new baseline schedule, MTA was focused on analyzing Schedule Update 41R and discussing changes with HBR, rather than on updating its own independent analysis. **Analyzing the revisions**

to the most recent schedule update, Schedule Update 41R, remained as MTA's focus as of January 18, 2023.

Table 6 – Project Schedule

Activity	Original Contractor Grant Date	Current Approved Baseline Schedule (9/1/2020) Completion Dates	Last Report Completion Dates (October 2022)	Current Completion Dates (Schedule Update 41R)	Change Since Last Report (calendar days)	Change from Current Baseline (calendar days)	Actual
MTA Design Complete	3/1/2015	3/1/2015	3/1/2015	3/1/2015	-	-	3/1/2015
Right-of-Way Complete	Not Applicable (N/A)	N/A	N/A	N/A	N/A	N/A	N/A
Advertisement	9/30/2015	9/30/2015	9/30/2015	9/30/2015	-	-	9/30/2015
Bids/Proposal Due	3/31/2016	3/31/2016	8/12/2016	8/12/2016	-	-	8/12/2016
Award/Board of Public Works Date	11/30/2016	11/30/2016	7/26/2017	7/26/2017	-	-	7/26/2017
Notice to Proceed	12/15/2016	12/15/2016	9/1/2017	9/1/2017	-	-	9/1/2017
Construction:							
Contractor Design Complete	2/7/2019	12/15/2020	**11/30/2022**	**2/28/2023**	**-64**	**-779**	
Construction Start	5/14/2018	4/2/2018	4/2/2018	4/2/2018	-	-	4/2/2018
Construction Complete	5/26/2024	5/4/2025	9/19/2025	9/19/2025	-	-138	
Vehicles:							
Mfg. Design Complete	5/29/2019	2/23/2021	**11/30/2022**	**2/28/2023**	**-64**	**-709**	
First Vehicle Delivery (Married Pair)	5/29/2020	8/23/2021	3/7/2023	3/7/2023	-	-561	
First Vehicle Conditional Accept (3 Married Pair Consist)	6/26/2021	11/3/2022	12/26/2024	12/26/2024	-	-784	
First Vehicle Final Accept (3 Married Pair Consist)	6/26/2021	11/4/2022	12/27/2024	12/27/2024	-	-784	
Last Vehicle Delivery (Married Pair)	10/25/2022	1/23/2024	10/25/2024	10/25/2024	-	-276	
Last Vehicle Conditional Accept (Married Pair)	11/28/2022	2/28/2024	3/3/2026	3/3/2026	-	-734	
Last Vehicle Final Accept (Married Pair)	11/29/2022	3/1/2024	3/4/2026	3/4/2026	-	-733	
Integrated Test Start	6/26/2021	6/21/2022	5/23/2023	5/23/2023	-	-336	
Revenue Service Start, if Phased	6/26/2021	11/3/2022	12/26/2024	12/26/2024	-	-784	
Revenue Service Full Project	11/29/2022	9/18/2024	12/27/2024	4/27/2026	**-486**	**-789**	
Work Complete	5/26/2024	5/4/2025	12/20/2026	12/20/2026	-	-595	
Project Closeout	5/26/2026	5/4/2027	12/19/2028	12/19/2028	-	-595	

2.15. Project Risk

It is recognized that the Train Control work has been very challenging, because both the new system and the existing system need to operate simultaneously during the transition period, when both new railcars and existing railcars are in operation.

The impacts of COVID-19 restrictions and the addition of axle counters in the yard both present risks to the project schedule. In addition, delivery of the vehicles has been delayed as HBR and the subassembly manufacturer worked to resolve roof quality issues, and quality issues with the carshells could resurface. **The "First Vehicle Delivery" milestone remains a high-risk item because of delays in HBR's completion of the design documents and the slow completion of the FAIs; MTA is now expecting it to slip by one month to April 2023. The "Last Vehicle Delivery" milestone and the milestones that depend on it are also at a high risk of delay due to the recent discovery of corrosion on the floor beams of the 26 cars or car shells in the United States. The impacts of ongoing schedule delays are significantly increasing the risk of project cost overruns.**

2.16. Quality Assurance/Quality Control

MTA's contract with HBR establishes the quality assurance/quality control requirements for the project in accordance with FTA Quality Management System Guidelines.

Quality problems related to carshell manufacturing, which were first noted in July 2020, reportedly have been addressed. See the discussion in Section 2.11.2, above.

2.17. Safety and Security

MTA's contract with HBR establishes the requirements for safety and security, including those for safety certification of the work performed on this project. Railway Worker Protection safety training is ongoing.

2.18. Americans with Disabilities Act

The contract for this project requires compliance with the Americans with Disabilities Act regulations. The new vehicles do not have barriers to guide sight-impaired passengers from mistaking the gap between the vehicles as an entry door. See the discussion in Section 2.7, above, for more information.

2.19. Buy America

The contract for this project requires compliance with FTA's Buy America requirements. MTA reported in January 2022 that it had completed the interim Buy America audit and found that both the train control and the railcar materials exceeded the requirements. MTA plans to conduct another audit after the first railcars are delivered and the train control materials have all been installed.

2.20. Start-Up, Commissioning, Testing

MTA reported on October 19, 2022, that that HBR provided network management training for control point operations and maintenance on October 17 and 18, 2022. Additional control point operations and maintenance training will be conducted in early 2023 now that Owings Mills SSI has entered service.

The "First Vehicle Delivery" (aka the "First Married Pair") milestone is scheduled for March 2023 (according to Schedule Update 41R) in order to begin conditional acceptance. MTA and HBR must finalize the vehicle commissioning plan before that time. In addition, the integration testing of the vehicles and control system is scheduled for May 2023 (according to Project Schedule Update 41R), and MTA and HBR must finalize the integration testing plan for the integrated operation.

2.21. Before-and-After Study Reporting

Before-and-after study reporting is not applicable to this task order.

2.22. Lessons Learned

At the PMOC's request, MTA provided four Lessons Learned documents on September 25, 2020, to illustrate the project processes that are using lessons learned from past events during the control system construction and railcar manufacturing. At the time, MTA and the PMOC reviewed and briefly discussed these documents during their monthly meeting.

The process of incorporating lessons learned involves review of those events from the last major work activity (either positive or negative) that should be agenda items for the next major work activity being prepared. There are generally one or two meetings before a major activity, including those activities that require a power outage.

After a major activity, a new Lessons Learned document is prepared. MTA staff, consultant staff, and HBR each provide a list of lessons learned and recommend future actions separately, and then these are consolidated into post-activity debriefing meeting minutes. However, the meeting minutes document does not build upon items from previous major activities; thus, the lessons learned are not cumulatively documented.

As first stated in the October 2020 PMOC Comprehensive Monitoring Report, in the opinion of the PMOC, MTA should record and track lessons learned in a cumulative fashion. MTA should then refer to this more complete document in order to integrate lessons learned into the construction process and adjust them as project conditions dictate.

2.23. Actions Items Table

All action items identified at the previous quarterly meetings and monthly meetings related to this project have been closed.

ATTACHMENT A – LIST OF ACRONYMS

ATS	Automatic Train Supervision
BRT	Bus Rapid Transit
CBTC	Communications Based Train Control
CDR	Conceptual Design Review
CMGC	Construction Manager General Contractor
CFR	Code of Federal Regulations
CSSP	Construction Safety and Security Plan
DBE	Disadvantaged Business Enterprise
DBOM	Design, Build, Operate, and Maintain
DCS	Data Communication System
DF	Designated Function
FAI	First Article Inspection
FAT	Factory Acceptance Test
FDR	Final Design Review
FHA	Fire Hazard Analysis
FRA	Federal Railroad Administration
FST	Fire, Smoke, and Toxic Inhalation
FTA	Federal Transit Administration
HAB	Hitachi Ansaldo Baltimore Rail Partners, LLC
HBR	Hitachi Baltimore Rail Partners LLC
HRI	Hitachi Rail Italy
HVAC	Heating, Ventilation, and Air Conditioning
ISA	Independent Safety Assessment
LATS	Local Automatic Train Supervision
MTA	Maryland Transit Administration
N/A	Not Applicable
NTP	Notice to Proceed
O&M	Operations and Maintenance
OHA	Operational Hazard Analysis

OP	Oversight Procedure
OSHA	Occupational Safety and Health Administration
PCD	Protective Circuit Device
PDR	Preliminary Design Review
PHA	Preliminary Hazard Analysis
PMOC	Project Management Oversight Contractor
PMP	Project Management Plan
RAMS	Reliability, Availability, Maintainability, and System Safety
RAP	Rail Activation Plan
SCADA	Supervisory Control and Data Acquisition
SCIL	Safety Certifiable Item List
SEPP	Security and Emergency Preparedness Plan
SIT	Systems Integration Test
SOP	Standard Operating Procedure
SSCP	Safety and Security Certification Plan
SSCVR	Safety & Security Certification Verification Report
SSI	Solid-state Interlocking
SSMP	Safety and Security Management Plan
SSO	State Safety Oversight
SSPP	System Safety Program Plan
STS	Signaling and Transportation Systems
TPSS	Traction Power Substation
TVA	Threat and Vulnerability Assessment
VMS	Video Management System

ATTACHMENT B – SAFETY AND SECURITY CHECKLIST

To be revised and populated in future reports.

Project Overview			
Project Mode (Rail, Bus, BRT, Multimode)			
Project Phase (Project Development, Engineering, Construction, Start-Up)			
Project Delivery Method (Design/Build, DBOM, CMGC, etc.)			
Project Plans	**Version**	**Review by FTA**	**Status**
Safety and Security Management Plan (SSMP)			
Safety and Security Certification Plan (SSCP)			
System Safety Program Plan (SSPP)			
System Security Plan or Security and Emergency Preparedness Plan (SEPP)			
Construction Safety and Security Plan (CSSP)			

Area of Focus	**Y/N**	**Notes/Status**
Safety and Security Authority		
Is the project sponsor subject to 49 CFR Part 659 state safety oversight requirements?		
Has the state designated an oversight agency as per Part 659.9?		
Has the oversight agency reviewed and approved the project sponsor's Security Plan or SSPP as per 49 CFR Part 659.17?		
Did the oversight agency participate in the last Quarterly Program Review Meeting?		
Has the project sponsor submitted its safety certification plan to the oversight agency?		
Has the project sponsor implemented security directives issues by the Department Homeland Security and/or Transportation Security Administration?		
SSMP Monitoring		
Is the SSMP project-specific, clearly demonstrating the scope of safety and security activities for this project?		
Does the project sponsor review the SSMP and related project plans to determine if updates are necessary?		
Does the project sponsor implement a process through which the Designated Function (DF) for Safety and DF for Security are integrated into the overall project management team? Please specify.		
Does the project sponsor maintain a regularly scheduled report on the status of safety and security activities?		
Has the project sponsor established staffing requirements, procedures, and authority for safety and security activities throughout all project phases?		
Does the project sponsor update the safety and security responsibility matrix/organizational chart as necessary?		
Has the project sponsor allocated sufficient resources to oversee or carry out safety and security activities?		
Has the project sponsor developed hazard and vulnerability analysis techniques, including specific types of analysis to be performed during different project phases?		

Does the project sponsor implement regularly scheduled meetings to track to resolution any identified hazards and/or vulnerabilities?		
Does the project sponsor monitor the progress of safety and security activities throughout all project phases? Please describe briefly.		
Does the project sponsor ensure the conduct of preliminary hazard and vulnerability analyses? Please specify analyses conducted.		
Has the project sponsor ensured the development of safety design criteria?		
Has the project sponsor ensured the development of security design criteria?		
Has the project sponsor ensured conformance with safety and security requirements in design?		
Has the project sponsor verified construction specifications conformance?		
Has the project sponsor identified safety and security critical tests to be performed prior to passenger operations?		
Has the project sponsor verified conformance with safety and security requirements during testing, inspection, and start-up phases?		
Does the project sponsor evaluate change orders, design waivers, or test variances for potential hazards and/or vulnerabilities?		
Has the project sponsor ensured the performance of safety and security analyses for proposed workarounds?		
Has the project sponsor demonstrated through meetings or other methods, the integration of safety and security in the following? • Activation Plan and Procedures • Integrated Test Plan and Procedures • Operations and Maintenance Plan • Emergency Operations Plan		
Has the project sponsor issued final safety and security certification?		
Has the project sponsor issued the final safety and security verification report?		
Construction Safety		
Does the project sponsor have a documented/implemented Contractor Safety Program with which it expects to comply?		
Does the project sponsor's contractor(s) have a documented companywide safety and security program plan?		
Does the project sponsor's contractor(s) have a site-specific safety and security program plan?		
How do the project sponsor's OSHA statistics compare to the national average for the same type of work?		
If the comparison is not favorable, what actions are being taken by the project sponsor to improve its safety record?		

Federal Railroad Administration		
If shared track, has the project sponsor submitted its waiver request application to FRA? (Please identify specific regulations for which waivers are being requested.)		
If shared corridor: has the project sponsor specified specific measures to address shared corridor safety concerns?	N/A	This is not a shared corridor.
Is the Collision Hazard Analysis underway?		
Other FRA required Hazard Analysis – Fencing, etc.?		
Does the project have Quiet Zones?		
Does FRA attend the Quarterly Review Meetings?	N	

ATTACHMENT C – TOP 5 PROJECT RISKS

Please see Table 1 – Major Issues/Concerns and Section 2.15, Project Risk, in this report for top risks.

ATTACHMENT D – AWARDED CONTRACTS

As reported by MTA on **January 18, 2023**.

Company	Vendor Type	Contract Number	Baseline Amount (in thousands)	Current Amount (in thousands)	Projected Amount (in thousands)	Percent of Projected Total
RKK	Design	1354A	$800	$163	$252	0.05%
JMT	Design	1354B	$487	$452	$698	0.15%
PB	Design	1265A	$2,030	$97	$150	0.03%
HAB Rail Partners	Contractor	T-8000-1415	$400,517	$400,517	$400,517	84.01%
AECOM	Construction Services	1445A	$16,396	$16,093	$24,834	5.21%
CH2M Hill	Construction Services	1345A/ AGY-16A	$6,191	$7,025	$10,842	2.27%
HNTB	Construction Services	1445A/ AGY-16A	$7,785	$8,598	$13,269	2.78%
STV	Construction Services	1345B/ AGY-16D	$5,030	$6,118	$9,442	1.98%
OMNI	Construction Services	AGY-16B	$1,907	$1,728	$2,667	0.56%
WSP	Construction Services	1345C/ AGY-16E	$247	$1,921	$2,965	0.62%
Urban	Construction Services	15-01C	$505	$846	$1,306	0.27%
GF	Construction Services	1445C	$3,044	$73	$113	0.02%
MTA	Construction Services	Misc.	$15,973	$438	$676	0.14%
ADS	Construction Services	AE-19-04D/1399C	$5,855	$5,855	$9,036	1.90%
Contracted Total			$466,767	$449,924	$476,767	100.00%

ATTACHMENT E – ROLLING STOCK VEHICLE STATUS REPORT

Vendor: Hitachi Ansaldo Baltimore Rail Partners, LLC

Model: Hitachi Rail Italy (HRI)-MTA

Year: 2023 (first vehicle delivery)

Quantity Ordered: 78

Quantity Delivered to Date: 0

Identification: 200 through 277

New Technologies: Not applicable

Upcoming Significant Events:

Time Frame	Event
February 2023	**Manufacturer's Design Complete**
April 2023	**First Vehicle Delivery (Married Pair)**

ATTACHMENT F – PROJECT MILESTONES/KEY EVENTS

Milestones	Actual or Currently Planned Dates
MTA Design Complete	March 2015
Notice to Proceed	September 2017
Control System	
Contractor Design Complete	**February 2023**
Construction Start	April 2018
Construction Complete	September 2025
Fleet	
Manufacture's Design Complete	**February 2023**
First Vehicle Delivery	March 2023
First Vehicle Final Acceptance	December 2024
Last Vehicle Delivery	October 2024
Last Vehicle Final Acceptance	March 2026
Integrated Project	
Integrated Test Start	May 2023
Revenue Service, if Phased	December 2024
Revenue Service Full Project	**April 2026**
Work Complete	December 2026
Project Closeout	December 2028

Note: Dates shown are based on Project Schedule Update 41R.

ATTACHMENT G – ROADMAP TO REVENUE OPERATIONS

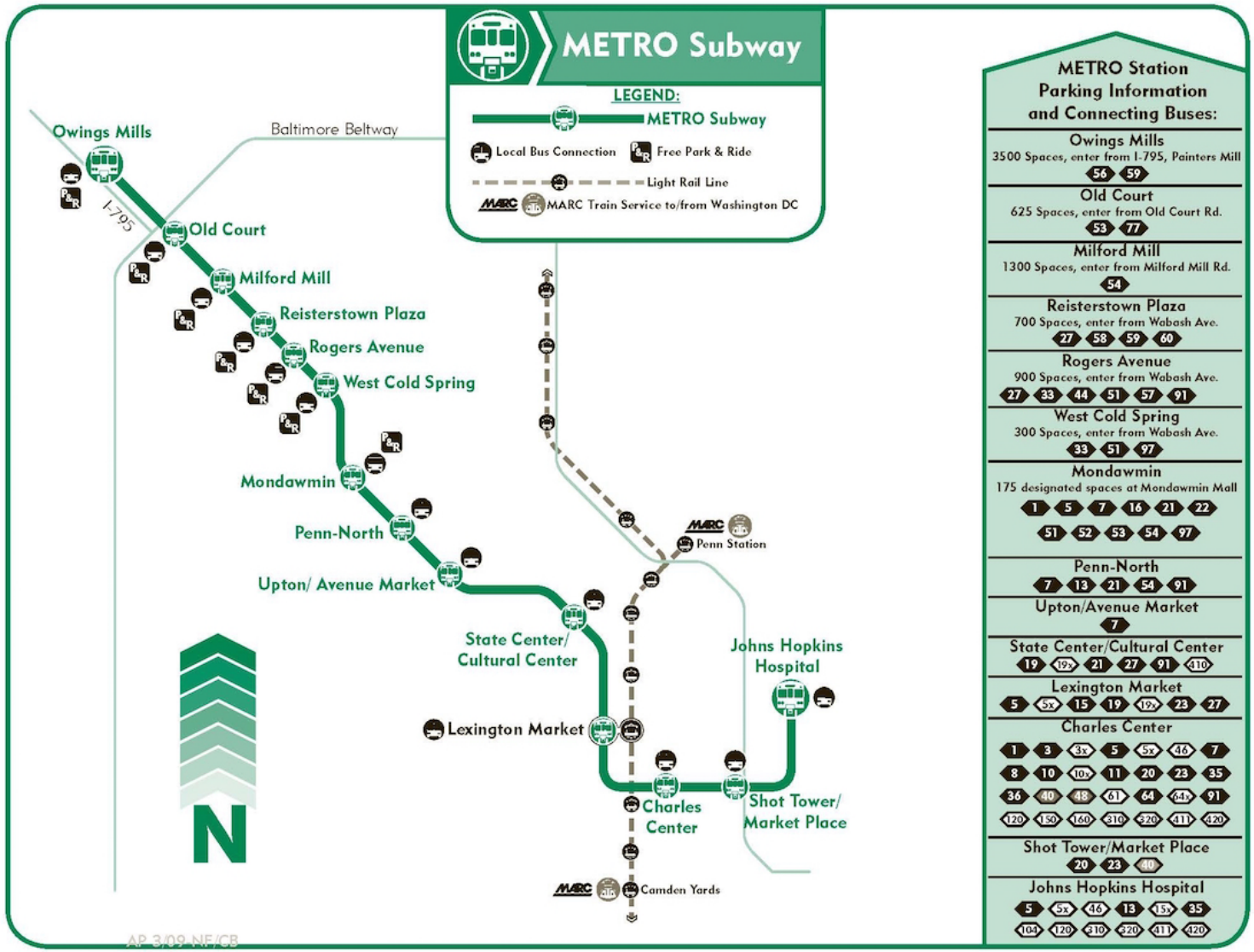
In accordance with Oversight Procedure 25, the Roadmap to Revenue Operations, prepared from the Project Sponsor's Master Schedule, is issued quarterly as a separate electronic file. It will be revised and populated in future reports.

Description	Responsible Party	Status	Estimated Start Date	Estimated Completion Date	Actual Completion Date	Notes
Testing						
Finalize Comprehensive Test Plan						
Finalize/update Systems Integration Test (SIT) Plan						
Develop Testing Schedule and Monitoring Tools						
Develop Operating Rules for Testing						
Conduct System Integrated Testing - Building Systems						
Conduct System Integrated Testing - Train Systems						
Conduct Testing and Commissioning - Train Systems						
Certificates of Occupancy/Substantial Completion						
Operating Plan, Rules						
Finalize Operating Plan						
Finalize/revise SOPs, manuals, and rulebook as applicable						
Complete Staffing Plan						
Obtain Required Staff						
Training of O&M personnel						
Emergency response plan, training, and drills						

Description	Responsible Party	Status	Estimated Start Date	Estimated Completion Date	Actual Completion Date	Notes
Maintenance and Asset Management						
Pre-Revenue Operations						
Finalize and/or update Rail Activation Plan (RAP) and/or Pre-Revenue Operations Plan						
Implement Rail Activation Committee						
Develop/revise SSPP and Security Plan (approved by State Safety Oversight (SSO))						
FTA Office of Safety and Security Readiness Review						
PMOC OP-54 Readiness for Revenue Operations Review Report, Phase I						
PMOC OP-54 Readiness for Revenue Operations Review Report, Phase II						
Conduct Operational Hazard Analysis (OHA) and resolve other hazards/ vulnerabilities						
Pre-Revenue Operations						
Public Outreach						
Develop Safety Outreach Plan						
Provide Community Outreach						
Public Timetables/Maps/Website Updates, etc.						
Grand Opening Plan						
Safety, Security, and Fire-Life Safety Certifications						
Update/Finalize SSMP						

Description	Responsible Party	Status	Estimated Start Date	Estimated Completion Date	Actual Completion Date	Notes
Finalize and/or update SCIL and SSCP						
Implement Safety and Security Certification Committee						
Implement Fire Life Safety Committee						
Verify design criteria, PHA, TVA, change orders are implemented within the project						
Review status of quality nonconformances						
Close-out of non-safety critical items/ non-conformances						
Close-out of safety critical items/ nonconformances						
Complete Safety & Security Certification Verification Report (SSCVR)						
Document Workarounds/Open Items List						
Verify emergency drills, tabletops, training, etc. are completed						
SSO final certification/signature						
FRA?						
Revenue Service						
Target Revenue Service Date						
Public Revenue Service Date						
Revenue Service Date						

ATTACHMENT H – PROJECT MAP



PMOC MONITORING REPORT
January 2023

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

Maryland Transit Administration
Baltimore, Maryland
Final

Draft Report Delivered to FTA on ***February 14, 2023***
Final Report Delivered to FTA on ***February 24, 2023***

PMOC Contract No.: 69319519D000016
Task Order No.: 69319520F300095
Project No.: 69319519D000016/69319520F300095
Requisition/Reference No.: FTA-TPM20-20-0106
OPs Referenced: 20, 22, 24, 25, 26
CLINs 0001, 0002, and 0005

David Evans and Associates, Inc.
Pete Hankovszky, Task Order Manager
Voice –720.448.6730; Email – pzh@deainc.com
Time on Project: 05/18/2020 through 05/17/2025

REPORT FORMAT AND FOCUS

This report is submitted in compliance with the terms of the Federal Transit Administration (FTA) Contract #69319519D000016, Task Order #69319520F300095. Its purpose is to provide information and data to assist FTA as it continually monitors the management capacity and capability of the Maryland Transit Administration (MTA) (the Project Sponsor) to execute the project efficiently and effectively, and hence, whether the Project Sponsor continues to be ready to receive federal funds for further project development. This report covers the project management activities on the National Capital Purple Line Light Rail Transit Project managed by MTA as the Project Sponsor and financed by the FTA Full Funding Grant Agreement (FFGA). The cost and schedule information in this report was extracted from MTA's submitted information except where noted. The report is organized to comply with the requirements of updated Oversight Procedure 25 – Recurring Oversight and Related Reports, dated June 2020.

THIRD-PARTY DISCLAIMER

This report and all subsidiary reports are prepared solely for FTA. This report should not be relied upon by any party, except FTA or the Project Sponsor, in accordance with the purposes as described below.

For projects funded through the FTA FFGA program, FTA and its Project Management Oversight Contractor (PMOC) use a risk-based assessment process to review and validate a Project Sponsor's budget and schedule. This risk-based assessment process is a tool for analyzing project development and management. Moreover, the assessment process is iterative in nature; any results of an FTA or PMOC risk-based assessment represent a "snapshot in time" for a particular project under the conditions known at that same point in time. The status of any assessment may be altered at any time by new information, changes in circumstances, or further developments in the project, including any specific measures a Project Sponsor may take to mitigate the risks to project costs, budget, and schedule, or the strategy a Project Sponsor may develop for project execution. Therefore, the information in the monthly reports will change from month to month, based on relevant factors for the month and/or previous months.

TABLE OF CONTENTS

1. EXECUTIVE SUMMARY 1
1.1. Project Description 1
1.2. Project Status 1
1.3. Major Issues and/or Concerns 13
1.4. Status of Key Indicators Dashboard (Post-grant) 15
1.5. Core Accountability Items 16
2. OBSERVATIONS AND FINDINGS 17
2.1. Summary of Monitoring Activities 17
2.2. Oversight Triggers 18
2.3. Project Management Plan and Sub-plans 18
2.4. Management Capacity and Capability 21
2.5. NEPA Process and Environmental Mitigation 22
2.6. Project Delivery Method and Procurement 25
2.7. Design 27
2.8. Real Estate Acquisition and Relocation 29
2.9. Third-party Agreements and Utilities 30
2.10. Construction 32
2.11. Vehicle Technology and Procurement 34
2.12. Project Cost 35
2.13. Project Schedule 39
2.14. Project Risk 45
2.15. Quality Assurance/Quality Control 46
2.16 Safety and Security 47
2.17 Americans with Disabilities Act 49
2.18 Buy America 49
2.19 Start-up, Commissioning, Testing 50
2.20 Before-and-After Study Reporting 50
2.21 Lessons Learned 50
2.22 Action Items 51
ATTACHMENT A – LIST OF ACRONYMS 52
ATTACHMENT B – SAFETY AND SECURITY CHECKLIST 55

ATTACHMENT C – TOP PROJECT RISKS....56
ATTACHMENT D – AWARDED CONTRACTS....59
ATTACHMENT E – ROLLING STOCK VEHICLE STATUS REPORT....60
ATTACHMENT F – PROJECT MILESTONES/KEY EVENTS....62
ATTACHMENT G – ROADMAP TO REVENUE OPERATIONS....66
ATTACHMENT H – PROJECT MAP....67

LIST OF TABLES

Table 1 – MTA Master Schedule Dates....6
Table 2 – Current Major Issues and Concerns....13
Table 3 – Key Indicators Dashboard....15
Table 4 – Core Accountability Items....16
Table 5 – Project Cost Versus Budget....36
Table 6 – Sources of Federal Funding and Matching Share Ratios....37
Table 7 – FTA SCC Workbook – Build Main, June 1, 2016 Update....39
Table 8 – Key Milestone Dates....43

1. EXECUTIVE SUMMARY

1.1. 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, Maryland, to New Carrollton in Prince George's County, Maryland. The Purple Line will operate largely at street level in a combination of dedicated and semi-exclusive right-of-way (ROW) and 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) service at Bethesda, Silver Spring, College Park, and New Carrollton, Maryland. The project will also connect to all three Maryland Area Regional Commuter rail lines, Amtrak, and local bus routes. The project includes 21 stations, 2 operations control/vehicle storage and maintenance facilities, and 26 light rail vehicles (LRVs). Maryland Transit Administration (MTA) is executing the project using a Public-Private Partnership (P3) method of project delivery. As documented in the Federal Transit Administration (FTA) Full Funding Grant Agreement (FFGA), the original estimated project cost is $2,407,030,289, and the scheduled Revenue Service Availability (RSA) date is December 31, 2022. On January 26, 2022, the Maryland Board of Public Works (BPW) approved significant revisions to the project cost and the RSA date. On April 11, 2022, private activity bonds went to market, and there was sufficient demand to sell all of the bonds. The Transportation Infrastructure Finance and Innovation Act (TIFIA) loan closed on April 14, 2022, allowing financial close and commercial close on that same day. Financing approvals and subsequent financial close allowed Purple Line Transit Partners (PLTP), the P3 concessionaire, to issue Notice to Proceed (NTP) to the replacement Design-Build (D-B) contractor. Maryland Transit Solutions (MTS) is now the D-B contractor for the project. A Final Recovery Plan prepared by MTA and approved by FTA is required after cost, schedule, and risk management elements are fully defined. Management plan updates are also required.

1.2. Project Status

The FFGA was executed on August 22, 2017. The Purple Line project is currently in the construction phase. Due to a contractual dispute, PLTP demobilized the assets/staff and subcontractors of the original D-B contractor, Purple Line Transit Constructors (PLTC), from the project in September 2020.

On November 24, 2020, MTA and PLTP reached a settlement agreement to release PLTC from the P3 consortium and continue the project with the remaining parties. The BPW approved the agreement on December 17, 2020. The settlement agreement included the following key aspects, as MTA communicated to the Project Management Oversight Contractor (PMOC):

- The settlement provided a mutual release from all disputed and undisputed amounts (incurred before September 28, 2020) for PLTP, PLTC, and subcontractors. The settlement also released outstanding litigation among the parties.
- PLTP agreed to procure a replacement D-B contractor to complete the project and obtain project financing. After a reprocurement process, a replacement D-B contractor, MTS (a

joint venture of Dragados USA and OHL USA) was selected on November 5, 2021. The contract with MTS was executed on April 14, 2022.

MTA and PLTP progressed new agreements through the financial process and State of Maryland approvals. BPW approved the new agreements with PLTP on January 26, 2022. Financial and contractual close occurred on April 14, 2022.

MTA submitted a Draft Interim Recovery Plan (IRP), dated December 15, 2020, to FTA. The IRP provided additional details related to the settlement agreement and MTA management activities. The PMOC reviewed the IRP and submitted findings, opinions, and recommendations to FTA. FTA approved the IRP on January 12, 2021. MTA committed to monitoring project progress against this IRP and to updating the IRP as required. On October 4, 2022, MTA submitted the draft Final Recovery Plan to FTA and the PMOC for review. FTA and the PMOC are reviewing the Project Management Plan (PMP) and other MTA management plans concurrently. ***FTA has transmitted review comments on several of the management plans to MTA. The Final Recovery Plan requires FTA approval***

Despite changes within the P3 consortium, MTA intends to complete the full scope of the project as envisioned in the original contract documents, with some minor exceptions such as the addition of two more LRVs.

MTA made deliberate choices about how to proceed with the major project elements once PLTC was released from the project and continues to implement effective management controls. MTA's planning criteria included schedule, budget, and the reduction of risk for the replacement D-B contractor. To address budget constraints, some project activities that were identified for completion in the IRP were later deferred. MTA and its Project Management Consultant (PMC) added staff to support subcontractor invoicing, payment processes, and other administrative tasks.

MTA is currently managing a significant number of construction activities that will continue until completion in early 2023, including some utility relocations, particularly work by Verizon. ***Despite the careful planning, Operation Step Forward (OSF) activities fell behind schedule. Delays related to third-party utility relocations and other unforeseen issues caused MTA to miss several milestone dates included in the April 2022 revised agreements with PLTP. Evaluation of the impacts on schedule and budget from these missed milestones is continuing in January 2023.***

Upon the departure of PLTC in 2020, MTA assumed 150 to 200 subcontracts to continue critical construction activities. Some of the subcontractors that provided services under these contracts include Atkins for design, HNTB for quality oversight, SNC Lavalin for LRV inspection in Spain and New York, Construcciones y Auxiliar de Ferrocarriles (CAF) for LRV production, and Traffic Engineering Services for Maintenance of Traffic. Many of the assumed subcontractors still have open contracts to perform OSF activities, but these contracts are being closed as their OSF work is completed.

Construction work continues, including activities and elements such as erosion and sediment control maintenance, bridge structures, retaining walls, the Glenridge Operation and Maintenance Facility (OMF), and utility relocations. The Polk Street Maintenance Facility (for Prince George's

County), the Paint Branch stream restoration, and the Ken-Gar wetlands mitigation projects are essentially complete. Turnover of the Polk Street Maintenance Facility to Prince George's County has occurred. The Paint Branch stream restoration is complete, and warranty-related corrections (partial replanting) occurred in December 2022. The Ken-Gar wetlands mitigation project has conducted final inspection and completed final non-native plant treatments and is nearing the end of its one-year warranty period.

Completion of the Glenridge OMF was on or near the critical path and continues to be a focus. MTA completed the majority of the OMF building and utilities, but construction of track that accommodates LRV storage and testing was deferred for completion by MTS. There are six outstanding OSF items that MTA must complete at the OMF. However, these items require equipment and materials that have long lead times. ***MTS is scheduled to assume control of the facility in early 2023***, but MTA is still responsible for completing the six specific items. MTS is currently installing rail and Overhead Contact System (OCS) elements inside the building.

Delayed completion of the OMF construction required finding an alternative location to store completed LRVs in the interim. MTA has an agreement with CAF to store the LRVs at CAF's Elmira, New York facility until track is ready for acceptance of the LRVs. MTS assumed the storage agreement with CAF upon finalization of the replacement D-B contract. The PMOC recommends that MTA evaluate cost and schedule risks associated with the six OMF items that MTA is responsible to deliver to MTS.

In December 2021, MTA submitted a draft Risk and Contingency Management Plan (RCMP) and a draft Quality Assurance Plan (QAP) to FTA and the PMOC for review. In January 2022, MTA also submitted cost and schedule information for review, and the FTA/PMOC provided comments from their reviews to MTA in April 2022. MTA has revised and submitted the PMP, RCMP, QAP, schedule, budget, and all required management plans. FTA and the PMOC are reviewing these revised documents in conjunction with their review of the draft Final Recovery Plan. ***On January 9, 2023, FTA provided review comments on the Final Recovery Plan, and on February 1, 2023, FTA provided review comments on the PMP to MTA.***

In accordance with FTA direction in July 2021, the PMOC enhanced its focus on MTA scope, schedule, cost, risk, and Management Capacity and Capability (MCC) readiness metrics. As such, the PMOC requested a matrix of the associated documents that were required to facilitate reviews. MTA has regularly updated a schedule of review activities that supports the development of the project's Recovery Plan in accordance with the procurement schedule for the replacement D-B contract. In the opinion of the PMOC, reviews are critical to MTA's continued development of the Final Recovery Plan and associated management plans. MTA continues to share schedule, budget, and other planning information with FTA as it becomes available. MTA also continues to provide FTA and the PMOC with construction updates, as well as twice monthly updates that track project milestones, along with the progress of MTA and MTS construction activities.

- Scope: There have been no significant reductions or changes to project scope. Two LRVs were added to the project scope (non-FFGA) to support improved operations once service commences.

- Schedule:
  - PLTC never developed an approved recovery schedule to address the delayed start of construction caused by the environmental lawsuit (please see the **NEPA Process and Environmental Mitigation** section, below, for a discussion of the environmental lawsuit). In fall 2019, the P3 concessionaire submitted a revised, fully cost-loaded schedule reflecting a phased project opening (with the first phase opening at the end of 2022 and the second phase opening in mid-2023). This schedule was based on negotiations between MTA and PLTP but was never incorporated into the working master project schedule.
  - In accordance with the IRP, MTA developed a schedule for the period during which the D-B contractor was being replaced. PLTP and MTA identified several milestones and the requirement to establish a full project schedule before the end of the D-B contractor replacement period. On November 5, 2021, PLTP announced the selection of the preferred replacement D-B contractor, MTS.
  - The IRP project milestones, with dates as updated by MTA, currently include:
    - January 6, 2021 – PLTP issued a Request for Qualifications (RFQ) for replacement D-B contractors.
    - March 8, 2021 – PLTP issued a Request for Proposals (RFP) to the short list of replacement D-B contractors based on the RFQ.
    - October 15, 2021 – PLTP received RFP responses.
    - November 5, 2021 – PLTP and Maryland Department of Transportation (MDOT)/MTA selected the replacement D-B contractor firm.
    - January 26, 2022 – BPW approved the replacement D-B contractor (MTS), contract amendments, schedule, cost, and financing.
    - April 11, 2022 – Private activity bonds went to market.
    - April 14, 2022 – The TIFIA loan closed on April 14, 2022, allowing financial and commercial close on that same day. MDOT/MTA issued NTP to PLTP, allowing for execution of the MTS contract.
    - September 12, 2022 – MTA approved the Initial Baseline Schedule (IBS).
    - October 14, 2022 – MTS was required to have commenced action on the 11 critical elements that are specified in the D-B contract. At the December 2022 PMOC meeting, MTA confirmed that MTS missed the 180-day window to commence action on 3 of the 11 critical elements. MTA and MTS are coordinating these specific activities and generally agree that a delayed start for each is logical based on construction sequencing. These items are not currently on the critical path.

- October 28, 2022 – MTA was scheduled to have submitted a draft Final Recovery Plan to FTA and the PMOC for review and comment. On October 4, 2022, MTA submitted the draft Final Recovery Plan to FTA and the PMOC for review.

- A milestone not specifically mentioned in the IRP is the requirement to extend the current Revenue Service Date (RSD). The PMOC therefore adds the following milestone to this list:

  - December 31, 2022 – The RSD in the original FFGA is December 31, 2022. MTA must request an extension to the current RSD identified in the FFGA. FTA will consider approving this extension, which also must include a revised Estimate at Completion (EAC) that includes adequate schedule and cost contingency. ***FTA's approval of the Final Recovery Plan is a critical step in approval of a revised FFGA budget and RSD.***

  See also the **Significant Project Activities and/or Key Milestones** subsection of this Executive Summary, below.

  Table 1 presents MTA's key milestone dates for the project, showing the last approved (March 15, 2017) master project schedule, the MTA Master Schedule August 2018 proposed baseline, and the (most recent) February 2020 progress update of the MTA master schedule proposed re-baseline. As noted above, all milestone dates require reevaluation and revision by MTA. MTA developed a new draft master schedule for use during OSF and negotiations with the replacement D-B contractor. In the draft master schedule in October 2021, MTA assumed a sequence similar to the one that PLTC had planned before PLTC was terminated. That October 2021 schedule was utilized to develop a target RSA date for the resolicitation RFP for the replacement D-B contractor. This target RSA date was assumed to occur 1,645 calendar days from the financial close date, which occurred on April 14, 2022, resulting in an approximate RSA date of August 12, 2026, excluding schedule contingency. ***To clarify the terminology, the RSA date is a contractual date critical to the agreement between MTA and PLTP. The RSD is the contractual date tied to FTA FFGA funding and other project approvals.***

  The replacement D-B contractor was required to prepare an IBS and have it approved by MTA within 120 days of financial close. MTS submitted a 120-day mobilization schedule, which was approved by MTA. In early July 2022, MTS provided an update to that 120-day mobilization schedule that showed the project being behind schedule. MTA is monitoring the early work delays. One cause of the delays was the difficulty MTS had in negotiating union labor agreements; however, those agreements were eventually executed.

  As described above, NTP to PLTP on April 14, 2022, triggered the contract requirement for an approved MTS IBS for the full project to be in place within 120 days. MTA provided formal comments on the IBS to MTS on July 13, 2022, and MTA approved the revised IBS on September 12, 2022.

In August 2022, MTA and the PMOC discussed the current state of the baseline schedule, particularly the inclusion of adequate float to address schedule risk. The P65 date that MTA had proposed before a risk workshop that was held in May 2022 included approximately seven months of float and an RSA date in October 2026. A recent schedule (dated October 3, 2022) proposed by MTS includes an October 2026 RSA date but adds approximately one year of contingency to reach an "FFGA Revenue Service Date – Final Completion" of October 15, 2027. In the PMOC's opinion, float should be assigned to specific project activities, and the project budget must include the cost that correlates to the float duration. A budget that does not include the cost (in the form of contingency) for the float period in the schedule may not be realistic. MTA concurs that the master schedule will require float included for specific activities and not just a lump-sum float period added after the MTS completion date. MTA has provided a schedule and .XER format files to the PMOC for the PMOC's analysis of the schedule.

The most recent master schedule provided by MTA, dated ***January 1, 2023***, reflects MTS's updates to the IBS. This schedule update remains a concern because, without recovery, nearly 7 months of the 12 months of schedule float may already be consumed. The PMOC recommends that MTA provide a description of what caused a seven-month slip just two months after the IBS was approved. MTA should also determine recovery strategies, or if necessary, prepare a revised RSD, because in the PMOC's opinion, five months of remaining schedule contingency is not adequate to provide confidence in the project schedule or cost. MTA states that there is a focus on schedule recovery and is currently optimistic that three months of schedule recovery is possible. The PMOC recommends that a viable strategy for schedule recovery be incorporated into the Final Recovery Plan.

The information in Table 1 – MTA Master Schedule Dates will be updated once the Final Recovery Plan reviews and approvals are complete.

Table 1 – MTA Master Schedule Dates

Activity	Latest (March 15, 2017) Approved Master Project Schedule	MTA Master Schedule August 2018 (working baseline)	MTA Master Schedule, February 29, 2020 Update
All Significant ROW Acquisition and Relocation	As needed by construction	---	All P3 contract Exhibit 9[1] properties in possession
Commencement of Trial Running[2]	---	03/09/2022	06/08/2022
Readiness to Commence Revenue Service	To Be Determined (TBD)	10/28/2022	12/26/2022
MTA Opens for Revenue Service	03/2022	---	12/26/2022
Revenue Operations Date (includes contingency)	12/31/2022	---	12/31/2022

Activity	Latest (March 15, 2017) Approved Master Project Schedule	MTA Master Schedule August 2018 (working baseline)	MTA Master Schedule, February 29, 2020 Update
FFGA RSD (includes contingency)	12/31/2022	12/31/2022	12/31/2022

[1] Refers to properties as included in the original P3 contract Exhibit 9 FFGA scope.

[2] The schedule dates are no longer valid. ***The Final Recovery Plan and updated FFGA will include revised dates for the activities in Table 1.***

- Cost:
  - The project's documented expenditures are ***$2,568 million through December 31, 2022***. The current EAC for the project (construction, management, and LRVs) ***is approximately $4,926 million.*** This budget estimate has not yet been officially adopted. FTA and the PMOC have reviewed the Final Recovery Plan ***and transmitted their comments to MTA on January 9, 2023.*** The Final Recovery Plan will need to be approved by FTA.
  - The replacement of the D-B contractor has resulted in added costs and schedule delays. See the **Significant Project Activities and/or Key Milestones** subsection, below.
  - Refer to **Table 4 – Core Accountability Items**, below, for additional project cost information.
  - Cost figures in this report include payments to PLTP that were required by the December 2020 settlement agreement.
  - MTA has prepared a summary of actual versus planned expenditures for high-level OSF activities in Standard Cost Category (SCC) format and is updating this summary each month. ***Through December 31, 2022,*** MTA forecasts OSF expenditures of ***$556.15 million,*** which exceed the original OSF budget by approximately ***$136 million.*** MTA states that these overruns are due to labor and material cost inflation as well as an extended OSF duration. ***In January 2023, MTA repeated*** that it is unsure whether this overrun would be addressed through the current proposed project contingency or through other funding mechanisms. The PMOC recommends that MTA clarify this issue, because ***$136 million*** would consume a significant portion of the contingency proposed in the current draft RCMP***, which is under revision by MTA.***
  - The budget to address nonconforming construction by PLTC is a concern. MTA incorporated known defects into the MTS contract. However, defects unknown at the time of the MTS contract must be paid for by MTA. ***In January 2023, MTA repeated that it is unsure of*** the specific budget that will be used to rectify defects found after the contract with MTS was executed. The magnitude of this potential budget impact requires clarification by MTA.

- Significant Project Activities and/or Key Milestones:
  - The COVID-19 pandemic has impacted the project in different ways and at different levels. These impacts include those related to availability of resources and labor. MTA and PMC staff are following recommended COVID-19 protocols. The PMOC continues to recommend that MTA track all actual and potential costs related to COVID-19. ***On January 30, 2023, MTA stated that COVID-19 protocols for the project have been suspended.***
  - The third lawsuit filed by the Friends of the Capital Crescent Trail in January 2019 against U.S. Army Corps of Engineers (USACE) was dismissed in April 2020. The plaintiff subsequently filed an appeal on May 11, 2020. The District Court denied the appeal on May 13, 2021. The decision resolved the last active lawsuit related to the project.
  - The original baseline schedule anticipated design completion by late fall 2017. The current progress through ***January 30, 2023***, is that ***209*** of the 218 total planned design packages have been issued as Released for Construction (RFC). Civil and Utility packages that remain in design or approval include traffic signal pre-emption, grade crossing safety systems, lighting, signage, and stations. Although Systems packages were scheduled to be complete by the end of the first quarter of 2022, those packages remain in progress. ***The current forecast for completion of all design packages is June 2023.***
  - MTA, PLTC, and CSX Corporation (CSX) (a rail-based freight transportation company) reached conceptual agreement on the CSX-related design issues, as summarized below. The following actions remain to be resolved:
    - WMATA's comments on design plans for the Silver Spring Transit Center (SSTC) mezzanine connector pedestrian bridge (over CSX ROW) will result in what MTA deems are betterments. Resolution of WMATA comments is nearly complete ***as of January 2023, with only legal reviews remaining.*** MTA reports that the slow resolution of these issues has not impacted critical path activities.
    - Storm sewer construction under the CSX railroad is required in several locations. Two jack-and-bore installations of culvert pipes were completed in November 2022. A 72-inch-diameter culvert installation has been delayed because it is waiting on completion of technical reviews and the design of structural track support during construction.
    - An encroachment into the CSX vertical clearance was discovered upon installation of girders at the SSTC. MTA completed the required design for shims, and the encroaching structural members were raised in late August 2021.
  - MTA and Washington Suburban Sanitary Commission (WSSC) reached agreement on an alignment, primarily in the median of Veterans Highway, where the 66-inch water main that currently runs under the Glenridge OMF will be relocated. The

original Purple Line General Engineering Consultant (GEC) team performed the design, WSSC is providing the material, and MTA has separately contracted for the construction. Using a tunnel boring machine, the initial shaft for the 66-inch water main under the roadway was completed in March 2022. The second bore shaft was completed, and carrier pipe installation occurred in June 2022. Installation of cathodic protection and final site restoration are the only remaining items as of ***January 2023.***

- PLTC reached resolution on the final remaining Alternate Technical Concept (ATC) identified during the proposal process, which is related to the use of jet fans at the Bethesda Station in lieu of vent shafts. In accordance with the established process, MTA reviewed PLTC's design package for National Environmental Policy Act (NEPA) compliance. Final documentation for the ATC is still ***pending as of January 2023.*** MTA and MTS are coordinating the noise and aesthetic impacts of the fans, and they optimistically predict that the ATC will have no Section 4(f) impacts or other impacts to the project's Record of Decision (ROD).
- In April and May 2021, 29,000 concrete railroad ties were delivered to an onsite storage location for future use by the replacement D-B contractor. As a part of OSF, MTA ordered rail, ties, special trackwork, and turnouts to mitigate supply chain risks. MTA has received and stockpiled some of this material. As of August 2022, rail materials were received at the Glenridge OMF, and MTS placed them in storage for future use.
- MTA has completed most of its non-P3 construction contract activities, as follows:
  - Prince George's County Parks (Parks) Polk Street Maintenance Facility D-B – A substantial completion letter was issued to the contractor on March 30, 2021. Parks has taken possession of the facility, and it is currently in the warranty period.
  - Offsite Wetlands Mitigation (Ken-Gar) – The Design-Bid-Build construction NTP was issued on September 5, 2019. Prince George's County took partial acceptance of the entire project on March 3, 2021. Acceptable growth of vegetation has been achieved, allowing for closure of this project. The one-year warranty review occurred on January 9, 2022, and the project is now in quarterly monitoring and annual reporting by MTA that will continue through 2028.
  - Offsite Stream Mitigation (Paint Branch) – The Design-Bid-Build construction NTP was issued on September 5, 2019, and the contractor mobilized in late November 2019. Construction of this project is complete, and revegetation has been accepted. The one-year warranty inspection occurred on August 4, 2022, and 1,700 plants were replaced in November 2022. Quarterly monitoring and annual reporting by MTA will continue through 2028.

- Building construction at the Glenridge OMF is essentially complete; however, construction of civil items outside of the building continues, as does final commissioning of systems inside the building. ***MTS was scheduled to take possession of the Glenridge OMF on December 31, 2022, but that did not occur. However, MTS currently is working in the OMF, installing embedded track inside the building and correcting nonconforming work related to the interior track.*** There are six items remaining at the OMF that MTA cannot yet complete because of long lead times for necessary replacement parts. MTS will take control of the facility with those items outstanding, and MTA will complete the items when feasible. MTS then will maintain the facility until it is turned over to PLTP. MTS will complete the tracks for storage and testing of LRVs.
- Site preparation for the installation of Traction Power Substations (TPSSs) Q8, QYG, and QYP continues. As of December 2022, issues related to Potomac Electric Power Company (PEPCO) have delayed delivery of the TPSSs, but MTA states that these delays should not delay LRV delivery.
- The following is the status of LRV manufacturing as of ***January 2023:***
  - Assembly of 130 carshell segments in the initial procurement has been completed in Spain and all have been delivered to CAF's facility in Elmira, New York.
  - Final assembly of vehicles is being performed in CAF's facility in Elmira. Three vehicles are currently in static testing. ***All 26 of the original vehicles ordered are designated as Ready for Shipment and are in storage.*** These vehicles are under a schedule of inspection and maintenance until delivery can occur.
  - MTA has added two vehicles by change order to CAF's contract. The additional LRVs will support better operations at the RSA date. It is important to note that these two additional LRVs are not a part of the FFGA between MTA and FTA. MTS has incorporated these two additional LRVs into its scope of work (in addition to the cost and terms of LRV storage in Elmira). Assembly of the additional two vehicles (ten cars) has recently started in Spain. Ultimately these ten cars will be shipped to Elmira for final assembly and static testing, following the same process as the original 130 cars.
  - The previously identified quality issue related to the M33 bolt on the LRVs is nearly resolved. MTA determined that the issue does not impact safety, and the solution is likely the use of a higher strength bolt. The final report on this issue is expected in February 2023.
  - Delivery of vehicles was expected to begin in spring of 2021; however, the location for their delivery was uncertain because the Glenridge OMF is not ready to accept railcars. MTA and CAF negotiated an agreement for CAF to store the completed cars in Elmira to await delivery. The terms of the agreement became a part of MTS's agreement. The first ***26*** LRVs have now been designated as Ready

for Shipment and placed into storage in Elmira. In June 2022, the MTS team began tracking activities required while the vehicles are in storage in MTS's possession. Deliveries of LRVs to the Glenridge OMF are scheduled to commence in late 2023.

- The project's Buy America compliance audit for the LRTs was conducted on November 14, 2022. ***In January, CAF provided additional documentation requested to assist with evaluation of Buy America compliance.*** The draft audit report will be available by March 1, 2023.

- MTA is responsible for providing offsite stormwater mitigation in Montgomery County. To date, MTA has accumulated a credit for more than 10 acres of designed, Maryland Department of the Environment (MDE)-approved, offsite stormwater management (SWM) capacity in its "bank." MDE indicated that Purple Line construction can proceed provided there is a positive balance of credits compared to construction impact. MTA has determined that there is a need for additional mitigation in Prince George's County, and a project to construct additional mitigation is included in the scope of work for MTS.
- ROW acquisition activities continue for the required 464 private parcels and 137 public parcels (a total of 601 parcels). All of the private parcels related to the original P3 contract Exhibit 9 FFGA scope are in MTA's possession. ***As of January 5, 2023, 411*** of the 464 private parcels have completed settlement, and an additional 6 parcels have settlements pending.
- MTA has identified 188 small property acquisitions that are required for utility relocations, of which 134 are private and 54 are public. ***As of January 5, 2023, 187*** of the additional 188 properties are in MTA's possession through Right of Entry (ROE), through options, and/or through agreements. In December 2022, MTA reported that six of seven critical acquisitions have been closed. The remaining acquisition is needed by June 2023 to meet schedule commitments MTA has made to MTS. ***MTA estimates that approximately $34.5 million of exposure remains in the acquisition process. This amount has been included in the risk assessment.***
- To date, all 177 required property relocations have been completed. Costs for the completed relocations continue to be processed in accordance with the applicable procedures. As of October 2022, there is only one potential commercial property that may need relocation.
- Due to the extended project duration, there are a number of agreements that will expire before the expected RSA date. MTA and MTS have started the process of identifying the end dates now needed for the agreements and will begin the process of obtaining extensions. MTA has evaluated the risks, estimated the cost of the extensions, and included those costs in a budget contingency. ***MTA estimates that approximately $15 million of exposure remains due to necessary Temporary***

Construction Easement (TCE) extensions. This amount has been included in the risk assessment.

- Preparation for safety certification is ongoing, including the development of the appropriate checklists for both design and construction. Design Criteria Conformance Checklists (DCCCs) are ***96.6*** percent verified. Construction Specification Conformance Checklists (CSCCs) are ***10.6*** percent verified.
- Staffing of management personnel has been adjusted to address the varying activities that MTA is managing. In November 2021, MTA's quality lead for the Purple Line project, Rene Schroeder, retired. It was proposed that Roland Carroll, currently the Purple Line systems and construction safety lead, add the quality lead role to his other Purple Line roles. The PMOC is evaluating this change to MTA's MCC.

  On February 1, 2022, Vernon Hartsock, Purple Line Project Director, retired. In July 2022, MTA filled the vacancy with Ray Biggs, an engineer and manager who has experience with FTA and transportation projects. The PMOC will review Mr. Biggs's role as Purple Line Project Director while reviewing MTA's MCC.

  In September 2022, MTA supplemented the Purple Line team with the hiring of Ken Forsythe as the Deputy Communications Director. On October 25, 2022, MTA introduced Kevin Oberheim as the new Deputy Program Director. In December 2022, David Fertal left the PMC support team. Kevin Oberheim has assumed Mr. Fertal's duties ***as Interim Deputy Project Director.***
- MTA carefully considered a request from Montgomery County to single-track the Purple Line through the Bethesda tunnel. MDOT/MTA determined it would not be able to accommodate the request.
- MTA and PLTP coordinated to obtain a modified version of the existing TIFIA loan for the project. As of April 14, 2022, the TIFIA loan closed, and all bonds have been marketed. MTA is required to update the Transportation Investment Program and State Transportation Investment Program plans to reflect changes in the project.
- MTA's Equal Employment Opportunity Officer assigned to the project is Marquis Washington. He is supporting MTS in its hiring program. The former contractor, PLTC, left the project with a shortfall in meeting its Disadvantaged Business Enterprise (DBE) program requirements, and MTS is required to address this shortfall of approximately $12 million in contract value.
- MTA hired a consultant team that is analyzing alternatives for providing security and fare enforcement services for the Purple Line. MTA does not currently have existing facilities or staff that can adequately provide services because the distance from their location to the Purple Line light rail facilities is too far. ***On January 30, 2023, MTA stated that the report which summarizes alternatives for these security and fare enforcement services is in final review.*** Representatives from MDOT, which is the State Safety Oversight Agency (SSOA), who are monitoring the Purple Line project

development requested that MTA provide them the draft report and then consider the SSOA's comments before submitting it to MTA's upper management.

- In October 2022, MTA cancelled the project's planned Community Advisory Team meetings for late 2022, citing a lack of resources to prepare for these meetings without impacting management of the overall project. These meetings are now ***resuming; two virtual Community Advisory Team meetings are scheduled to occur each week*** in February 2023. Community interest in the meetings is high. MTA continues to develop its stakeholder communications plan. ***In January 2023, local news outlets published several critical articles about the project. These reports of schedule delays drew some attention and comment from elected officials.***

1.3. Major Issues and/or Concerns

Table 2 discusses any major issues or concerns impacting the project's scope, schedule, cost, risks, quality, safety, etc.

Table 2 – Current Major Issues and Concerns

Issue/Concern	Continuation of the project without PLTC has been a significant challenge for the project. MTA's IRP, the permanent replacement of the D-B contractor, and the management of interim design/construction activities were MTA's priorities. The replacement D-B contractor, MTS, is now mobilized on the project.
Date Identified	September 2020.
Status	The IRP was approved in January 2021, with an update approved in July 2021. Implementation is nearly complete. MTA continues to develop the Final Recovery Plan.
Project Sponsor Action	Management of a transition plan and support of PLTP in the replacement of the D-B contractor was the focus of the Project Sponsor. Another focus was the management of MTA's contractors to continue key activities that maintain the integrity of the schedule. MTA has submitted the draft Final Recovery Plan for FTA and PMOC review.
PMOC Recommendation	The Project Sponsor should continue to consider the conditions of the original project requirements and management plans during the interim period. Effective management continues to be critical to success. The PMOC recommends that MTA continue to track and provide updates to FTA on information related to schedule, budget, management, and MTS. Focus should continue to include the completion of a Final Recovery Plan and supporting management documents. The PMOC also recommends that MTA ensure that sufficient staff is dedicated to OSF project delivery and closely monitor OSF activities and the remaining potential impacts to the MTS schedule. However, now that MTS is under contract, MTA and the PMC also should continue to emphasize their oversight of PLTP and MTS.
Issue/Concern	According to the PMP, the master project schedule should be updated monthly. ***The most recent MTA-approved master project schedule (which includes the MTS-approved IBS) was issued in October 2022. MTA is currently addressing the first several MTS schedules submitted after the IBS was accepted, because those schedules included significant schedule delays caused by MTA missing several OSF milestones.***
Date Identified	***2022***
Status	Ongoing.

Project Sponsor Action	After the preliminary review of the updated master schedule, the PMOC noted that schedule float of one year was added to the end of the master schedule to reflect project risk. ***The updated master schedule that MTA provided in January 2023 indicates a significant potential schedule slip of more than six months. MTA is reviewing this issue with MTS to determine recovery and mitigation strategies.***
PMOC Recommendation	***The PMOC recommends that MTA track all schedule elements set forth in the IRP and the draft Final Recovery Plan, and report the status to FTA and the PMOC each month. MTA should communicate schedule recovery activities to FTA and the PMOC and include the schedule recovery strategies in the Final Recovery Plan.***
Issue/Concern	MTA's settlement with the P3 concessionaire includes significant settlement payments, including compensation for claims of cost impacts from the delayed execution of the FFGA. Final resolution of the cost and schedule impacts will also depend upon the development of a recovery schedule. The project cost, as reflected in the FFGA, is affected, and it is required that an MTA Purple Line Project Final Recovery Plan, including a revised project cost estimate with adequate cost contingency to address remaining project risks, be submitted to and ***approved by*** FTA.
Date Identified	September 2020.
Status	Ongoing.
Project Sponsor Action	Develop a revised cost estimate.
PMOC Recommendation	The PMOC recommends that MTA develop a realistic cost estimate as soon as the project details and project delivery plans are developed. MTA has provided cost information to FTA and the PMOC. MTA continues to develop cost and cost contingency information which has been is incorporated into the draft Final Recovery Plan. Budget contingencies must reflect potential additional costs required to address potential schedule delays and support a realistic EAC.
Issue/Concern	Impacts caused by COVID-19 have occurred at different levels for different aspects of the project. To date, impacts to construction have been managed effectively. Supply chain impacts have posed some problems but have been adequately mitigated. LRV production was delayed due to manufacturing slowdowns in both Spain and New York. MTA and PMC personnel continue to observe proper precautions. ***In January 2023, MTA stated COVID-19 protocols for the project have been suspended.***
Date Identified	May 2020.
Status	***Closed.***
Project Sponsor Action	Enforce the use of Personal Protective Equipment and other preventative measures, if needed.
PMOC Recommendation	The PMOC recommends that MTA continue to track and document costs or delays related to COVID-19. MTA should incorporate COVID-19-related costs into the project cost estimate.
Issue/Concern	MTA does not have a police force located in proximity to the Purple Line.
Date Identified	September 2022.
Project Sponsor Action	MTA hired a consultant team that analyzed alternatives for providing security and fare enforcement services for the Purple Line. Alternatives include: expanding MTA's enforcement services geographically, engaging a third party to provide these services through a contract, or sharing police services with another party. ***As of January 2023, MTA has prepared a draft recommendation for providing security and fare enforcement, and that recommendation is under review before its submittal to the MTA Administrator.***
PMOC Recommendation	Although the currently forecasted RSA date is in 2027, the PMOC recommends that MTA determine its preferred security alternative without delay and promptly move toward implementation. ***The PMOC recommends that the SSOA be included in the review and comment process for the security and fare enforcement recommendation.***

1.4. Status of Key Indicators Dashboard (Post-grant)

Table 3 shows the project Key Indicators Dashboard after the FFGA was awarded.

Table 3 – Key Indicators Dashboard

Project Sponsor:				Maryland Transit Administration	
Project Name:				MTA National Capital Purple Line Light Rail Transit Project	
Date:				***January 30, 2023***	
Project Detail					
Oversight Frequency:				**Monthly**	
Element	**Status**			**Prior Status**	**Issue or Concern**
	●	●	●		
	G	**Y**	**R**		
Project Management Plan		●		●	An updated PMP that reflects revised project conditions needs to be developed. Project transition and recovery plans need to be developed. MTA has prepared a draft Final Recovery Plan to reflect the contractor resolicitation and agreements. In October 2022, MTA submitted a revised PMP to the PMOC and FTA for review. ***On February 1, 2023, FTA provided its review comments on the PMP***.
Management Capacity and Capability		●		●	A revised organizational chart, along with MTA's ability to demonstrate MCC, was approved with the IRP. Staffing requirements for both MTA and its PMC support team ***have been*** evaluated in conjunction with the revised PMP and Final Recovery Plan. ***FTA and the PMOC provided comments on MTA's MCC within the PMP review transmitted to MTA on February 1, 2023.***
Cost*		●		●	A revised cost estimate reflecting new project conditions is required. A risk review workshop was conducted in May 2022, and draft summary results were developed for incorporation into the MTA Final Recovery Plan. FTA provided a summary of the risk workshop to MTA on June 22, 2022, for MTA's consideration and incorporation into its management plans and contingency evaluation. MTA should re-valuate risks based on the status of recovery activities and recent schedule challenges.
Schedule			●	●	A revised project schedule that incorporates the current project status is required. MTA approved MTS's IBS on September 12, 2022, and prepared a master schedule. FTA and the PMOC have reviewed the master schedule and provided comments to MTA on January 12, 2023. MTS's ***first several schedule updates*** show significant depletion of contingency, which is a cause for concern.
Quality		●		●	Quality continues to be acceptable, although the reporting to the PMOC requires refinement to meet FTA requirements. MTA's quality lead has retired, and a replacement quality lead has been assigned from existing MTA staff. This new lead, who is also the current systems and construction safety lead for the project, requires training in quality management and may need additional consultant support. In October 2022, MTA submitted to FTA and the PMOC an updated QAP for review in conjunction with their review of the Final Recovery Plan and other management plans.
Safety		●		●	Safety continues to be acceptable, although with an increase of MTS activities, recordable incidents are increasing. Also, there appear to be problems related to MTS's communication of safety incident reporting to MTA. In October 2022, MTA submitted to FTA and the PMOC Version 13 of the Safety and

Project Sponsor:				Maryland Transit Administration	
Project Name:				MTA National Capital Purple Line Light Rail Transit Project	
Date:				***January 30, 2023***	
Project Detail					
Oversight Frequency:				**Monthly**	
Element	**Status**			**Prior Status**	**Issue or Concern**
	●	●	●		
	G	**Y**	**R**		
					Security Management Plan and Version 5 of the Safety and Security Certification Plan for review in conjunction with their review of the Final Recovery Plan.
Risk		●		●	The RCMP and Risk Register were updated to reflect the changes related to interim MTA management and construction delivery. In October 2022, MTA submitted to FTA and the PMOC Version 15 of the RCMP for review in conjunction with their review of the Final Recovery Plan and other management plans. ***FTA and the PMOC will provide comments on the revised RCMP to support MTA development of budget and schedule contingency.***
Legend					
Green	Satisfactory: No Corrective Action necessary.				
Yellow	Caution: Risk/Issues exist. Corrective Action may be necessary.				
Red	Elevated for immediate Corrective Action: Significant risk to the health of the project.				

*Note: With regard to cost, the colors indicate the following status:
Yellow – Forecast cost exceeds the project budget by up to 3%.
Red – Forecast cost exceeds the project budget by more than 5%.

1.5. Core Accountability Items

Table 4 shows the core accountability items for the project, including the current status of the project and the major issues and how they are being addressed.

Table 4 – Core Accountability Items

		Original (Grant)	Current Forecast[1]	PMOC Assessment of Current Forecast
Cost	Capital Cost Estimate	$2,407,030,289	***$4,925,533,068***	TBD
Contingency	Unallocated Contingency	$90,535,748	$90,000,000	TBD
	Allocated Contingency	$59,500,464	$26,805,863	TBD
	Total Contingency	$150,036,212	$116,805,863	TBD
Schedule	Revenue Service Date	12/31/2022	10/15/2027	TBD

Project Progress		**Amount ($)**	**Percent of Total**
Total Expenditures	Actual cost of all eligible expenditures completed to date	***$2,568,436,465***	***52.1%***
Planned Value to Date[2]	Estimated value of work planned to date	Not Applicable (N/A)	N/A
Actual Value to Date[2]	Actual value of work completed to date	N/A	N/A

Contract Status		Amount ($)	Percent of Total
Total Contracts Awarded	Value of all contracts (design, support, construction, equipment) awarded; % of total value to be awarded	TBD	TBD
Construction Contracts Awarded	Value of construction contracts awarded; % of total construction value to be awarded	TBD	TBD
Physical Construction Completed	Value of physical construction (infrastructure) completed; % of total construction value completed	***$746,686,510***	***38.7%***
Rolling Stock Vehicle Status	**Date Awarded**	**No. Ordered**	**No. Delivered**
28 total car sets[3]	First 26 LRVs: 2016 Additional 2 LRVs: January 2022	28 car sets	0
Next Quarterly Progress Review Meeting Date:	***February 8, 2023***		

[1]The D-B contractor has been replaced. Draft budget figures, including the work under contract, are being incorporated into this report as they are provided by MTA. Not all information is up-to-date as ***of January 2023***.
[2]Earned value information is not available.
[3]The approved FFGA includes a total of 26 LRVs.

2. OBSERVATIONS AND FINDINGS

2.1. Summary of Monitoring Activities

The PMOC received an update from the Purple Line project team during ***the January 30, 2023, monthly meeting with MTA, the PMC, and the PMOC. Information from the FTA/MTA/PMOC Biweekly Progress Conference Call held on January 24, 2023, also contributes to this report. The PMOC also observed the January 2023 Monthly Quality Team Meeting and the Quarterly Risk Management Committee Meeting.*** Monitoring activities also included review of MTA-provided scope, schedule, risk, financial, construction, safety and security, and real estate information.

After the U.S. Court of Appeals reversed the vacation of the ROD in July 2017 (refer to the **NEPA Process and Environmental Mitigation** section, below, for details), the FFGA was executed on August 22, 2017, approximately one year later than planned. The project is currently in the construction phase. The construction (D-B) contractor, PLTC, left the project, and a new project delivery plan was developed, including replacement of the D-B contractor. During the period when the replacement D-B contractor was being solicited, MTA managed select construction and design activities (OSF activities) in order to reduce uncertainty and support the project schedule. On November 5, 2021, MTS was selected as the replacement D-B contractor, and financial and commercial close occurred on April 14, 2022. MTA continues to manage OSF construction and design activities, and as of October 2022, MTS had mobilized and started work on activities throughout the entire project corridor. MTA and MTS held initial partnering activities during which they developed relationships, general project priorities for teamwork, and an understanding of key issues for different stakeholders. MTA will include partnering processes in the revised PMP.

2.2. Oversight Triggers

The oversight triggers most applicable to the project are the Oversight Procedure (OP) 25 cost and schedule triggers. The project did not have a mutually agreed-upon baseline schedule between March 2017 and September 2022. Significant schedule delays, and the need to modify the RSA date, keep the project eligible for rigorous oversight. Project schedule delays typically impact project cost, another significant indicator of project health. A revised project EAC must be developed in conjunction with development of the project's schedule and Final Recovery Plan. The development of a revised construction cost estimate and schedule will support effective project oversight.

2.3. Project Management Plan and Sub-plans

2.3.1. Project Management Plan

The PMOC reviewed the Purple Line PMP Version 10 in accordance with OP 20 for a PMP at the FFGA execution stage of a project. Subsequently, FTA and the PMOC reviewed PMP Versions 11, 12, and 13. Due to significant project team changes since those versions, another update to the PMP was required. In October 2022, MTA provided an updated PMP (Version 14) to FTA and the PMOC for review. ***On February 1, 2023, FTA provided review comments on PMP Version 14 to MTA.***

MTA currently is using the approved IBS to develop a master schedule that incorporates operational readiness activities and schedule contingency (float). In October 2022, MTA provided a version of the master schedule to FTA for review along with the draft Final Recovery Plan. The PMOC also received .XER files and will conduct a thorough analysis of the schedule. MTS's first, second, ***and third*** updates to its schedule indicated a significant slip to the expected construction substantial completion date. MTA is evaluating the projected delays and, working with MTS, is developing potential recovery options. Realistic recovery strategies should be included in the Final Recovery Plan.

MTA has been providing an OSF project schedule biweekly. In addition, the IRP provided a schedule of activities during the D-B contractor replacement period. On April 11, 2022, private activity bonds went to market, and there was sufficient demand to sell all of the bonds. The TIFIA loan for the project closed on April 14, 2022, allowing financial close and commercial close on that same day. MTS is now the D-B contractor for the project. Financial and commercial close triggered NTP for PLTP. (See the **Project Schedule** section of this report, below, for further details.)

2.3.2. Safety and Security Management Plan

In February 2016, the PMOC reviewed the project's Safety and Security Management Plan (SSMP) Version 6, dated October 22, 2014, in accordance with OP 22 for a project at the FFGA execution stage. The PMOC review found that the SSMP was compliant with FTA content requirements for execution of the FFGA, but the PMOC requested that MTA resubmit the SSMP after execution of the FFGA and address the comments in the PMOC report with updated information from the P3 concessionaire. Subsequently, SSMP Versions 7 through 11 were

reviewed by the PMOC and FTA over the next four years. MDOT, which is the SSOA for the project, also reviewed SSMP Versions 8 through 11. On January 13, 2022, FTA provided comments on SSMP Version 12 to MTA. MTA submitted SSMP Version 13 as well as Version 5 of the Purple Line Safety and Security Certification Plan (SSCP) to FTA and the PMOC for review in October 2022. ***FTA and the PMOC are currently reviewing the SSCP and SSMP updates that MTA submitted.***

2.3.3. Quality Assurance Plan

In August 2017, MTA submitted for FTA/PMOC review a complete QAP update, the MTA Purple Line Quality Assurance Plan Revision 8.0. In January 2020, MTA prepared QAP Revision 9 and Document Control Plan Version 5. In October 2022, MTA submitted QAP Version 10 to FTA and the PMOC for review.

MTA meets with HNTB weekly to discuss quality. ***In January 2023,*** MTA reported the following recent quality management activities:

- Field inspections for OSF
- Meetings to coordinate closure of outstanding PLTC Non-conformance Reports
- Field inspections of MTS activities
- Interdisciplinary Design Reviews
- Quality Control Reviews
- Design Submittal Reviews
- Design Services During Construction coordination with Atkins
- Reviews of asphalt, concrete, and earthwork sample and in-situ test results
- Monthly Quality Control (QC) review meeting scheduling

On January 18, 2023, the PMOC observed the monthly MTA Quality Team Meeting. PMOC observations will support review of the QAP.

During OSF, MTA provided notes from monthly CAF and SNC Lavalin LRV manufacturing quality meetings for PMOC review. The information provided summarized issues and corrective actions, and upcoming quality audits. MTS is now responsible for preparing these notes, although it has not submitted them for PMOC review.

One manufacturing quality issue, the recurring failure of a bolt in multiple vehicles, has not been resolved. MTA determined that the issue does not impact safety, and the solution is likely the use of a higher strength bolt. The final report on this issue is expected in February 2023.

In November 2021, MTA's quality lead for the Purple Line project, Rene Schroeder, retired. Roland Carroll has been assigned to add the quality lead role to his other Purple Line roles (he is currently the systems and construction safety lead). MTA is modifying its Quality Assurance (QA) efforts as MTS mobilizes its quality program.

2.3.4. Real Estate Acquisition Management Plan

The PMOC reviewed the project's Real Estate Acquisition Management Plan (RAMP) Versions 10, 11, and 12. The PMOC reviewed the plans with respect to the guidelines in OP 23 for a project

in the construction phase. MTA submitted an updated RAMP Version 13 to FTA and the PMOC in October 2022.

2.3.5. Fleet Management Plans

The Purple Line project's Rail Fleet Management Plan (RFMP) Version 7.0, dated February 15, 2016, is the version of the plan reviewed by FTA and the PMOC, and it incorporates information from the P3 concessionaire's proposal. The PMOC completed its review of RFMP Version 7.0 and documented, in its OP 37 RFMP review report issued on May 27, 2016, that RFMP Version 7.0 met the requirements of OP 37 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 RFMP, after a review by MTA confirmed that it met the requirements of the Purple Line project. The P3 contract required PLTP to submit its RFMP for MTA review and approval within 90 days of June 17, 2016 (P3 contract financial close), to then 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 before the scheduled beginning of revenue service, and to update the RFMP annually once the project is in revenue service. MTA received, reviewed, and approved PLTP's Purple Line RFMP Revision 0, dated June 22, 2016, after P3 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 then submitted PLTP's RFMP Revision 0 to FTA and the PMOC. PLTP's RFMP Revision 0 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 OP 37.

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 on March 4, 2016, issued its final OP 37 BFMP review report, concluding that the BFMP met the requirements of OP 37 for the execution of an FFGA for the Purple Line project.

2.3.6. Risk and Contingency Management Plan

The current approved version of the RCMP is Version 14, dated May 2016. The PMOC's OP 40 review found that RCMP Version 10 met the requirements of OP 40 for an RCMP at the FFGA stage of a project. However, because of the impacts of the lawsuit filed by the Friends of the Capital Crescent Trail, MTA had not been able to establish routine bimonthly 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 initial lawsuit was resolved and the FFGA was executed. MTA completed an update of the project's Risk Register in March 2018 and continues to conduct subsequent periodic updates and to provide copies of those updates 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 sub-plans. In early 2020, MTA commenced another update to the RCMP to incorporate the results of the latest quantitative risk assessment that, in turn, incorporated the results of the replacement D-B contractor resolicitation and the revised project

implementation details. MTA held a risk management workshop that focused on the interim period on January 26, 2021.

MTA has provided a comprehensive Risk Register and risk mitigation activities in conjunction with the draft Final Recovery Plan. In preparation for a risk analysis, MTA held risk assessment interviews with individual risk owners to review existing risk items and identify new risks. In December 2021, MTA prepared an updated Risk Register that includes over 100 risk items, including PLTP and MTS risks. MTA must utilize the Risk Register and the draft RCMP to develop contingency estimates and a revised EAC.

A risk workshop was held the week of May 2, 2022, at which the PMOC and FTA participated in an OP 40 risk and contingency review that evaluated cost, schedule, and project contingency. Confirmation and finalization of the Risk Register, the quantitative risk assessment, and an update of the RCMP are in progress. The PMOC developed a draft summary of the risk review results; however, because of the preliminary nature of baseline schedule information available, further schedule analysis is required now that MTA has a comprehensive baseline schedule. FTA provided a risk summary to MTA on June 22, 2022, for MTA's consideration while it was updating the RCMP. MTA provided responses to FTA comments on the risk summary on July 15, 2022. MTA provided further clarification on August 25, 2022. MTA's responses indicated that most of the comments would be addressed as recommended by FTA and the PMOC. MTA submitted RCMP Version 15 to FTA and the PMOC for review in October 2022. ***FTA and the PMOC will provide comments on the revised RCMP to support MTA development of project budget and schedule contingency.***

2.3.7. Safety and Security Certification Plan

Version 3 of the Purple Line SSCP is dated November 4, 2014. The PMOC review found that the SSCP Version 3 met the FTA requirements in support of the FFGA application. MTA submitted SSCP Version 4 on February 3, 2020, in conjunction with the updated SSMP submittal (see the **Safety and Security Management Plan** subsection, above). The SSOA completed its review of SSCP Version 4 and discussed its comments with the PMOC. MTA decided that the new emergency management working group would be a subcommittee to the Fire Life Safety and Security Committee (FLSSC), and this decision would be reflected in the next revisions of the SSMP and the SSCP, which were planned for after the replacement D-B contractor was in place. MTA submitted SSMP Version 13 and SSCP Version 5 to FTA and the PMOC in October 2022. ***In February 2023, FTA and the PMOC will review and provide comments on these plan documents.***

2.4. Management Capacity and Capability

Through the PMOC's observations and discussions with MTA, especially with MTA Transit Development and Delivery and Purple Line project management personnel, the PMOC has noted that MTA has been responsive to finding and assigning MCC, as needed, to sufficiently complete the project in compliance with applicable FTA requirements. These efforts have included bringing

staff, either MTA or MDOT personnel or consultants, onto the project to manage the current needs, such as planning, P3 procurement and contracting, real estate acquisition, and construction.

In November 2021, MTA's quality lead for the Purple Line project, Rene Schroeder, retired. It was proposed that Roland Carroll, currently the Purple Line systems safety and construction safety lead, add the quality lead role to his other Purple Line roles. In February 2022, MTA provided a white paper outlining Mr. Carroll's experience, his recent training, and the proposed supporting staff related to the new quality management role. The PMOC is evaluating this information and will provide a recommendation to FTA.

Vernon Hartsock, Purple Line Project Director, retired on February 1, 2022. MTA began the search for a replacement, and in the interim, Matt Pollack and Anita Rodgers shared the Project Director responsibilities. As of July 2022, MTA filled the vacancy with Ray Biggs, an engineer and manager who has experience with FTA and transportation projects. The PMOC will include Mr. Biggs's role as Project Director in its review of MTA's MCC.

The PMOC continues to monitor the effectiveness of the MTA staff and the personnel resources from consultants, MDOT, and other modal administrations as they have been integrated into the overall MTA management of the project. MTA currently is evaluating support staff and its effectiveness in consideration of the end of OSF and the mobilization of MTS staff to the project. The PMOC will evaluate MTA's MCC during readiness reviews conducted in parallel with MTA's development of a Final Recovery Plan. ***FTA and the PMOC provided comments on MTA's MCC within the PMP review transmitted to MTA on February 1, 2023.***

In April 2022, Jenny Barkett from the PMC team left the project. Ms. Barkett held a significant role during the OSF period and D-B contractor resolicitation process. In September 2022, MTA supplemented the Purple Line team with the hiring of Ken Forsythe as the Deputy Communications Director. As of October 25, 2022, MTA hired Kevin Oberheim to fill the Deputy Program Director position. On December 20, 2022, MTA announced that David Fertal left the PMC support team. ***Kevin Oberheim has assumed Mr. Fertal's duties as Interim Deputy Project Director.***

2.5. NEPA Process and Environmental Mitigation

2.5.1. NEPA Process

FTA issued a ROD on March 19, 2014. The National Park Service issued its ROD on July 16, 2014.

MTA has continued to submit environmental re-evaluations as required based on design advancement and other causes. To date, PLTC (before it left the project) 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. The most recent status ***(as of January 2023)*** of NEPA items is:

- All LOD cases have been approved. There are currently no additional LOD cases expected.

- The ATC for the Bethesda Station jet fan has been vetted, and final documentation is being prepared for submittal to FTA for concurrence that the ATC meets project requirements. Final documentation for the ATC is still pending as of ***January 2023***. MTA and MTS are coordinating the noise and aesthetic impacts of the fans, and they optimistically predict that the fans will not have Section 4(f) impacts or other impacts to the ROD**.**

On August 3, 2016, in response to the lawsuit filed by the Friends of the Capital Crescent Trail against FTA, a federal judge filed his Order and accompanying Memorandum Opinion. In those documents, it was ordered that the ROD for the Purple Line project be 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 whether 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 in 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 U.S. Court of Appeals issued its ruling on December 19, 2017, in which the judges ruled in favor of FTA and the project, and ruled that the transit agencies would not have to conduct a new environmental study to examine other potential routes for the Purple Line.

The Friends of the Capital Crescent Trail filed a second lawsuit after the FFGA signing and after the groundbreaking ceremony was held on August 28, 2017. The September 19, 2017 Preliminary Hearing for this suit resulted in no temporary injunctions or restraining orders, and project construction proceeded as the case progressed 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 FTA.

The Friends of the Capital Crescent Trail filed a third lawsuit in January 2019, this time against USACE. The USACE legal staff and the Office of the Attorney General provided the defense. 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 USACE. In October 2019, USACE filed for a Summary Judgment to Dismiss the case, and the plaintiffs filed their response; a hearing date was set for March 23, 2020. However, in late February 2020, the assigned judge recused himself from the case, and the scheduled hearing was canceled. In mid-April 2020, the District Court ruled in favor of the USACE/MTA motion for Summary Judgement to Dismiss, and the case was dismissed. The plaintiff subsequently filed an appeal on May 11, 2020, and the case continued in the legal process.

Oral arguments related to the appeal occurred on March 11, 2021. The District Court denied the appeal on May 13, 2021. The decision resolved the last remaining lawsuit related to the project.

2.5.2. Environmental Mitigation

The project achieved the required mitigation for reforestation through the purchase of 82.5 acres of offsite credits (combined, in both Montgomery County and Prince George's County). This amount of offsite credits is expected to be more than needed and the P3 concessionaire's design will monitor that this remains the case. PLTP's Forest Conservation Plan (FCP), which documented a need of 75.73 acres, 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. In Maryland, need is based on land disturbance rather than only forest removal. MTA's tracking of additional disturbance due to the progress of design and construction indicated that the total need is still within the amount of available offsite credits.

The Joint Permit Application for Wetlands and Stream Mitigation was formally submitted to USACE and 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, because time had passed since the permit was drafted, MDE updated and issued the finalized permit the first week of April 2018. USACE completed its NEPA and conditions review as well as its 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 the longer construction periods resulting from construction moratoriums for forests and streams. The project received approval from MDE during the week of December 3, 2018, and received the USACE approval letter in mid-June 2019.

The project team has been addressing the environmental mitigation for wetlands through the development of the offsite Ken-Gar location, which is implemented through 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 the bids underwent MTA Procurement Department review. The BPW approval of the award was received on September 4, 2019. As of June 2021, the Ken-Gar wetlands mitigation project is essentially complete and has completed its one-year warranty period. See the **Construction** section of this report, below, for further discussion of the progress on this Ken-Gar Wetlands Mitigation construction contract.

The project team has been addressing the environmental mitigation for streams through the development of the offsite Paint Branch location, which is implemented through 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 the award was received on September 4, 2019. The Paint Branch stream

restoration is complete, and warranty corrections (partial replanting) occurred in December 2022. See the **Construction** section of this report, below, for further discussion of the progress on this contract.

The project has plans to address stormwater mitigation, beyond what can be mitigated on the project site, through retrofitting offsite locations in both Montgomery County and Prince George's County. On November 12, 2021, MTA determined that there is a need for additional stormwater mitigation in Prince George's County. A project to construct additional stormwater mitigation is included in the scope of work for MTS.

The joint MTA and University of Maryland (UMD) technical board resumed meetings in December 2021 to coordinate efforts related to the mitigation of noise, vibration, and electromagnetic interference at the UMD facilities. Following this meeting, the members of the joint technical board voted to approve the outstanding design packages. This action effectively ended the activities of the technical board until the LRT is in trial running.

The Purple Line project team submits quarterly Environmental Mitigation Monitoring Reports for the project. MTA has continued to manage the environmental mitigation and monitoring activities as the project has transitioned to the replacement D-B contractor, MTS. Because MTS is now performing construction, MTA will monitor the environmental activities performed by MTS. On May 3, 2022, MTA provided the first quarter 2022 environmental report, and the report summary states that "no problems, gaps, nonconformances, or NEPA issues of any sort were found as a result of this quarterly assessment."

In November 2022, MTA submitted to FTA and the PMOC the third quarter 2022 ROD Commitment Tracking report (i.e., the monthly environmental management report). ***MTS and MTA currently are preparing the fourth quarter 2022 ROD Commitment Tracking report.***

2.6. Project Delivery Method and Procurement

The Purple Line project team identified P3 as the project delivery method for the Purple Line project. The majority of the capital cost of the Purple Line project has been packaged into a Design-Build-Finance-Operate-Maintain 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") in which appropriate risks and benefits are allocated in a cost-effective manner between the contractual partners. The P3 concessionaire is intended to perform some functions normally undertaken by the transit agency, but MTA remains ultimately accountable for the Purple Line project 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 PLTP had been selected as the P3 concessionaire. Commercial close of the P3 contract occurred on April 7, 2016, and financial close occurred on June 17, 2016.

In late April 2020, PLTC notified PLTP that due to PLTC's forecasted schedule delays on the project (which did not receive agreement from MTA), PLTC intended to exercise the clause that allowed it to terminate its contract with PLTP for the design and construction services under the

P3 contract if delays exceed 365 days. MTA sent a formal request to PLTP for a response that would include a definitive path forward. On the response due date of May 14, 2020, PLTP submitted its response, which stated that PLTP intended to continue to negotiate with PLTC to retain PLTC as part of the P3 concessionaire team. On June 23, 2020, PLTP sent a formal Notice of Unconditional Election to Terminate the P3 Agreement to MTA, although PLTP indicated a willingness to negotiate a settlement. On June 24, 2020, MTA sent a Formal Notice of Concessionaire Default. This notice essentially refuted the validity of the PLTP delay claims and stated that if PLTP fails to perform, MTA has a number of options related to the P3 Agreement. Through July 2020, construction activities continued at the levels previously planned and were not affected by the dispute.

In early August 2020, PLTC and subcontractors demobilized equipment, materials, and personnel. In response, the Maryland Attorney General filed a motion for a Temporary Restraining Order (TRO) that prevented PLTP from abandoning the work or demobilizing. Upon issuance of the TRO, the contractor and subcontractors remobilized some equipment and restarted many construction activities. A hearing to uphold or rescind the TRO occurred before the expiration of the TRO on September 14, 2020, and the court rescinded the TRO, allowing PLTP to leave the project. If the TRO had been upheld, PLTP would have been required to continue working until the contractual dispute resolution procedures were followed.

When an agreement was not reached, the bond holder firms had the first right to take over the project. However, MTA planned an alternate path forward based on its exercise of step-in rights. To that end, MTA assumed the contracts of over 100 subcontractors, indicating MTA's intent to continue the project. MTA adjusted staffing for construction management, resident engineers, and inspectors to move forward with the project.

On November 24, 2020, MTA and the P3 concessionaire, PLTP, reached a settlement agreement to release the project's D-B contractor from the P3 consortium and continue the project with the remaining parties. The state's BPW approved the settlement agreement on December 17, 2020. Activities set out in the agreement and the IRP have been proceeding with multiple modifications to milestone dates as needed.

The agreement includes the following key aspects, as MTA has communicated to the PMOC:

- PLTP agreed to procure a replacement D-B contractor to complete the project and to obtain project financing. The selection of the preferred replacement D-B contractor, MTS, occurred on November 5, 2021. The original settlement provisions required financing and execution of the contract with the D-B contractor by September 23, 2021, but several amendments to the settlement agreement between MTA and PLTP occurred to extend the date. The TIFIA loan for the project closed on April 14, 2022, allowing financial close and commercial close on that same day. MTS is now the D-B contractor for the project.
- The settlement agreement provided a mutual release from all disputed and undisputed amounts (incurred before September 28, 2020) for PLTP, PLTC, and subcontractors. The agreement also released outstanding litigation among the parties.

2.7. Design

2.7.1. MTA Design

MTA's GEC completed the project design to approximately the 30 percent design level in fall of 2013 and provided incremental enhancements through late 2015. This design formed the basis of the RFP for the P3 contract. See the **P3 Design** subsection, below, for a discussion of the advancement of this design by PLTC, the former PLTP partner that was responsible for the design and construction of the capital project, and continued design under MTA.

MTA was responsible for the design and construction contracts under a Design-Bid-Build delivery method (separate from the P3 scope) for the following projects:

- Stream mitigation – MTA completed the 100 percent design packages in June 2017 and received approval from MDE in May 2018. Construction of the stream mitigation is now complete. See the **Environmental Mitigation** subsection of this report, above, for additional details.
- Wetlands mitigation – MTA completed the 100 percent design packages in June 2017. Several design adjustments were subsequently made based on MDE and Montgomery County comments. The construction contract was advertised on May 3, 2019. Construction of the original wetlands mitigation is now complete. See the **Environmental Mitigation** subsection of this report, above, for additional details.
- Offsite SWM sites – MTA completed design and obtained MDE approval of more than the P3 contract-required 5 acres of offsite mitigation in Montgomery County on May 29, 2018. In late October 2019, MTA received MDE approvals for the next 5 acres to be added to the mitigation credit "bank," thus satisfying the contract requirements for 2019. As of November 2022, MTA does not have a need to seek any further additions to the current offsite mitigation credit bank. See the **Environmental Mitigation** subsection of this report, above, for the current requirements.

MTA also completed the design to support a D-B contract for the replacement of the existing Parks Maintenance Facility with a facility on Polk Street. Construction of the facility is now complete. See the **Real Estate Acquisition and Relocation** and the **Construction** (MTA Scope) sections of this report for further details.

2.7.2. P3 Design

PLTC's design progress was forecasted to achieve substantial design completion for Civil packages in August 2020, substantial design completion for Systems packages (except for Fare Collection) in September 2020, and completion of the Fare Collection design package in 2021. The original baseline schedule anticipated design completion by late fall 2017. As of August 2020, the number of planned Civil, Systems, and Utility design packages was 218.

Upon the departure of PLTC, MTA contracted with the engineer-of-record, Atkins, to continue to advance the design of limited aspects of the project.

The current progress through ***January 30, 2023, is that 209 of the 218*** total planned design packages have been issued as RFC. Civil and Utility packages that remain in design or approval include traffic signal pre-emption, grade crossing safety systems, lighting, signage, and stations. Although Systems packages were scheduled to be complete by the end of the first quarter of 2022, those packages remain in progress. ***The current forecast for completion of all design packages is June 2023.***

PLTC reached resolution on the final remaining ATC identified during the proposal process. The ATC is related to the use of jet fans at the Bethesda Station in lieu of vent shafts. In accordance with the established process, MTA is reviewing the design package for NEPA compliance. Final documentation for the ATC is still pending as of ***January 2023***. MTA and MTS are coordinating the noise and aesthetic impacts of the fans, and they optimistically report that the ATC will have no Section 4(f) impacts or associated impacts to the ROD.

CSX informed the project team that its updated rail design criteria, which were issued after the "setting date" of the original P3 contract, were applicable to the Purple Line project design. MTA and CSX worked to resolve issues related to the applicable design criteria and which project areas were affected until, in July 2019, a mutually agreeable path forward was defined for all areas. 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 SSTC 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 May 2020, CSX indicated that the final design is acceptable. Revised documents, providing some minor clarifications related to ROW, were submitted to CSX on September 8, 2020, and ultimately CSX approved the design. The revised documents were submitted to WMATA several times in early 2021.

- WMATA's comments on design plans for the SSTC mezzanine connector pedestrian bridge (over CSX ROW) will result in what MTA deems are betterments. Resolution of WMATA comments is nearly complete ***as of January 2023, and only legal reviews are remaining.*** MTA reports that the slow resolution of these issues has not impacted critical path activities.

- An encroachment into the CSX vertical clearance was discovered upon installation of girders at SSTC. Although the designer believed the loading of the bridge deck might alleviate the issue, shimming was discussed as a potential solution. Shimming was not MTA's preferred solution; therefore, an exception was requested from CSX to allow the ¾-inch encroachment to remain. CSX denied the exception. MTA and the designer prepared for a contractor to jack and shim the structure to create the required clearance. Construction of this work was completed in August 2021.

- CSX provided review comments disallowing revised drainage networks, related to the Capital Crescent Trail work, which would connect to CSX's existing drainage culverts. The work on the Capital Crescent Trail is not part of the FFGA and is separately funded

by Montgomery County. As a result of work with Montgomery County, the connections were relocated from CSX property to Montgomery County property and therefore are no longer a CSX issue. To fully accomplish this approach, two connections required resolution. Montgomery County acquired two parcels of land from CSX (not FFGA-funded) and then accepted responsibility for one connection currently under the responsibility of CSX. Storm sewer construction under the CSX railroad is required in several locations. Two jack-and-bore installations of culvert pipes were completed in November 2022. Another 72-inch-diameter culvert installation has been delayed because it is waiting on completion of technical reviews and the design of structural track support during construction.

2.8. Real Estate Acquisition and Relocation

As of ***January 5, 2023,*** the total number of planned property acquisitions is 601, including 464 privately owned properties and 137 public acquisitions. For the private properties, to date, a total of 476 offers were made, including for parcels that were subsequently eliminated, and 234 offers were accepted. All of the original Exhibit 9 FFGA-scope private parcels in the P3 contract are in MTA's possession, some of which are properties that continue in condemnation under the State Highway Administration process. To date, ***411*** of the original 464 private properties have completed settlement, 6 additional properties (not part of the original 464 private properties) are pending settlement, and 53 condemnations remain to be 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 ROE. Montgomery County will prepare a deed of transfer of the Woodmont Plaza property to MTA in return for MTA's transferring the Kaldis property (acquired to provide project access during the construction phase) to Montgomery County at the end of project construction. MTA determined that federal funds were used in the acquisition of the Kaldis property and will therefore engage FTA in the transfer. A conveyance plat has been issued, and MTA continues with due diligence on the purchase agreement and appraisal. Both the Woodmont Plaza and Kaldis properties are slowly moving toward resolution.

All required public properties have been available for construction when needed. Several public property rights transfers are currently being coordinated to accommodate sidewalk changes, utility easements, and ROW exchanges.

As the project has progressed and new utility relocation needs have been identified, additional small parcel acquisitions have been added to the total as utility down-guys. In December 2017, PLTC initially submitted a list of approximately 280 such parcels related to utility relocations and subsequently added to that list. MTA resolved that it would acquire these properties, rather than execute amendments to the utility agreement that would 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. ***As of January 5, 2023,*** the list of additional acquisitions totals 188 parcels, with several more potential acquisitions that may be needed for stormwater facilities. Of these parcels, 54 are public property and will be acquired

by agreement, and 134 are private acquisitions. MTA is tracking the additional parcels (approximately 98 percent are for utility relocations) separately in its ROW tracking system to best manage changes to parcels already acquired or in the process of acquisition. Sixty-seven of the 188 properties are filed for condemnation, excluding those that were subsequently optioned or settled, and 89 are settled. ***MTA estimates that approximately $34.5 million of exposure remains in the acquisition process. This amount has been included in the risk assessment.***

The project required a total of 177 relocations, of which 57 were residential and 120 were businesses. To date, all 177 of those identified relocations have been completed in accordance with the applicable procedures, and no active claims remain to be settled. Also, MTA is monitoring terms of agreement of the property acquisitions discussed above that have not yet completed settlement, because some of them could potentially result in the need for additional relocations. As of October 2022, there are two new relocations related to commercial properties that potentially will be required.

On November 22, 2022, MTA reported that six of seven critical acquisitions have been closed. The remaining acquisition is needed by June 2023 to meet commitments that MTA has made to MTS.

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 MTA shares this information with the PMOC. Based on actual settlement amounts and projected amounts for those not yet closed, settlement/condemnation values are 46.4 percent higher than the SCC budget for ROW. Settlements have not yet been reached for a significant number of properties. Currently, with 134 properties that still need to be closed, the total ROW budget is likely to continue to increase. MTA has included these cost projections into its development of a Final Recovery Plan project cost estimate (see the **Project Cost** section of this report, below).

Due to the extended project duration, there are a number of agreements that will expire before the expected RSA date. MTA and MTS have started the process of identifying the end dates now needed for the agreements and will begin the process of obtaining extensions. MTA has evaluated the risks, estimated the cost of the extensions, and included those costs in a budget contingency. ***MTA estimates that approximately $15 million of exposure remains due to necessary TCE extensions. This amount has been included in the risk assessment.***

The relocation of the existing Parks Maintenance Facility to make way for the siting of the new Purple Line Glenridge OMF was implemented as a negotiated/functional replacement. MTA's Procurement Department led the D-B contract solicitation for the Prince George's County facility. The replacement facility is complete and has been turned over to Prince George's County Parks.

2.9. Third-party Agreements and Utilities

All major third-party agreements (specifically, those agreements with Washington Gas, Verizon, PEPCO, CSX, UMD, Montgomery County Parks, Prince George's County Parks, WMATA, 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 lines that are currently overhead be placed underground when they cross the light rail alignment. To minimize the total cost impact of this change, MTA and Verizon reduced the number of locations where Verizon lines cross the alignment to 34. MTA is of the opinion that this reduction 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 for placing 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 upon in early March 2019. MTA had planned to negotiate the cost responsibility with PLTC and Verizon after all major Verizon relocations were completed. However, upon the departure of PLTC, MTA carries this cost as a betterment outside of the FFGA scope.

In early June 2018, MTA and PLTP completed the negotiation of all remaining third-party agreements with the smaller utility and telecommunications (telecom) 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 to existing executed agreements continues to be evaluated. The current significant items include:

- To date, the design differences with CSX, as discussed earlier in this report, have been adequately resolved through design review and concurrences, and have not resulted in the need to amend the CSX agreement.
- WSSC proposed that the project relocate a 66-inch underground water main that runs through the Glenridge OMF site. The project designers determined that it was acceptable for the water main to remain in place, but that it would need to be under significantly deeper cover, complicating future access. MTA agreed that the line will be relocated. In March 2020, MTA and WSSC agreed on a water main alignment primarily in the median of Veterans Parkway, as well as a strategy for completing the relocation. The original Purple Line project GEC performed the design; WSSC is providing the material; and MTA has separately contracted for the construction, thus avoiding impact to the P3 concessionaire's scope of work. On January 8, 2021, the GEC team submitted the 100 percent design to MTA for review. MTA submitted a revised 100 percent design package to WSSC for review in February 2021. On May 21, 2021, WSSC authorized work, and mobilization began August 9, 2021. Installation of cathodic protection and final site restoration are the only remaining items of this water main work as of ***January 2023***.
- MTA Administrator Holly Arnold, Matt Pollack, and Vernon Hartsock met in December 2021 with the senior administrator at PEPCO to reinforce the need to process Transfer of Ownership Agreements (TOAs) in a timely matter, because delays were putting the completion of OSF construction at risk. After this meeting occurred, the processing of the TOAs accelerated.

- In late July 2022, MTA and MDOT held a summit with the many utility providers that experience relocations related to transportation projects to discuss best practices and improvements to the utility relocation process.

The project has been addressing its interface with 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 has drafted a separate Memorandum of Understanding (MOU) with the Montgomery County Schools system, which was approved by the School Board and signed by the School Superintendent, Montgomery County, and MTA. In the interim, work continued under an executed ROE. A similar MOU was negotiated between MTA and the Rosemary Hills School and was approved at the School Board meeting on February 12, 2019. The Rosemary Hills School also provided an interim ROE, and work at the school has continued unimpeded.

As MTS commences construction work, coordination meetings will be needed to ensure that prior agreements with third parties (utility companies and others) are followed. It is MTA's position that the transfer of third-party agreements from PLTC to MTA and now to MTS should not allow for a change in the terms of the agreements.

2.10. Construction

2.10.1. 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 replacement Parks Maintenance Facility (which is part of the real estate effort and budget), wetlands mitigation, stream mitigation, and possibly some offsite SWM sites. MTA has accomplished forest mitigation without the need for additional construction. The following discussion presents the current status of the MTA construction contracts:

- **Prince George's County Parks Polk Street Replacement Maintenance Facility** – This D-B contract was awarded after the BPW approved the construction contract award on March 20, 2019. NTP for the base scope was issued to the D-B contractor, Forrester Construction Company (Forrester), on April 5, 2019. Forrester mobilized for construction in January 2020, and construction is complete. Parks has taken possession of the facility, and it is currently in the warranty period.
- **Offsite Wetlands Mitigation (Ken-Gar)** – The Wetlands Mitigation construction contract was awarded after the BPW approved the award on September 4, 2019, and NTP was issued to Environmental Quality Resources, LLC on September 5, 2019. The contractor mobilized in December 2019 and completed site surveys and the installation of Erosion and Sedimentation (E&S) controls. Clearing and grubbing began in February 2020. Prince George's County took partial acceptance of the entire project on March 3, 2021. Acceptable growth of vegetation has been achieved, allowing for closure of this project. The one-year warranty review occurred on January 9, 2022, and now the project requires MTA quarterly monitoring until closeout in 2028.

- **Offsite Stream Mitigation (Paint Branch)** – The Stream Mitigation construction contract was awarded after the BPW approved the award on September 4, 2019, 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. Installation of E&S controls was completed and approved by MDE in early February 2020. Substantial completion of construction has occurred. Revegetation has been accepted, and E&S control measures have been removed. The one-year warranty inspection occurred on August 4, 2022, and 1,700 plants were replaced in November 2022.

2.10.2. P3 Scope

Highlights of construction activities ***through January 2023*** throughout the alignment include*:*

- General: As a result of the dispute with PLTP (see the **Project Delivery Method and Procurement** section, above), all project activities slowed in the fall of 2020. In early August 2020, contractor forces, equipment, and materials were demobilized, and work in some areas ceased. Upon legal action from MTA, partial remobilization occurred. Following the court's rescission of the TRO, demobilization and safe-up activities in the construction area began in earnest in mid-September 2020 and continued into October 2020. Following PLTC's exit, MTA engaged a number of former PLTC subcontractors to continue select project activities. This work has been progressing under MTA management with a goal of advancing critical path activities and reducing risk for the replacement D-B contractor.
- Status of ongoing P3 construction items that MTA manages:
  - Utility installations of all types are underway, including construction by the electric provider, PEPCO, and the communications company, Verizon. Water, storm sewer, sanitary sewer, and gas lines are also being constructed.
  - TPSSs were expected to be delivered at a pace of approximately one every other month, beginning with TPSS QYG in November 2022. Site preparation for the installation of TPSSs Q8, QYG, and QYP continues. As of ***January 2023***, PEPCO issues have delayed delivery of the TPSSs, but MTA states that these delays should not delay the delivery of LRVs in mid-2023.
  - In April and May 2021, 29,000 concrete railroad ties were delivered to an onsite storage location for future use by the replacement D-B contractor. As a part of OSF, MTA ordered rail, ties, special trackwork, and turnouts to mitigate supply chain risks. MTA has received and stockpiled some of this material. As of August 2022, materials were received at the Glenridge OMF, and MTS unloaded and placed them in storage for future installation by MTS.
  - Building construction at the Glenridge OMF is essentially complete; however, construction of civil items outside of the building continues, as does final commissioning of systems inside the building. ***MTS was scheduled to take***

possession of the Glenridge OMF on December 31, 2022, but that did not occur. However, MTS currently is working in the OMF, installing embedded track inside the building and correcting nonconforming work related to the interior track. There are six items remaining that MTA cannot yet complete because of long lead times for necessary replacement parts. MTS will assume control of the facility with those items outstanding, and MTA will complete the items when feasible. MTS then will maintain the facility until it is turned over to PLTP. MTS will complete the tracks for storage and testing of LRVs.

- Based on the status of construction, MTA determined which items would be completed before mobilization of the replacement D-B contractor. Some of the subcontractors working now, and especially the utility companies, have resource limitations that may not allow MTA to complete all of the items within the original schedule presented in the IRP. Some OSF utility installation activities fell behind schedule, but MTA implemented mitigation measures to recover the lost time. MTA reports that it is coordinating with MTS to address construction items that have fallen behind the OSF schedule. OSF construction activities were expected to be completed before September 1, 2022, but the most recent schedule provided by MTA indicated a ***December 2022*** completion for most OSF activities, although Verizon relocations have slipped into early 2023. In late July 2022, MTA and MDOT held a summit with the many utility providers that experience relocations related to transportation projects to discuss best practices and improvements to the utility relocation process.
- MTS has taken responsibility for traffic control, E&S controls, security, and other housekeeping activities.
- MTA's Equal Employment Opportunity Officer assigned to the project is Marquis Washington. He is supporting MTS in its hiring program. The former contractor, PLTC, left the project with a shortfall in meeting the requirements of its DBE program, and MTS is required to address this shortfall of approximately $12 million in contract value.

2.11. Vehicle Technology and Procurement

The LRVs are five-car vehicles consisting of 136-foot-long, articulated units. Twenty-six vehicles (22 in operation and 4 spares) will be provided under the FFGA for the opening year. PLTP executed the LRV contract with CAF on June 17, 2016, and issued NTP to CAF on July 5, 2016.

MTA has added two vehicles by change order to CAF's contract, for a total of 28 vehicles to be supplied by CAF. The two additional LRVs will support better operations at RSA. MTS will incorporate these two additional LRVs into its scope of work (in addition to the cost and terms of LRV storage in Elmira).

Vehicle carshell manufacturing activities, which are coordinated with design progress, occurred until the facility in Spain was shut down in late March 2020 due to supply chain issues and to limit the spread of COVID-19. The facility in Spain reopened at approximately 50 percent of its

workforce capacity during the week of April 20, 2020, and is currently fully functional on the Purple Line project. The final assembly facility in Elmira, New York, was shut down in early April 2020 due to New York State restrictions related to COVID-19 and reopened on May 18, 2020, at 50 percent of its workforce capacity. As of early August 2020, both the Spain facility and the Elmira facility were back to 100 percent staffing levels.

The final assembly of vehicles is being performed in CAF's facility in Elmira. MTA, its PMC, and SNC Lavalin are meeting weekly with CAF to resolve all open items for design, testing, and manufacturing activities. First Article Inspections (FAIs) for Interior and Cab were completed on March 18, 2021, and FAIs for Exterior, Roof, and Undercar were completed on April 2, 2021.

Shipment of the first vehicle to the project site was expected in late spring of 2021. The lack of available storage at the yet-to-be-completed Glenridge OMF requires use of an offsite storage facility where vehicles can be stored, occasionally powered, and occasionally "exercised" or moved on tracks. MTA and CAF negotiated an agreement for CAF to store the completed LRVs in Elmira. That storage agreement subsequently transferred to MTS, and its terms are part of MTS's agreement. Twenty-six LRVs have been designated as Ready for Shipment and have been placed into storage in Elmira. MTS has assumed the CAF contract and is preparing and submitting to MTA reports on LRV maintenance activities required during the storage period. MTS's proposed construction schedule establishes when the test tracks will be available for acceptance of the railcars at the Glenridge OMF. Currently, the schedule indicates that initial deliveries of LRVs will commence in the fall of 2023.

The status of the LRV manufacturing as of ***January 30, 2023,*** is:

- To date, 130 carshell segments have been assembled in Spain.
- All 130 carshells have been delivered to CAF's facility in Elmira, New York.
- All ***twenty-six*** full LRVs in the FFGA are designated as Ready for Shipment and are in storage at CAF's Elmira facility.
- Two additional LRVs are under contract. These LRVs are not a part of the FFGA, but rather an addition to the contract by MTA to support rail operations. Assembly of the two additional vehicles is underway in Spain.

2.12. Project Cost

Table 5 summarizes the project's current actual expenditures and EAC, and compares them to the project budget as reported in MTA's SCC Workbook dated June 1, 2016, which is the basis of the project's FFGA. The project's documented expenditures total ***$2,568,436,465 through December 31, 2022.*** Refer also to **Table 4 – FFGA Core Accountability Items** in the **Executive Summary** section of this report for details on the project's planned and actual expenditures. The following table shows project budgets, actual expenditures, and forecast at completion amounts through ***December 2022***, compared with the project budget as reported in MTA's SCC Workbook dated June 1, 2016, and MTA's current working budget.

Table 5 – Project Cost Versus Budget

SCC	Cost Category	Budget (June 1, 2016 SCC Workbook)	Working Budget[1] (Jan. 1, 2017 SCC Workbook)	Expended (as of ***December 31, 2022***)	Forecast at Completion[2]
10	Guideway and Track	$280,620,726	$258,782,885	***$163,903,432***	$371,508,681
20	Stations	$114,857,016	$116,127,445	$11,176,123	$161,159,923
30	Maintenance Facility	$94,155,591	$94,155,591	$82,765,419	$91,890,019
40	Sitework	$521,968,990	$315,482,782	***$394,960,228***	***$784,223,302***
50	Systems	$263,887,313	$263,887,313	***$92,927,616***	$517,256,196
	Subtotal 10–50	$1,275,489,636	$1,048,436,017	***$746,686,510***	***$1,826,038,122***
60	Right-of-Way	$229,600,000	$229,600,000	***$276,087,115***	$329,126,214
70	Vehicles	$212,940,927	$212,940,927	***$131,905,896***	$292,780,600
80	Professional Services (total)	$571,658,114	$798,711,733	***$1,413,756,943***	***$2,260,782,270***
80.01	Project Development	$87,149,878	$85,469,312	$85,469,312	$85,469,312
80.02	Engineering	$139,766,036	$114,618,846	***$182,508,357***	$196,093,309
80.03	Project Management for Design and Construction	$148,555,323	$227,047,206	***$291,091,785***	$655,185,988
80.04	Construction Administration & Management	$83,269,280	$255,349,776	***$450,348,521***	***$748,431,049***
80.05	Professional Liability; Other Non-Construction Insurance	$34,534,796	$34,534,796	***$71,886,994***	$85,701,891
80.06	Legal; Permits; Review Fees by Other Agencies, Cities, etc.	$5,805,117	$10,205,293	***$291,230,720***	$341,013,319
80.07	Surveys, Testing, Investigation, Inspection	$15,164,346	$16,798,570	***$36,439,721***	***$92,333,768***
80.08	Startup	$57,413,338	$53,007,367	$4,781,535	$56,553,635
	Subtotal 10–80	$2,289,688,678	$2,289,688,678	***$2,568,436,465***	***$4,808,727,206***
90	Unallocated Contingency	$90,535,748	$90,000,000	$0	$90,000,000
100	Finance Charges	$26,805,863	$26,805,863	$0	$26,805,863
	Total	$2,407,030,288	$2,407,030,288	***$2,568,436,465***	***$4,808,727,206***

[1]The Purple Line project working budget is based on the currently 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 updated accordingly.

[2]The D-B contractor has been replaced. Draft budget figures, including the work under contract, are being incorporated into this report as they are being developed for the Final Recovery Plan. Not all information in this table is up-to-date as of ***December 2022***. Moving forward, this report will reconcile and report this information as it becomes available and is verified.

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

Allocated Contingency	$59,500,464
Unallocated Contingency (SCC 90)	$90,000,000
Total Contingency	$149,500,464

Through May 2022, the unallocated contingency for the project was proposed at $90,000,000. MTA is refining contingencies, both allocated and unallocated, as it is performing a quantitative risk analysis. RCMP Version 15 includes proposed contingency amounts. Once they are finalized, the updated contingency amounts will be incorporated into this report.

On July 15, 2021, the PMOC requested that MTA provide revised budget tracking information that accurately reflects the combined IRP and OSF expenditures. MTA prepared a summary of actual versus planned expenditures for high-level OSF activities for review by the PMOC. MTA submitted the latest version of the summary that provides information through ***December 2022.*** MTA forecasts OSF expenditures of ***$556.15 million,*** which exceed the original OSF budget by approximately ***$136 million. In January 2023, MTA said that it was unsure whether this overrun would be addressed through the current proposed project contingency or through other funding mechanisms. The PMOC recommends that MTA clarify this issue, because $136 million would consume a significant portion of the contingency proposed in the current draft RCMP, which is under review by FTA and the PMOC.***

With the significant changes to the P3 concessionaire's team, significant changes to the FFGA project cost are occurring. A project Recovery Plan, including a revised project cost estimate with adequate cost contingency to address remaining project risks, is required. Accordingly, MTA prepared an IRP and is preparing a Final Recovery Plan in accordance with the requirements of the FFGA. The Final Recovery Plan must incorporate cost, schedule, and risk details. The PMOC also recommends that MTA continuously update its schedule for review and approval of project plan updates in order to facilitate FTA and PMOC reviews. In October 2022, MTA submitted a draft Final Recovery Plan to FTA and the PMOC for review and comment.

2.12.1. Project Funding

The funding for the project, as reflected in Attachment 3 of the FFGA, is shown in Table 6.

Table 6 – Sources of Federal Funding and Matching Share Ratios

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

	Costs Attributed to Source of Funds	Federal/ Local Match Ratio within Source	All Federal Funds	Local Funds*
New Starts Share of Project		37.4%		

***** Local funds include costs funded by the MDOT Transportation Trust Fund as well as the P3 concessionaire-funded costs. The P3 concessionaire uses funds from the Transportation Infrastructure Finance and Innovation Act, private financing, and equity to fund its costs. The P3 concessionaire-funded costs are treated as "Local Match" for the 5309 New Starts funds. ***This table will be updated upon approval of a revised FFGA.***

As noted in other sections of this report, the project EAC has changed significantly. Budget updates are in progress. The current EAC for SCCs 10 through 90 has increased to $***4,925,533,068.***

Standard Cost Category Worksheets

Table 7 presents the Purple Line project cost estimate, based on the June 1, 2016 update of the SCC Workbook, which is the basis of the current FFGA.

Table 7 – FTA SCC Workbook – Build Main, June 1, 2016 Update

MAIN WORKSHEET-BUILD ALTERNATIVE 0

Maryland Transit Administration						Today's Date		5/24/16
Maryland National Capital Purple Line						Yr of Base Year $		2016
FFGA Application						Yr of Revenue Ops		2022
	Quantity	Base Year Dollars w/o Contingency (X000)	Base Year Dollars Allocated Contingency (X000)	Base Year Dollars TOTAL (X000)	Base Year Dollars Unit Cost (X000)	Base Year Dollars Percentage of Construction Cost	Base Year Dollars Percentage of Total Project Cost	YOE Dollars Total (X000)
10 GUIDEWAY & TRACK ELEMENTS (route miles)	**16.20**	**259,766**	**0.00**	**259,766**	**$16,035**	**22%**	**12%**	**280,621**
10.01 Guideway: At-grade exclusive right-of-way	3.26	2,978		2,978	$913			3,244
10.02 Guideway: At-grade semi-exclusive (allows cross-traffic)	9.67	12,497		12,497	$1,292			13,205
10.03 Guideway: At-grade in mixed traffic	1.20	12,862		12,862	$10,718			13,961
10.04 Guideway: Aerial structure	0.46	67,018		67,018	$145,692			73,222
10.05 Guideway: Built-up fill	0.00	0		0				0
10.06 Guideway: Underground cut & cover	0.00	0		0	$0			0
10.07 Guideway: Underground tunnel	0.36	58,344		58,344	$162,068			62,735
10.08 Guideway: Retained cut or fill	1.25	20,805		20,805	$16,644			22,693
10.09 Track: Direct fixation		6,948		6,948				7,570
10.10 Track: Embedded		29,159		29,159				30,811
10.11 Track: Ballasted		30,012		30,012				32,575
10.12 Track: Special (switches, turnouts)		19,141		19,141				20,606
10.13 Track: Vibration and noise dampening		0		0				0
20 STATIONS, STOPS, TERMINALS, INTERMODAL (number)	**21**	**103,521**	**0**	**103,521**	**$4,930**	**9%**	**5%**	**114,857**
20.01 At-grade station, stop, shelter, mall, terminal, platform	16	23,884		23,884	$1,493			26,295
20.02 Aerial station, stop, shelter, mall, terminal, platform	3	45,703		45,703	$15,234			51,031
20.03 Underground station, stop, shelter, mall, terminal, platform	2	30,698		30,698	$15,349			33,933
20.04 Other stations, landings, terminals: Intermodal, ferry, trolley, etc.	0	0		0				0
20.05 Joint development		0		0				0
20.06 Automobile parking multi-story structure		0		0				0
20.07 Elevators, escalators		3,236		3,236				3,599
30 SUPPORT FACILITIES: YARDS, SHOPS, ADMIN. BLDGS	16.20	**87,590**	**0**	**87,590**	**$5,407**	**7%**	**4%**	**94,156**
30.01 Administration Building: Office, sales, storage, revenue counting		29,571		29,571				31,894
30.02 Light Maintenance Facility		951		951				1,062
30.03 Heavy Maintenance Facility		44,357		44,357				47,842
30.04 Storage or Maintenance of Way Building		0		0				0
30.05 Yard and Yard Track		12,710		12,710				13,358
40 SITEWORK & SPECIAL CONDITIONS	16.20	**481,579**	**2,405**	**483,984**	**$29,876**	**41%**	**22%**	**521,969**
40.01 Demolition, Clearing, Earthwork		45,651		45,651				48,789
40.02 Site Utilities, Utility Relocation		143,356	1,596	144,952				154,044
40.03 Haz. mat'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
50 SYSTEMS	16.20	**225,424**	**10,376**	**235,800**	**$14,556**	**20%**	**11%**	**263,887**
50.01 Train control and signals		53,515		53,515				60,164
50.02 Traffic signals and crossing protection		32,772		32,772				36,580
50.03 Traction power supply: substations		29,992		29,992				32,849
50.04 Traction power distribution: catenary and third rail		42,788		42,788				47,710
50.05 Communications		33,620		33,620				37,775
50.06 Fare collection system and equipment		2,918	10,376	13,294				15,568
50.07 Central Control		29,819		29,819				33,240
Construction Subtotal (10 - 50)	16.20	**1,157,880**	**12,781**	**1,170,661**	**$72,263**	**100%**	**52%**	**1,275,490**
60 ROW, LAND, EXISTING IMPROVEMENTS	16.20	**186,092**	**37,187**	**223,279**	**$13,783**		**10%**	**229,600**
60.01 Purchase or lease of real estate		166,132	32,483	198,615				203,143
60.02 Relocation of existing households and businesses		19,959	4,704	24,664				26,457
70 VEHICLES (number)	**25**	**192,691**	**0**	**192,691**	**$7,708**		**9%**	**212,941**
70.01 Light Rail	25	186,771		186,771	$7,471			206,351
70.02 Heavy Rail	0			0				0
70.03 Commuter Rail	0			0				0
70.04 Bus	0			0				0
70.05 Other	0	5,920		5,920				6,590
70.06 Non-revenue vehicles	0			0				0
70.07 Spare parts	0			0				0
80 PROFESSIONAL SERVICES (applies to Cats. 10-50)	16.20	**535,369**	**6,032**	**541,401**	**$33,420**	**46%**	**24%**	**571,658**
80.01 Project Development		87,150		87,150				87,150
80.02 Engineering		136,688		136,688				139,766
80.03 Project Management for Design and Construction		131,594	5,872	137,466				148,555
80.04 Construction Administration & Management		76,410		76,410				83,269
80.05 Professional Liability and other Non-Construction Insurance		32,697		32,697				34,535
80.06 Legal; Permits; Review Fees by other agencies, cities, etc.		5,530	88	5,618				5,805
80.07 Surveys, Testing, Investigation, Inspection		14,214	73	14,287				15,164
80.08 Start up		51,086		51,086				57,413
Subtotal (10 - 80)	16.20	**2,072,032**	**56,000**	**2,128,032**	**$131,360**		**95%**	**2,289,689**
90 UNALLOCATED CONTINGENCY				**81,652**			**4%**	**90,536**
Subtotal (10 - 90)	16.20			**2,209,684**	**$136,400**		**99%**	**2,380,224**
100 FINANCE CHARGES				**24,128**			**1%**	**26,806**
Total Project Cost (10 - 100)	16.20			**2,233,812**	**$137,890**		**100%**	**2,407,030**
Allocated Contingency as % of Base Yr Dollars w/o Contingency				2.70%				
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

2.13. Project Schedule

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. Later submissions of schedule updates from PLTC were not approved for various reasons, but the primary reason was

the inability of MTA and the P3 concessionaire to agree on the schedule impacts of the approximately one-year delay in the execution of the FFGA. It should be noted that the initial delay went through the dispute resolution process, and it was ruled that the initial environmental lawsuit delays yielded 160 days of concurrent and noncompensable delay. In response to a letter that FTA issued to MTA in early August 2018 expressing concerns about the amount of time that the project had advanced without an approved schedule, MTA prepared a working schedule update of the master project schedule. The working schedule update was based on the negotiations of the P3 contract schedule occurring at the time, which had been ongoing between MTA and PLTP since late 2017 and which have been detailed in prior PMOC Monthly Monitoring reports; however, the update is not based on a mutually agreed-upon P3 contract schedule. The working schedule update is titled "MTA Master Schedule August 2018" and was progressed through August 31, 2018. Although the MTA Master Schedule August 2018 is not a final recovery schedule that reflects the mutual agreement of MTA and PLTP, it does provide a more accurate representation of the current project status than the last approved master project schedule, which is dated March 15, 2017.

The most significant differences between the prior approved master project schedule (March 15, 2017) and the MTA Master Schedule August 2018 (the proposed new baseline schedule) were a change in the schedule critical path from going through Segment 4 (Plymouth Tunnel) to going through Segment 7 (Riverdale aerial structure) and a slip in the PLTP Commence Revenue Service date from March 11, 2022, to October 28, 2022. However, according to the MTA Master Schedule August 2018 (the proposed new baseline schedule), the Purple Line was still scheduled to start revenue service earlier than the FFGA RSA date of December 31, 2022.

When PLTC was the D-B contractor, it was submitting monthly schedule progress updates for its scope in accordance with the P3 contract. MTA then performed monthly progress updates of the MTA master schedule based on the progress updates received from PLTC as well as from its internal staff, relative to the MTA Master Schedule August 2018 baseline. All of the schedule progress updates that PLTC submitted were rejected by MTA.

The MTA master schedule progress update dated February 29, 2020, continued to show the start of revenue service occurring before the FFGA RSA date of December 31, 2022, and included the major interim milestones of the Commencement of Trial Running of June 8, 2022, and the PLTP Commencement of Revenue Service of December 26, 2022.

When 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 schedule submitted by the P3 concessionaire, which MTA never accepted, reflected a phased project opening, with the first phase opening at the end of 2022, and the second phase opening in mid-2023.

In late April 2020, PLTC notified PLTP that, based on its forecasting of schedule delays on the project (which were not mutually agreed upon), PLTC intended to exercise the clause in its P3 contract with PLTP that allows it to terminate the contract for design and construction services under the P3 contract if delays exceed 365 days. MTA sent a formal request to PLTP for a response that included a definitive path forward for PLTP's intended management of the P3 contract. On

May 14, 2020 (the date the response to the formal request was due), PLTP submitted its response, which stated that PLTP intended to continue to negotiate with PLTC to retain PLTC as part of the P3 concessionaire team. On June 23, 2020, PLTP sent a formal Notice of Unconditional Election to Terminate the P3 Agreement, although PLTP indicated a willingness to negotiate a settlement. On June 24, 2020, MTA sent a Formal Notice of Concessionaire Default. This notice essentially refuted the validity of the PLTP delay claims and stated that if PLTP failed to perform, MTA had a number of options related to the agreement. Through late July 2020, construction activities continued at the level previously planned, and construction progress was not affected.

In early August 2020, PLTC and subcontractors demobilized equipment, materials, and personnel. In response, the Maryland Attorney General filed a motion for a TRO that prevented PLTP from abandoning the work or demobilizing. Upon issuance of the TRO, the contractor and subcontractors remobilized some equipment and restarted many construction activities. A hearing to uphold or rescind the TRO was held on September 14, 2020. The court rescinded the TRO, allowing PLTP to leave the project. Through negotiation, it was determined that PLTP would remain on the project, although PLTC would not.

MTA contracted with numerous subcontractors to continue the project. MTA developed organizational options with respect to construction management, resident engineers, inspectors, and other staff needed to move forward select project activities.

It was certain that the project schedule as reflected in the FFGA would be negatively affected, and a Recovery Plan for the project, including a revised project schedule with adequate schedule contingency to address remaining project risks, would be required. MTA submitted its draft IRP to FTA in December 2020, and FTA approved the IRP on January 12, 2021. A schedule for the period during which the D-B contractor was to be replaced was developed, and MTA monitored project progress against the schedule. On November 5, 2021, PLTP announced the selection of the preferred replacement D-B contractor, MTS.

PLTP and MTA continued to coordinate during the financial process and State of Maryland approvals for the replacement D-B contractor. In addition, MTA has successfully coordinated other key issues that needed to be resolved before PLTP could execute the contract with MTS.

The following is a summary of IRP milestones:

- January 6, 2021 – PLTP issued an RFQ for replacement D-B contractors.
- March 8, 2021 – PLTP issued an RFP to the short list of replacement D-B contractors based on the RFQ.
- October 15, 2021 – PLTP received RFP responses.
- November 5, 2021 – PLTP and MDOT/MTA selected the replacement D-B contractor firm (MTS).
- January 26, 2022 – BPW approved the replacement D-B contractor, contract amendments, schedule, cost, and financing.
- April 11, 2022 – Private activity bonds went to market.

- September 12, 2022 – MTA approved the IBS.
- October 14, 2022 – MTS was required to have commenced action on the 11 critical elements that are specified in the D-B contract. At the December 2022 PMOC meeting, MTA confirmed that MTS missed the 180-day window to commence action on 3 of the 11 critical elements. MTA and MTS are coordinating these specific activities and generally agree that a delayed start for each is logical based on construction sequencing. These items are not currently on the critical path.
- October 28, 2022 – MTA was required to have submitted a draft Final Recovery Plan to FTA and the PMOC for review and comment. On October 4, 2022, MTA submitted the draft Final Recovery Plan to FTA and the PMOC for review.

A milestone not specifically mentioned in the IRP is the requirement to extend the current RSD date. The PMOC therefore adds the following milestone to this list:

- December 31, 2022 – The RSD in the original FFGA is December 31, 2022. MTA must request an extension to the current RSD identified in the FFGA. FTA will consider approving this extension, which also must include a revised Estimate at Completion (EAC) ***that includes*** adequate schedule and cost contingency. FTA's approval of the Final Recovery Plan is a critical step in approval of a revised FFGA budget and RSD.

The resolicitation of a replacement D-B contractor required that the project have a Final Recovery Plan, prepared in accordance with the requirements of the FFGA and including cost, schedule, and risk details.

Current critical path analysis indicates that the critical path runs through the Segment 5 activities of installation of Civil and Systems packages. There are ten other near-critical paths with activities that have less than two weeks of float. MTA reports that MTS's IBS includes a proposed sequence and duration of activities that have zero float and a completion date in October 2026. MTA has used MTS's approved IBS to develop a master schedule that incorporates operational readiness activities and schedule contingency (float).

The most recent master schedule provided by MTA, dated November 18, 2022, reflects MTS's updates since the IBS was approved in September 2022. This schedule update is a cause for concern because, even without any recovery, nearly 7 months of the 12 months of schedule float may already be consumed. The PMOC recommends that MTA provide a description of what caused a seven-month slip just two months after the IBS was approved. MTA should also determine recovery strategies or if necessary a revised RSA date, because, in the PMOC's opinion, five months of remaining schedule contingency is not adequate to provide confidence in the project schedule or budget. MTA states that there is a focus on schedule recovery and is currently optimistic that three months of schedule recovery is possible. The PMOC recommends that a viable strategy be incorporated into the Final Recovery Plan.

The PMOC recommends that MTA continue to refine the project's management plan reviews and approval dates. The PMOC further recommends that MTA stagger submittals of management

plans to make approvals more efficient, because conducting multiple simultaneous reviews typically tends to take longer.

2.13.1. Key Milestones

Table 8 shows the current key milestone dates for the project for the last approved (March 2017) progress update of the master project schedule, the MTA Master Schedule August 2018 (proposed new baseline schedule), and the February 29, 2020, progress update of the MTA master schedule. Issuance of NTP to PLTP on April 14, 2022, triggered the contract requirement for an MTA-approved MTS IBS for the full project to be in place within 120 days of financial close (by August 14, 2022). MTS submitted its IBS, and on September 12, 2022, MTA approved it. MTS submitted the 120-day mobilization schedule, which MTA also has approved. In January 2022, MTA submitted a draft version of the master schedule for FTA and PMOC review, and review comments were transmitted to MTA in April 2022.

In August 2022, MTA and the PMOC discussed the current state of the baseline schedule, particularly the inclusion of adequate float to address schedule risk. The P65 date that MTA proposed before the risk workshop held in May 2022 included approximately seven months of float and an RSA date in October 2026. The current but unapproved schedule (dated October 3, 2022) proposed by MTS has a similar RSA date but adds approximately one year of contingency to reach an "FFGA Revenue Service Date – Final Completion" of October 15, 2027. In the PMOC's opinion, float should be assigned to specific project activities, and the project budget must include the cost related to the float duration. A budget that does not include the cost (in the form of contingency) for the float period in the schedule is not realistic. MTA concurs that the master schedule will have float added to specific activities where applicable, logical, and as appropriate. In October 2022, MTA provided a schedule in .XER format to the PMOC for the PMOC's analysis of the schedule.

The PMOC recommends that MTA include adequate schedule contingency and the corresponding budget contingency when developing the RSA date and the EAC that are incorporated into the Final Recovery Plan. The following information will be updated once the schedule reviews and approvals are complete.

Table 8 – Key Milestone Dates

Activity	Last Approved Master Project Schedule (March 15, 2017)	MTA Master Schedule August 2018 (working baseline)	MTA Master Schedule February 29, 2020 Update
Locally Preferred Alternative Approval Date	08/04/2009 (A)[a]	---	---
FTA Approval to Enter Preliminary Engineering	10/07/2011 (A)	---	---
FTA ROD	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)	---	---

Activity	Last Approved Master Project Schedule (March 15, 2017)	MTA Master Schedule August 2018 (working baseline)	MTA Master Schedule February 29, 2020 Update
P3 Financial Proposals Due	12/08/2015 (A)	---	---
Evaluation and Announcement of Selected P3 Proposer	01/02/2016 through 03/02/2016 (A)	---	---
BPW Approval of P3	04/06/2016 (A)	---	---
P3 Commercial Close	04/07/2016 (A)	---	---
Limited NTP for P3 Engineering	04/07/2016 (A)	---	---
MTA Submit FFGA Application	05/24/2016 (A)	---	---
P3 Financial Close	06/17/2016 (A)	---	---
FFGA Signed	08/22/2017 (A)	---	---
Start of First Major Construction Activity	08/28/2017 (A)	---	---
All Significant ROW Acquisition and Relocation	As needed by construction	---	All P3 contract Exh. 9 properties in possession
Commencement of Trial Running	---	03/09/2022	06/08/2022
P3 Ready to Commence Revenue Service	TBD	10/28/2022[b]	12/26/2022
MTA Opens for Revenue Service	03/2022	---	12/26/2022
Revenue Operations Date (includes contingency)	12/31/2022	---	---
FFGA RSA Date (includes contingency)	12/31/2022	12/31/2022	12/31/2022

[a] A = Actual.
[b] P3 ready to commence revenue service date is based on MTA's working version of an updated integrated master project schedule, which is based on earlier negotiations between MTA and the P3 concessionaire. ***MTA is currently preparing a master schedule update.***

2.13.2. 90-day Look-ahead

The critical 90-day (***February 2023 through April 2023***) look-ahead includes activities planned in general accordance with the IRP. MTA and MTS are preparing four-week look-ahead schedules to manage interim activities. Key activities that MTA has identified for the short term are:

- Retaining wall construction in multiple locations.
- Water and sanitary sewer construction in multiple locations, including the completion of the 66-inch WSSC water main.
- ***Completion of the police force alternatives study.***
- ***Completion of the Tiger Team schedule mitigation recommendations.***
- Overhead electrical line, communications line, and buried gas line relocations.
- ***MTA's closeout of Glenridge OMF punch lists and MTS's track and OCS construction.***
- Response to comments and revisions of draft management plans based on FTA and PMOC review. Review, comment, and coordination with the PMOC and FTA on the plans are expected to occur in the next 60 days.

- Activities related to the new D-B contractor, including the continuation of required activities by MTS on the key structures and other elements on the critical path.

2.13.3. Critical Path Activities

In the MTA master schedule update dated February 29, 2020, for which final agreement with PLTP was never reached, the critical path goes through Segment 7 (primarily the "test track"), including finalization of approvals from MDE; civil, track, traction power, OCS, and communications construction along Veterans Parkway and Ellin Road; LRV site and dynamic testing; emergency drills; trip time testing; revenue service demonstration testing; safety certification; and other activities leading to revenue service. Since the departure of PLTC, MTA has been re-evaluating the entire master project schedule, especially the critical path. The most recent draft master project schedule identifies the October 15, 2021 RFP submittal and contracting with the replacement D-B contractor as near-term critical path activities. Before the approval of a Final Recovery Plan, FTA and the PMOC will review and provide input on the schedule information, including the schedule contingency, to be included in a revised RSA date and FFGA.

2.14. Project Risk

MTA has established a risk management organization that is defined in the RCMP and 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 the Risk Register.

During the approximately one-year period during 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 quantitative risk assessments, or perform formal updates of the Risk Register. However, the Purple Line project management team did assess and respond to the risks associated with the unforeseen chain of events related to the lawsuit.

The project team resumed formal risk management 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 in draft form in January 2018, and was updated further and reissued in March 2018. As an ongoing process, MTA currently is performing updates of the Risk Register periodically, though somewhat less frequently than bimonthly (the frequency established in its RCMP). The current status of the RCMP is discussed in the **Project Management Plan and Sub-plans** section of this report, above.

MTA provides copies of significant updates of the Risk Register to FTA and the 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; the project's top five project risks are included as Attachment C of this report and are updated quarterly. A risk management workshop was held on January 26, 2021, at which the PMOC and FTA participated. The workshop focused on the resolicitation period for the replacement D-B contractor (January through October 2021).

Now that the replacement D-B contractor is under contract, risk updates are being prepared. A risk workshop was held the week of May 2, 2022, at which the PMOC and FTA participated in an OP 40 risk and contingency review that evaluated cost, schedule, and project contingency. Confirmation and finalization of the Risk Register, the quantitative risk assessment, and an update of the RCMP are components of the required Recovery Plan. Because of the preliminary nature of the baseline schedule information that is currently available, further schedule analysis will be required once MTA submits a comprehensive baseline schedule. FTA provided a summary of the risk workshop to MTA on June 22, 2022, for MTA's consideration and incorporation into its management plans and contingency evaluation. MTA provided responses to FTA comments on the risk workshop summary on July 15, 2022, and clarification on August 25, 2022. In October 2022, MTA submitted RCMP Version 15 to FTA and the PMOC for review.

2.15. Quality Assurance/Quality Control

The project's QA/QC is addressed in Section 10 of the PMP, the Quality Program Plan, and the updated MTA QAP Revision 8.0, which incorporates the implementing quality plans prepared by PLTC. The most current versions of the PMP and the QAP are as discussed in the **Project Management Plan and Sub-plans** section of this report, above. MTA also submitted to FTA the package of inter-related quality plans prepared by the P3 concessionaire after it was reviewed and approved by MTA.

MTA has obtained PLTP's quality logs and other applicable documents and procedures. This information is being used during the transition to the replacement D-B contractor. Several former subcontractors are now under contract with MTA and conducted QA/QC activities during the replacement D-B contractor solicitation period. ***The budget to address nonconforming construction by PLTC is a concern. MTA incorporated known defects into the MTS contract; however, MTA has not clarified the specific budget that will be used to rectify defects found since the contract with MTS was executed. The magnitude of this potential budget impact also requires clarification by MTA.***

The project has continued to conduct its monthly meeting to review the QA/QC activities performed by the Purple Line project team, including those activities performed by the PMC and the GEC. Documentation from this meeting is distributed and maintained. The project's Monthly Progress Report to FTA also contains a summary of the significant current QA/QC activities and events, including quality audits and quality reviews. ***January 2023,*** quality management topics included quality process improvements, records storage, field inspections to close open issues, equipment testing inspections, OMF systems commissioning, records spot checks, approval of MTS's quality management plans, MTS offsite inspections at the fabrication location for OCS poles, and planning of monthly QC meetings.

In November 2021, MTA's quality lead for the Purple Line project, Rene Schroeder, retired. Roland Carroll, currently the Purple Line systems and construction safety lead, has added the quality lead role to his other Purple Line roles. In February 2022, MTA provided a white paper outlining Mr. Carroll's experience, his recent training, and the proposed supporting staff related to

the new quality management role. The PMOC is evaluating this information and will provide a recommendation.

2.16 Safety and Security

PLTP has conducted 44 Preliminary Hazards Analysis (PHA) workshop sessions to date. These workshops were held to resolve MTA's comments on the PHAs completed to date.

To support the ultimate Safety and Security Certification of the Purple Line project, the PLTP System Safety team completed development of its first DCCC in May 2017 and submitted it to MTA for approval. MTA (assisted by the PMC) reviews the DCCCs as part of the Final Design package, according to the established submittal review process. According to PLTP, the DCCCs were being verified before the issuance of RFC packages. To date, an estimated ***96.6*** percent of the DCCCs have been verified. All previous comments on PLTP's Certified Elements List (CEL), which includes operations and maintenance and system integration testing elements, have been resolved, and CEL Revision 2 was accepted in March 2020. The Certified Items List (CIL) Revision 1 has been accepted. The next revision of the CIL is expected soon, now that the replacement D-B contractor is under contract. MTA will provide the revised CIL to FTA and the PMOC as soon as it is completed. Approximately ***10.6*** percent of the CSCCs have been verified to date.

MTA chairs a Safety and Security Certification Committee (SSCC) that reviews, comments on, and approves any PLTP hazard management and safety and security certification issues. The first meeting of the MTA SSCC was conducted on March 20, 2018. Since July 11, 2018, the SSCC meeting has been held regularly and will continue as a monthly meeting until the level of activity requires more frequent meetings.

Monthly SSCC meetings continue. Resolution of comments is still needed from Atkins (the designer) for a previous blast analysis review, ***but as of January 2023, MTA believes that*** resolution of these comments is nearly complete. In addition, a progressive collapse analysis of the Carr Building currently being conducted may lead to remedial actions that MTA must implement. Neither the cost nor the funding source of these remedial actions is known. Use of funds from the Purple Line contingency budget may be required.

PLTC submitted a Threat and Vulnerability Assessment, and on July 15, 2019, MTA accepted and verified the comment responses and approved PLTC's Threat and Vulnerability Assessment. PLTC then completed its Threat and Vulnerability Assessment process.

MTA continues to conduct bimonthly Fire/Life Safety meetings with Montgomery County and Prince George's County. The meetings provide a basis for the counties' emergency responders to understand the features of the Purple Line systems and to resolve any concerns. Topics of discussion include: Police Department MOUs; Fire Department connection and hydrant locations; access, signage, and station naming conventions; MOUs for training; the PHA at the Glenridge OMF maintenance gate; station names; and addresses/emergency phone numbers for locations along the corridor. Other topics of discussion have included closed circuit television cameras and Mobile Emergency Vehicle Response access. ***It is the opinion of the PMOC that MTA should***

emphasize resolving the project's outstanding Fire/Life Safety issues, because progress on the resolution of these issues is not apparent.

MTA police continue coordinating MOUs with local safety agencies and developing MOUs with police jurisdictions (such as the Maryland National Capital Park Police) along the Purple Line. These MOUs are related to training the existing police agencies on how to respond to transit situations. During the September MTA/PMOC meeting, a larger related issue was discussed at length. The SSOA staff participated in this discussion as well. The crux of the issue is that MTA does not have a police force located in proximity to the Purple Line. MTA has hired a consultant team that is analyzing alternatives for providing security and fare enforcement services for the Purple Line. Alternatives include: expanding MTA's enforcement services geographically, bringing on a third party to provide these services through a contract, or sharing police services with another party. The PMOC believes that this issue is significant, and although the currently forecast RSA date is in 2027, MTA should determine its preferred alternative for providing Purple Line security and fare enforcement services without delay and promptly move toward implementation. ***On January 30, 2023, MTA stated that the report which summarizes alternatives for these security and fare enforcement services is in final review. The SSOA representatives who are monitoring the Purple Line development requested that MTA provide them the draft report and consider the SSOA's comments before submitting the alternatives report to MTA's upper management.***

As required by the P3 contract, PLTP was responsible for directly implementing many of the safety and security requirements for the project, including those for construction safety and the collection and maintenance of the Occupational Safety and Health Administration (OSHA) safety statistics for the project. PLTC performed this work until its departure from the project, at which time MTA assumed responsibility. MTS is now transitioning into the safety and security role that PLTC held. MTS and MTA are holding regular safety and security coordination meetings.

Safety continues to be acceptable, although with an increase of MTS activities, recordable incidents are increasing. Also, MTS appears to be having difficulties in its communication of incident reporting. MTA determined the methodology for reporting of, and assumed reporting of, OSHA statistics for the project under OSF. For the period from January 1, 2022, through ***October 2022***, the OSHA statistics are:

- TCIR (Total Case Incident Rate) (Recordable Rate):
  - Actual: ***2.80***
  - MTA goal: 0.45
  - National average: 2.8 (for heavy civil construction)
- LTIR (Lost Time Injury Rate) (Recordable Rate):
  - Actual: ***2.80***
  - MTA goal: 0.00
  - National average: 0.9 (Construction – heavy civil)

MTA had assumed responsibility for safety oversight until MTS assumed control of the project. As of December 2022, MTA reports that MTS needs coaching on expectations for the required reporting of safety statistics.

In late October 2022, MTA submitted updated SSMP and SSCP documents in conjunction with the updated PMP. FTA and the PMOC will review and provide comments on these documents.

See the **Project Management Plan and Sub-plans** section of this report, above, for the status of the sub-plans of the PMP related to safety and security. Attachment B of this report includes additional quarterly safety and security-related information for the Purple Line project.

2.17 Americans with Disabilities Act

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

Accessibility and compliance with the ADA are required as part of the functional requirements for stations and guideway, and as part of the codes and standards for LRVs within the P3 contract (Book 2, Part 2) for the Purple Line project. MTA and its consultants reviewed the design packages prepared by PLTC. Based on project reviews conducted by the PMOC, MTA has confirmed that it included ADA compliance in its QA oversight reviews of PLTC's design packages. A full-time Purple Line project Maintenance of Traffic construction representative also monitors whether temporary pedestrian accommodations during construction continue to comply with ADA requirements. ADA compliance is included in the PMOC's periodic project reviews, during which timely project ADA-related items are discussed. Such discussions during the PMOC's most recent reviews identified no current ADA-related issues.

2.18 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 also to the 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's standard clauses for its procurements, and the P3 contract contains explicit Buy America language in its Appendix 16.

As designs were finalized, PLTC encountered more incidences when as-designed commodities that are compliant with Buy America provisions were not available. However, because PLTC was responsible for the design and had committed to compliance with Buy America provisions, MTA held PLTC responsible for complying with the regulations and the P3 contract in this respect. The Purple Line project team continues to spot check materials being used in ongoing construction, and especially utility relocations, because Buy America compliance of utility-supplied materials has historically been more troublesome and because utility relocation constitutes a significant percentage of the current construction activity. During November and December 2019, MTA QA

inspectors issued Quality Oversight Assessment Reports (QOARs) related to two potential Buy America non-compliance cases at the Glenridge OMF. PLTC submitted responses to these QOARs 055 and 056 in January 2020, and MTA replied in disagreement with PLTC's conclusions in its submittal.

PLTC passed the Buy America requirements on to the vehicle supplier, CAF. The Buy America Pre-Award audit was conducted by Virginkar and Associates, Inc., which concluded that there is reasonable certainty that CAF will satisfy the Buy America requirements as stated in 49 Code of Federal Regulations (CFR) 661. MTA's interpretation is that, because the vehicle RFP was advertised before December 4, 2015 (which is the date of passage of the Fixing America's Surface Transportation Act, also known as the FAST Act), the 49 CFR 661 Public Interest Waiver that limits domestic content to a minimum of 60 percent, as opposed to the escalating domestic content requirements of the FAST Act, applies in this case. During the week of October 2, 2017, an intermediate post-award Buy America audit was conducted of CAF's facility in Elmira, New York, for added confidence that the post-delivery audit would not identify issues. There were no significant findings, and, based on the audit, the domestic content of the LRVs is currently estimated at approximately 62 percent, compared to the required 60 percent for these vehicles. CAF is targeting 65 percent domestic content in the completed vehicle. MTA has also been in communication with the U.S. Maritime Administration regarding the use of U.S. Flagship carriers for the transport of carshells from Spain to the United States for final assembly.

In July 2022, the PMOC asked MTA about the status of the Buy America requirements with respect to the LRV supplier. MTA provided an update on August 11, 2022, confirming that the most recent audit was performed in 2017. ***The project's Buy America compliance audit for the LRVs was conducted on November 14, 2022. In January, CAF provided additional documentation requested to assist with evaluation of Buy America compliance. The draft audit report will be available by March 1, 2023.***

2.19 Start-up, Commissioning, Testing

TBD

2.20 Before-and-After Study Reporting

TBD

2.21 Lessons Learned

The resolicitation of a D-B contractor has given MTA the opportunity to apply several lessons learned to the new D-B contract documents and to amend the PLTP agreement. After the May 2022 risk workshop with MTA and the PMOC, MTA provided an update on opportunities for improvement that MTA had identified during the resolicitation and is incorporating into the project.

2.22 Action Items

Action Items are identified at MTA/FTA Quarterly Progress Review Meetings, at MTA/PMOC Monthly Update Meetings, and at MTA/FTA Biweekly New Starts Progress Conference Calls. Action Items from the most recent biweekly conference call on ***December 20, 2022***, are as follows:

1. MTA will provide updates to the OSF schedule, including when management plan drafts are completed. OPEN – This item will remain open until the Final Recovery Plan has been approved.
2. MTA will provide a list of meetings to the PMOC, so the PMOC can consider attending specific meetings during monthly site visits. OPEN
3. MTA will provide the updated project communications plan when complete. OPEN
4. MTA will provide documentation from the schedule mitigation Tiger Team effort when available. OPEN

ATTACHMENT A – LIST OF ACRONYMS

ADA	Americans with Disabilities Act
ATC	Alternate Technical Concept
BFMP	Bus Fleet Management Plan
BPW	Board of Public Works
CAF	Construcciones y Auxiliar de Ferrocarriles
CEL	Certified Elements List
CFR	Code of Federal Regulations
CIL	Certified Items List
CSCC	Construction Specification Conformance Checklist
CSX	CSX Corporation
D-B	Design-Build
DBE	Disadvantaged Business Enterprise
DCCC	Design Criteria Conformance Checklist
DNR	Maryland Department of Natural Resources
E&S	Erosion and Sedimentation
EAC	Estimate at Completion
FAI	First Article Inspection
FCP	Forest Conservation Plan
FFGA	Full Funding Grant Agreement
FLSSC	Fire Life Safety and Security Committee
FTA	Federal Transit Administration
GEC	General Engineering Consultant
IBS	Initial Baseline Schedule
IRP	Interim Recovery Plan
LOD	Limits of Disturbance
LRT	Light Rail Transit
LRV	Light Rail Vehicle
LTIR	Lost Time Injury Rate
MCC	Management Capacity and Capability

MDE	Maryland Department of the Environment
MDOT	Maryland Department of Transportation
MOU	Memorandum of Understanding
MTA	Maryland Transit Administration
MTS	Maryland Transit Solutions
N/A	Not Applicable
NEPA	National Environmental Policy Act
NTP	Notice to Proceed
OCS	Overhead Contact System
OMF	Operation and Maintenance Facility
OP	Oversight Procedure
OSF	Operation Step Forward
OSHA	Occupational Safety and Health Administration
P3	Public-Private Partnership
PEPCO	Potomac Electric Power Company
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 Management Plan
RCMP	Risk and Contingency Management Plan
RFC	Released for Construction
RFMP	Rail Fleet Management Plan
RFP	Request for Proposals
RFQ	Request for Qualifications
ROD	Record of Decision

ROE	Right of Entry
ROW	Right-of-Way
RSA	Revenue Service Availability
RSD	Revenue Service Date
SCC	Standard Cost Category
SEIS	Supplemental Environmental Impact Statement
SSCC	Safety and Security Certification Committee
SSCP	Safety and Security Certification Plan
SSMP	Safety and Security Management Plan
SSOA	State Safety Oversight Agency
SSP	Safety and Security Plan
SSPP	System Safety Program Plan
SSTC	Silver Spring Transit Center
SWM	Stormwater Management
TBD	To Be Determined
TCE	Temporary Construction Easement
TCIR	Total Case Incident Rate
TIFIA	Transportation Infrastructure Finance and Innovation Act
TOA	Transfer of Ownership Agreement
TPSS	Traction Power Substation
TRO	Temporary Restraining Order
UMD	University of Maryland
USACE	U.S. Army Corps of Engineers
WMATA	Washington Metropolitan Area Transit Authority
WSSC	Washington Suburban Sanitary Commission

ATTACHMENT B – SAFETY AND SECURITY CHECKLIST

Note: References to the System Safety Program Plan (SSPP), Safety and Security Plan (SSP), and 49 Code of Federal Regulations (CFR) Part 659 as they are contained in the FTA standard checklist form have been retained in the following update. However, it is recognized that Maryland Transit Administration is transitioning to the Public Transportation Agency Safety Plan and 49 CFR Parts 673 and 674.

Refer to the July 2020 PMOC Monitoring Report for the most recent update.

ATTACHMENT C – TOP PROJECT RISKS

An internal risk workshop to support the Interim Recovery Plan (IRP) was held on January 26, 2021. Maryland Transit Administration (MTA) and Purple Line Transit Partners (PLTP) used information from the meeting as they solicited a replacement Design-Build (D-B) contractor. The MTA Risk Management Committee is tracking the following risks identified during development of the IRP:

Procurement/Settlement Risks:

- PLTP solicitation of replacement D-B contractor:
  - Market resolicitation in a compressed time frame
  - Delay in finalizing solicitation
  - Weak bidder interest – two or fewer proposals
- D-B contract and other contract negotiations

Schedule Risks:

- Inability of MTA subcontractors to meet the Operation Step Forward (OSF) schedule dates, causing delay to certain activities to be performed by the replacement D-B contractor
- Unanticipated delay to the replacement D-B contractor "ramp up" of activities, resulting in impacts to the critical path anticipated by MTA

Design and Construction Risks:

- Performance risk assumed by MTA by contracting for and performing work during the replacement D-B contractor resolicitation period (subcontracting risk)
- Quality, commercial, coordination, and unforeseen conditions unknown to MTA at the time of assumption of former Purple Line Transit Constructors subcontracts

A risk workshop was held May 3 through May 5, 2022. After the risk workshop, MTA prepared supplementary or updated documents for review, including an updated Risk Register. FTA provided a risk summary to MTA on June 22, 2022, for MTA's consideration when updating risk, contingency, and other project management plans. MTA provided a response to each of the comments on the risk summary to FTA on July 18, 2022, and provided further clarifications on August 25, 2022. MTA incorporated the FTA comments in the revised RCMP that is a part of the Final Recovery Plan.

On October 7, 2022, MTA submitted RCMP Version 15 to FTA and the PMOC for review.

In December 2022, MTA presented the top project risks in the table below:

ID Ref	Category	Risk Summary	Risk Description - Event & Consequences	Risk Owner	Rating
85	Construction	Exhibit 24 Utility Adjust-ments	The remaining utility adjustments, if not finished, by the promised completion dates could impact DB2 schedule. This risk relates to RCO1 cost impact, (schedule delay due to RCO1 and others is included in Risk ID 122)	J. Mitchell	Significant
122	Construction	RCO1 and RCO7 Utility Delay	The remaining utility adjustments, if not finished, by the promised completion dates could impact DB2 schedule and would result in a delay to the RSA Date.	J. Mitchell	Significant
24	Construction	Utility Relocation	Due to utility moratorium or other projects in the vicinity, utility companies may not be able to accomplish the Pro-ject's utility work as planned. This may result in delay and additional cost.	Concessionaire	High
82	Construction	Remaining utility adjust-ment pursuant to Exhibit 24 - Verizon Cop-per and Fiber Relocations	Failure of Verizon to make available, as needed, two Veri-zon copper crews to work concurrently along the alignment in respect of a Remaining Utility Adjustment for which Verizon is the applicable Utility Owner - Potential cost and schedule impacts. DB2 is entitled to a time extension and potentially equitable adjustment if the delay is on the criti-cal path.	P. Hager	High

ID Ref	Category	Risk Summary	Risk Description - Event & Consequences	Risk Owner	Rating
92	Construction	Unknown Existing Construction Defects	MTA took the risk that work installed by the prior DB contractor might be defective unless proposers were notified of defects as of the New Setting Date.	J. Mitchell	High
118	Design	TCE Extension	MTA may need to extend out their TCE (Temporary Construction Easement) acquisition costs for 17 properties project wide, this could lead to additional costs and delay the project if property owners object particularly if this occurs at the staging locations.	B. Horn	High
120	Construction	CSX Flaggers	MTS is responsible for scheduling with CSX for flaggers. However, CSX flaggers may not be available as needed to support contractor's work, difficulties with coordination and scheduling CSX flaggers could lead to additional costs and schedule delays.	Concessionaire	High

ATTACHMENT D – AWARDED CONTRACTS

A significant update to awarded contracts is forthcoming due to the transition within the original Public-Private Partnership concessionaire and Maryland Transit Administration's assumption of some, but not all, subcontracts.

ATTACHMENT E – ROLLING STOCK VEHICLE STATUS REPORT

Date: ***January 30, 2023***

Vendor: Construcciones y Auxiliar de Ferrocarriles (CAF)

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

Year: The first vehicle was completed in 2021, and currently 26 vehicles are designated as "Ready for Shipment." Completion of the storage and testing facilities at the Glenridge Operation and Maintenance Facility (OMF) has been delayed, so Maryland Transit Administration (MTA) and CAF negotiated terms for storage of vehicles at the CAF facility in Elmira, New York. The storage agreement has now transferred to the replacement Design-Build (D-B) contractor, Maryland Transit Solutions (MTS).

Quantity: 26 vehicles (130 cars) original contract (Full Funding Grant Agreement [FFGA])

2 vehicles (10 cars) in July 2021 change order (non-FFGA)

Identification: The original light rail vehicles (LRVs) will be numbered from 101 through 126. The numbering of the two additional LRVs is to be determined.

New Technologies: None planned (all major suppliers have service-proven equipment)

Status and Significant Activities:

- In total, 130 cars were assembled in Spain, all of which have been delivered to CAF in Elmira, New York. Assembly of the additional 2 vehicles (10 cars) has recently started in Spain. Ultimately these 10 cars will be shipped to Elmira for final assembly and static testing, following the same process as the original 130 cars.
- Delivery of finished vehicles was expected to begin in spring 2021; however, because the Glenridge OMF is not ready to accept railcars, MTA and CAF have negotiated an agreement for CAF to store the completed cars in Elmira.
- Cost risk for delivery of the finished vehicles has been transferred to MTS. If delays in construction cause a delay, then MTS is responsible to CAF for additional storage cost.
- ***Twenty-six*** LRVs have passed static testing, have been designated as Ready for Shipment, and have been placed into storage in Elmira. These include vehicle 110, which was returned to Ready for Shipment status after a second period in static testing.
- Delivery of the first of the original 26 vehicles is currently scheduled for July 2023. Approximately one vehicle per week will be delivered thereafter. The Glenridge OMF will be able to store three or four vehicles on the yard and in the building, so track must be available for additional storage. The Overhead Contact System and Traction Power

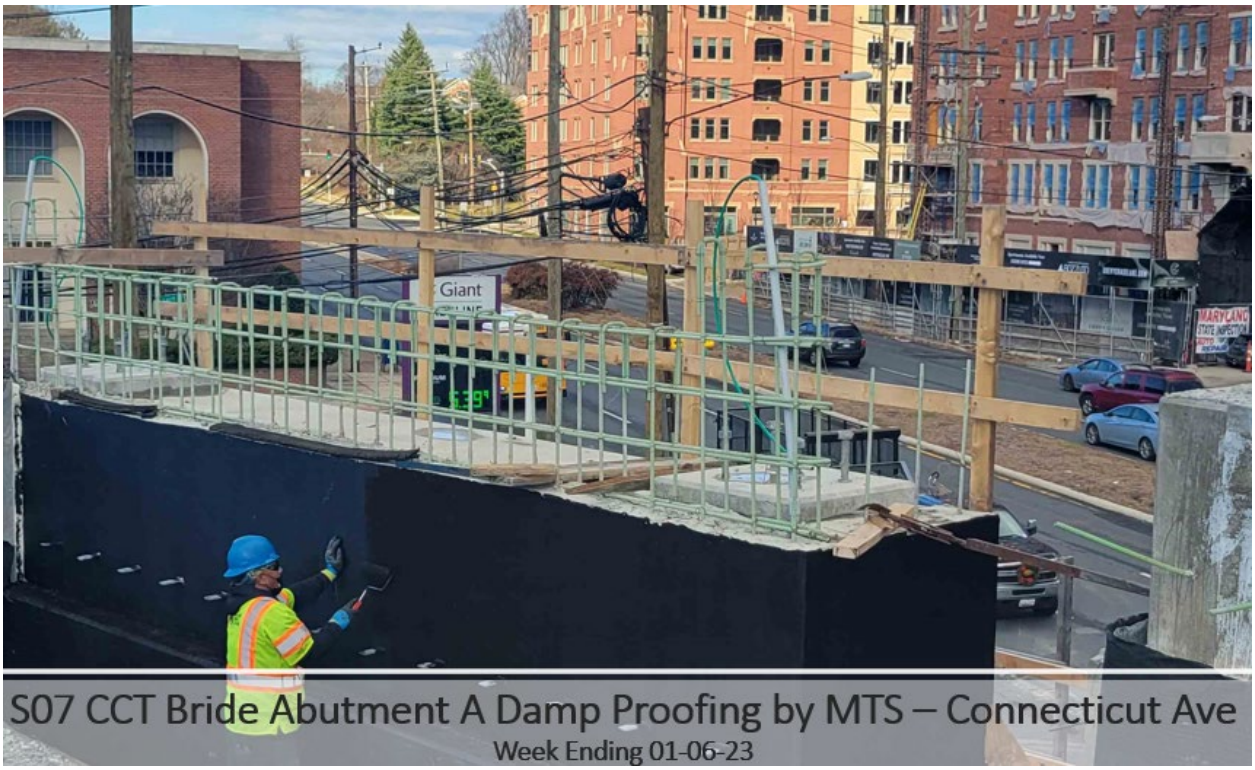
Substation (TPSS) Q7 and TPSS QYG must also be completed and installed before delivery of vehicles.

- MTA added two vehicles by change order to CAF's contract, outside of the MTA/Federal Transit Administration (FTA) FFGA. The additional LRVs will support better operations at Revenue Service Availability. The replacement D-B contractor, MTS, has incorporated these two additional LRVs into its scope of work (in addition to the cost and terms of LRV storage in Elmira). Fabrication of the two additional LRVs at CAF's facility in Spain has begun.
- SNC-Lavalin (now an MTS subcontractor) prepares a monthly quality report documenting safety, production, and quality items at both the Spain and New York production facilities. Many of the same SNC-Lavalin staff who observed the original vehicle fabrication work are overseeing the fabrication of the two additional vehicles in Spain.
- MTA, the Project Management Consultant, and CAF are holding weekly coordination meetings to review all outstanding testing and factory/shop activities, including onsite testing procedures for when the vehicles are delivered to Maryland.
- MTS, which has assumed the CAF contract, is preparing and submitting to MTA reports on LRV maintenance activities required during the storage period. To date, none of these reports have been transmitted to FTA or the Project Management Oversight Contractor.

ATTACHMENT F – PROJECT MILESTONES/KEY EVENTS

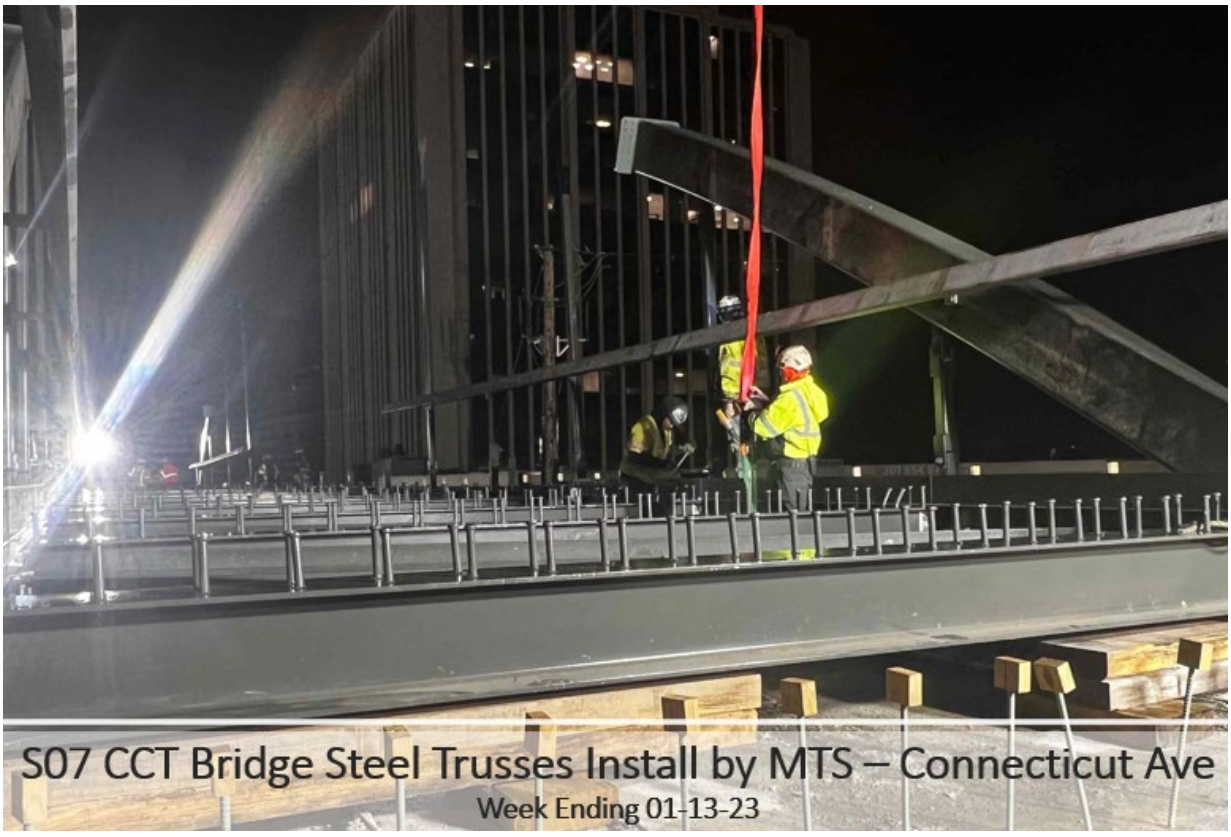
Photos courtesy of Maryland Transit Administration.



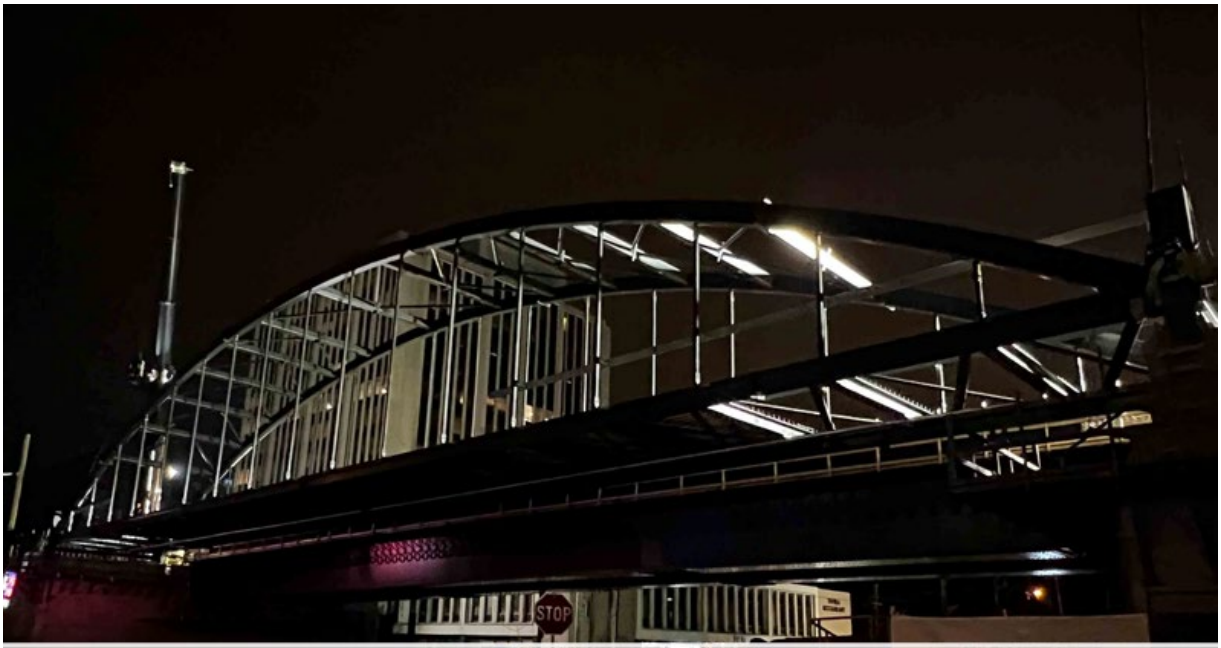




U104 Storm Drain Installation by MTS – GBT at Jones Mill
Week Ending 01-13-23



S07 CCT Bridge Steel Trusses Install by MTS – Connecticut Ave
Week Ending 01-13-23



S07 CCT Bridge Set in Place by MTS – Connecticut Ave
Week Ending 01-20-23



Drilling of OCS Foundation by MTS – Brookville Road
Week Ending 01-20-23



Flashbutt Welding of Rail by MTS – Ellin Road
Week Ending 01-27-23



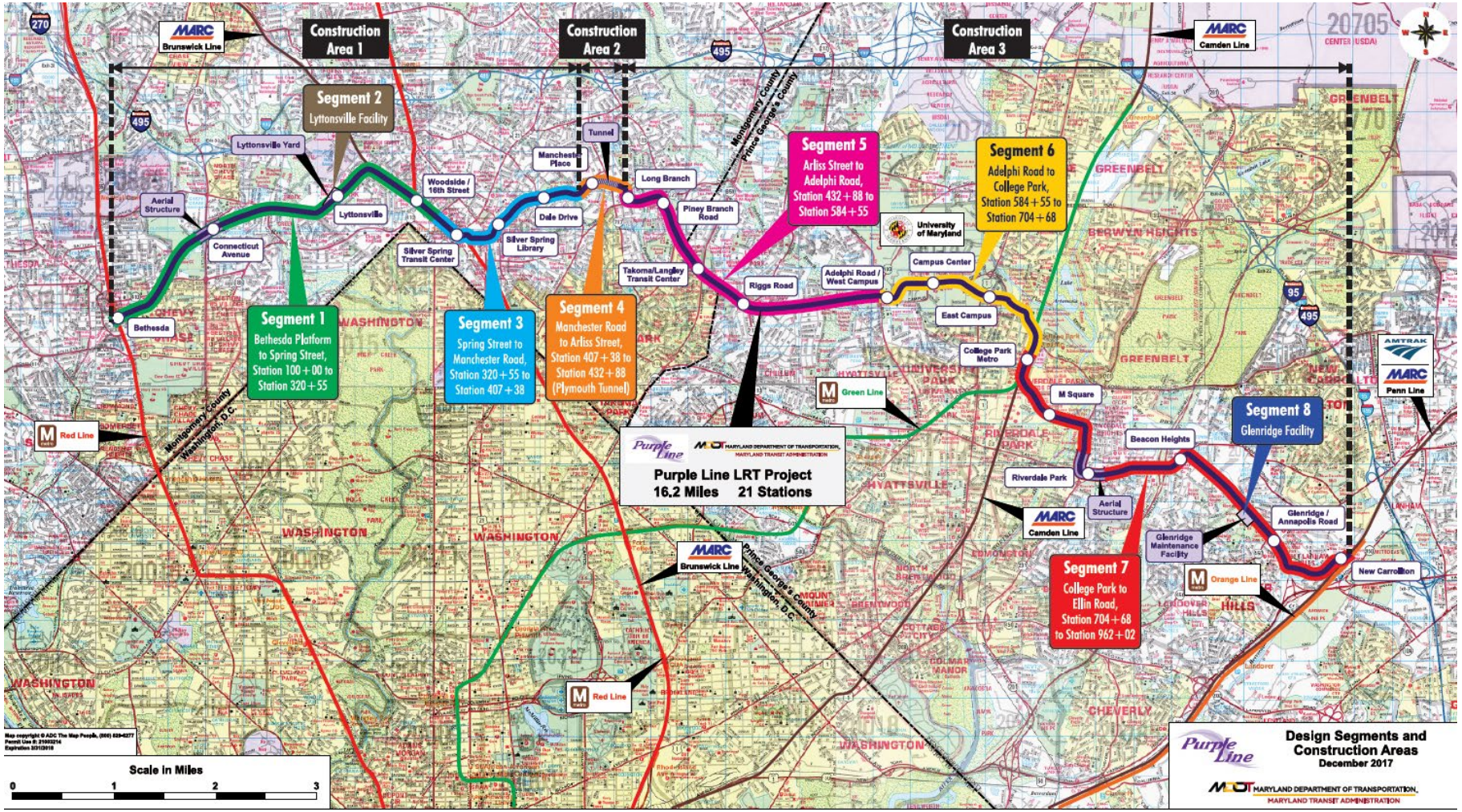
Embedded Track Installation by MTS – OMF Glenridge
Week Ending 01-27-23

ATTACHMENT G – ROADMAP TO REVENUE OPERATIONS

In accordance with Oversight Procedure (OP) 25, the Roadmap to Revenue Operations, prepared from the Project Sponsor's master schedule, is issued quarterly as a separate electronic file. Because the Project Sponsor's master schedule is undergoing a major revision for schedule recovery, the dates currently shown will change.

Per OP 25, this item is issued quarterly "as a separate attachment." Due to the transition to a new Design-Build contractor, quarterly updates will be provided when available. Refer to the July 2020 Project Management Oversight Contractor Monitoring Report for the most recent update.

ATTACHMENT H – PROJECT MAP



PMOC MONITORING REPORT
February 2023

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

Maryland Transit Administration
Baltimore, Maryland
Final

Draft Report Delivered to FTA on ***March 13, 2023***
Final Report Delivered to FTA on ***March 20, 2023***

PMOC Contract No.: 69319519D000016
Task Order No.: 69319520F300095
Project No.: 69319519D000016/69319520F300095
Requisition/Reference No.: FTA-TPM20-20-0106
OPs Referenced: 20, 22, 24, 25, 26
CLINs 0001, 0002, and 0005

David Evans and Associates, Inc.
Pete Hankovszky, Task Order Manager
Voice –720.448.6730; Email – pzh@deainc.com
Time on Project: 05/18/2020 through 05/17/2025

REPORT FORMAT AND FOCUS

This report is submitted in compliance with the terms of the Federal Transit Administration (FTA) Contract #69319519D000016, Task Order #69319520F300095. Its purpose is to provide information and data to assist FTA as it continually monitors the management capacity and capability of the Maryland Transit Administration (MTA) (the Project Sponsor) to execute the project efficiently and effectively, and hence, whether the Project Sponsor continues to be ready to receive federal funds for further project development. This report covers the project management activities on the National Capital Purple Line Light Rail Transit Project managed by MTA as the Project Sponsor and financed by the FTA Full Funding Grant Agreement (FFGA). The cost and schedule information in this report was extracted from MTA's submitted information except where noted. The report is organized to comply with the requirements of updated Oversight Procedure 25 – Recurring Oversight and Related Reports, dated June 2020.

THIRD-PARTY DISCLAIMER

This report and all subsidiary reports are prepared solely for FTA. This report should not be relied upon by any party, except FTA or the Project Sponsor, in accordance with the purposes as described below.

For projects funded through the FTA FFGA program, FTA and its Project Management Oversight Contractor (PMOC) use a risk-based assessment process to review and validate a Project Sponsor's budget and schedule. This risk-based assessment process is a tool for analyzing project development and management. Moreover, the assessment process is iterative in nature; any results of an FTA or PMOC risk-based assessment represent a "snapshot in time" for a particular project under the conditions known at that same point in time. The status of any assessment may be altered at any time by new information, changes in circumstances, or further developments in the project, including any specific measures a Project Sponsor may take to mitigate the risks to project costs, budget, and schedule, or the strategy a Project Sponsor may develop for project execution. Therefore, the information in the monthly reports will change from month to month, based on relevant factors for the month and/or previous months.

TABLE OF CONTENTS

1. EXECUTIVE SUMMARY 1
1.1. Project Description 1
1.2. Project Status 1
1.3. Major Issues and/or Concerns 13
1.4. Status of Key Indicators Dashboard (Post-grant) 14
1.5. Core Accountability Items 16
2. OBSERVATIONS AND FINDINGS 17
2.1. Summary of Monitoring Activities 17
2.2. Oversight Triggers 17
2.3. Project Management Plan and Sub-plans 18
2.4. Management Capacity and Capability 21
2.5. NEPA Process and Environmental Mitigation 22
2.6. Project Delivery Method and Procurement 25
2.7. Design 27
2.8. Real Estate Acquisition and Relocation 29
2.9. Third-party Agreements and Utilities 30
2.10. Construction 32
2.11. Vehicle Technology and Procurement 34
2.12. Project Cost 35
2.13. Project Schedule 39
2.14. Project Risk 45
2.15. Quality Assurance/Quality Control 46
2.16 Safety and Security 47
2.17 Americans with Disabilities Act 49
2.18 Buy America 49
2.19 Start-up, Commissioning, Testing 50
2.20 Before-and-After Study Reporting 50
2.21 Lessons Learned 50
2.22 Action Items 51
ATTACHMENT A – LIST OF ACRONYMS 52
ATTACHMENT B – SAFETY AND SECURITY CHECKLIST 55

ATTACHMENT C – TOP PROJECT RISKS....56
ATTACHMENT D – AWARDED CONTRACTS....59
ATTACHMENT E – ROLLING STOCK VEHICLE STATUS REPORT....60
ATTACHMENT F – PROJECT MILESTONES/KEY EVENTS....62
ATTACHMENT G – ROADMAP TO REVENUE OPERATIONS....66
ATTACHMENT H – PROJECT MAP....67

LIST OF TABLES

Table 1 – MTA Master Schedule Dates....6
Table 2 – Current Major Issues and Concerns....13
Table 3 – Key Indicators Dashboard....14
Table 4 – Core Accountability Items....16
Table 5 – Project Cost Versus Budget....36
Table 6 – Sources of Federal Funding and Matching Share Ratios....37
Table 7 – FTA SCC Workbook – Build Main, June 1, 2016 Update....39
Table 8 – Key Milestone Dates....43

1. EXECUTIVE SUMMARY

1.1. 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, Maryland, to New Carrollton in Prince George's County, Maryland. The Purple Line will operate largely at street level in a combination of dedicated and semi-exclusive right-of-way (ROW) and 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) service at Bethesda, Silver Spring, College Park, and New Carrollton, Maryland. The project will also connect to all three Maryland Area Regional Commuter rail lines, Amtrak, and local bus routes. The project includes 21 stations, 2 operations control/vehicle storage and maintenance facilities, and 25 light rail vehicles (LRVs). Maryland Transit Administration (MTA) is executing the project using a Public-Private Partnership (P3) method of project delivery. As documented in the Federal Transit Administration (FTA) Full Funding Grant Agreement (FFGA), the original estimated project cost is $2,407,030,289, and the scheduled Revenue Service Availability (RSA) date is December 31, 2022. On January 26, 2022, the Maryland Board of Public Works (BPW) approved significant revisions to the project cost and the RSA date. On April 11, 2022, private activity bonds went to market, and there was sufficient demand to sell all of the bonds. The Transportation Infrastructure Finance and Innovation Act (TIFIA) loan closed on April 14, 2022, allowing financial close and commercial close on that same day. Financing approvals and subsequent financial close allowed Purple Line Transit Partners (PLTP), the P3 concessionaire, to issue Notice to Proceed (NTP) to the replacement Design-Build (D-B) contractor. Maryland Transit Solutions (MTS) is now the D-B contractor for the project. A Final Recovery Plan prepared by MTA and approved by FTA is required after cost, schedule, and risk management elements are fully defined. Management plan updates are also required.

1.2. Project Status

The FFGA was executed on August 22, 2017. The Purple Line project is currently in the construction phase. Due to a contractual dispute, PLTP demobilized the assets/staff and subcontractors of the original D-B contractor, Purple Line Transit Constructors (PLTC), from the project in September 2020.

On November 24, 2020, MTA and PLTP reached a settlement agreement to release PLTC from the P3 consortium and continue the project with the remaining parties. The BPW approved the agreement on December 17, 2020. The settlement agreement included the following key aspects, as MTA communicated to the Project Management Oversight Contractor (PMOC):

- The settlement provided a mutual release from all disputed and undisputed amounts (incurred before September 28, 2020) for PLTP, PLTC, and subcontractors. The settlement also released outstanding litigation among the parties.
- PLTP agreed to procure a replacement D-B contractor to complete the project and obtain project financing. After a reprocurement process, a replacement D-B contractor, MTS (a

joint venture of Dragados USA and OHL USA) was selected on November 5, 2021. The contract with MTS was executed on April 14, 2022.

MTA and PLTP progressed new agreements through the financial process and State of Maryland approvals. BPW approved the new agreements with PLTP on January 26, 2022. Financial and contractual close occurred on April 14, 2022.

MTA submitted a Draft Interim Recovery Plan (IRP), dated December 15, 2020, to FTA. The IRP provided additional details related to the settlement agreement and MTA management activities. The PMOC reviewed the IRP and submitted findings, opinions, and recommendations to FTA. FTA approved the IRP on January 12, 2021. MTA committed to monitoring project progress against this IRP and to updating the IRP as required. On October 4, 2022, MTA submitted the draft Final Recovery Plan to FTA and the PMOC for review. FTA and the PMOC are reviewing the Project Management Plan (PMP) and other MTA management plans concurrently. FTA has transmitted review comments on several of the management plans to MTA. The Final Recovery Plan requires FTA approval.

Despite changes within the P3 consortium, MTA intends to complete the full scope of the project as envisioned in the original contract documents, with some minor exceptions such as the addition of two more LRVs.

MTA made deliberate choices about how to proceed with the major project elements once PLTC was released from the project and continues to implement effective management controls. MTA's planning criteria included schedule, budget, and the reduction of risk for the replacement D-B contractor. To address budget constraints, some project activities that were identified for completion in the IRP were later deferred. MTA and its Project Management Consultant (PMC) added staff to support subcontractor invoicing, payment processes, and other administrative tasks.

MTA is currently managing a significant number of construction activities that will continue until completion in early 2023, including some utility relocations, particularly work by Verizon. Despite the careful planning, these Operation Step Forward (OSF) activities fell behind schedule. Delays related to third-party utility relocations and other unforeseen issues caused MTA to miss several milestone dates included in the April 2022 revised agreements with PLTP. Evaluation of the impacts on schedule and budget from these missed milestones by MTA is continuing in ***February 2023.***

Upon the departure of PLTC in 2020, MTA assumed 150 to 200 subcontracts to continue critical construction activities. Some of the subcontractors that provided services under these contracts include Atkins for design, HNTB for quality oversight, SNC Lavalin for LRV inspection in Spain and New York, Construcciones y Auxiliar de Ferrocarriles (CAF) for LRV production, and Traffic Engineering Services for Maintenance of Traffic. Many of the assumed subcontractors still have open contracts to perform OSF activities, but these contracts are being closed as their OSF work is completed.

Construction work continues, including activities and elements such as erosion and sediment control maintenance, bridge structures, retaining walls, the Glenridge Operation and Maintenance Facility (OMF), and utility relocations. The Polk Street Maintenance Facility (for Prince George's

County), the Paint Branch stream restoration, and the Ken-Gar wetlands mitigation projects are essentially complete. Turnover of the Polk Street Maintenance Facility to Prince George's County has occurred. The Paint Branch stream restoration is complete, and warranty-related corrections (partial replanting) occurred in December 2022. The Ken-Gar wetlands mitigation project has conducted final inspection and completed final non-native plant treatments and is nearing the end of its one-year warranty period.

Completion of the Glenridge OMF was on or near the critical path and continues to be a focus. MTA completed the majority of the OMF building and utilities, but construction of track that accommodates LRV storage and testing was deferred for completion by MTS. There are six outstanding OSF items that MTA must complete at the OMF. However, these items require equipment and materials that have long lead times. MTS is scheduled to assume control of the facility in early 2023. ***During February 2023, details of the final turnover of the facility to MTS were being coordinated.*** MTA is still responsible for completing the six specific items ***and expects to complete several of them in March 2023.*** MTS is currently installing rail and Overhead Contact System (OCS) elements inside the building.

Delayed completion of the OMF construction upon PLTC's departure required finding an alternative location to store completed LRVs. MTA reached an agreement with CAF to store the LRVs at CAF's Elmira, New York facility until track is ready for acceptance of the LRVs. MTS assumed the storage agreement with CAF upon finalization of the replacement D-B contract.

MTA has revised and submitted the PMP, Risk and Contingency Management Plan (RCMP), Quality Assurance Plan (QAP), project schedule, Safety and Security Management Plan (SSMP), and Safety and Security Certification Plan (SSCP). FTA and the PMOC have reviewed these revised plan documents in conjunction with their review of the draft Final Recovery Plan.

As of February 28, 2023, FTA had provided to MTA review comments on all these management plans but the QAP, which will be delivered in March 2023. MTA reports that it will incorporate FTA and PMOC review findings and recommendations into the revised Final Recovery Plan.

In accordance with FTA direction in July 2021, the PMOC enhanced its focus on MTA scope, schedule, cost, risk, and Management Capacity and Capability (MCC) readiness metrics. As such, the PMOC requested a matrix of the associated documents that were required to facilitate reviews. MTA has regularly updated a schedule of review activities that supports the development of the project's Recovery Plan in accordance with the procurement schedule for the replacement D-B contract. In the opinion of the PMOC, reviews are critical to MTA's continued development of the Final Recovery Plan and associated management plans. MTA continues to share schedule, budget, and other planning information with FTA as it becomes available. MTA also continues to provide FTA and the PMOC with construction updates, as well as twice monthly updates that track project milestones, along with the progress of MTA and MTS construction activities.

- Scope: There have been no significant reductions or changes to project scope. three LRVs were added to the project scope (non-FFGA) to support improved operations once service commences.

- Schedule:
  - PLTC never developed an approved recovery schedule to address the delayed start of construction caused by the environmental lawsuit (please see the **NEPA Process and Environmental Mitigation** section, below, for a discussion of the environmental lawsuit). In fall 2019, the P3 concessionaire submitted a revised, fully cost-loaded schedule reflecting a phased project opening (with the first phase opening at the end of 2022 and the second phase opening in mid-2023). This schedule was based on negotiations between MTA and PLTP but was never incorporated into the working master project schedule.
  - In accordance with the IRP, MTA developed a schedule for the period during which the D-B contractor was being replaced. PLTP and MTA identified several milestones and the requirement to establish a full project schedule before the end of the D-B contractor replacement period. On November 5, 2021, PLTP announced the selection of the preferred replacement D-B contractor, MTS.
  - The IRP project milestones, with dates as provided by MTA, currently include:
    - January 6, 2021 – PLTP issued a Request for Qualifications (RFQ) for replacement D-B contractors.
    - March 8, 2021 – PLTP issued a Request for Proposals (RFP) to the short list of replacement D-B contractors based on the RFQ.
    - October 15, 2021 – PLTP received RFP responses.
    - November 5, 2021 – PLTP and Maryland Department of Transportation (MDOT)/MTA selected the replacement D-B contractor firm.
    - January 26, 2022 – BPW approved the replacement D-B contractor (MTS), contract amendments, schedule, cost, and financing.
    - April 11, 2022 – Private activity bonds went to market.
    - April 14, 2022 – The TIFIA loan closed on April 14, 2022, allowing financial and commercial close on that same day. MDOT/MTA issued NTP to PLTP, allowing for execution of the MTS contract.
    - September 12, 2022 – MTA approved the Initial Baseline Schedule (IBS).
    - October 14, 2022 – MTS was required to have commenced action on the 11 critical elements that are specified in the D-B contract. At the December 2022 PMOC meeting, MTA confirmed that MTS missed the 180-day window to commence action on 3 of the 11 critical elements. MTA and MTS are coordinating these specific activities and generally agree that a delayed start for each is logical based on construction sequencing. These items are not currently on the critical path.

- October 28, 2022 – MTA was scheduled to have submitted a draft Final Recovery Plan to FTA and the PMOC for review and comment. On October 4, 2022, MTA submitted the draft Final Recovery Plan to FTA and the PMOC for review.

- A milestone not specifically mentioned in the IRP is the requirement to extend the current Revenue Service Date (RSD). The PMOC therefore added the following milestone to this list:

  - December 31, 2022 – The RSD in the original FFGA is December 31, 2022. MTA must request an extension to the current RSD identified in the FFGA. FTA will consider approving this extension, which also must include a revised Estimate at Completion (EAC) that includes adequate schedule and cost contingency. FTA's approval of the Final Recovery Plan is a critical step in approval of a revised FFGA budget and RSD.

See also the **Significant Project Activities and/or Key Milestones** subsection of this Executive Summary, below.

Table 1 presents MTA's key milestone dates for the project, showing the last approved (March 15, 2017) master project schedule, the MTA Master Schedule August 2018 proposed baseline, and the (most recent) February 2020 progress update of the MTA master schedule proposed re-baseline. As noted above, all milestone dates require reevaluation and revision by MTA. MTA developed a new draft master schedule for use during OSF and negotiations with the replacement D-B contractor. In the draft master schedule in October 2021, MTA assumed a sequence similar to the one that PLTC had planned before PLTC was terminated. That October 2021 schedule was utilized to develop a target RSA date for the resolicitation RFP for the replacement D-B contractor. This target RSA date was assumed to occur 1,645 calendar days from the financial close date, which occurred on April 14, 2022, resulting in an approximate RSA date of August 12, 2026, excluding schedule contingency. To clarify the terminology, the RSA date is a contractual date critical to the agreement between MTA and PLTP. The RSD is the contractual date tied to FTA FFGA funding and other project approvals.

The replacement D-B contractor was required to prepare an IBS and have it approved by MTA within 120 days of financial close. MTS submitted a 120-day mobilization schedule, which was approved by MTA.

As described above, NTP to PLTP on April 14, 2022, triggered the contract requirement for an approved MTS IBS for the full project to be in place within 120 days. MTS submitted the IBS, and MTA provided formal comments on the IBS to MTS on July 13, 2022. MTA approved the revised IBS on September 12, 2022.

In August 2022, MTA and the PMOC discussed the current state of the baseline schedule, particularly the inclusion of adequate float to address schedule risk. The P65 date that MTA had proposed before a risk workshop that was held in May 2022 included approximately seven months of float and an RSA date in October 2026. A

recent schedule (dated October 3, 2022) proposed by MTS includes an October 2026 RSA date but adds approximately one year of contingency to reach an "FFGA Revenue Service Date – Final Completion" of October 15, 2027. In the PMOC's opinion, float should be assigned to specific project activities, and the project budget must include the cost that correlates to the float duration. A budget that does not include the cost (in the form of contingency) for the float period in the schedule may not be realistic. MTA concurs that the master schedule will require float included for specific activities and not just a lump-sum float period added after the MTS completion date. MTA has provided a schedule and .XER format files to the PMOC for the PMOC's analysis of the schedule.

The most recent master project schedule provided by MTA, dated ***February 20, 2023, indicates significant delays to the schedule.*** These delays remain a concern because, without recovery, nearly 7 months of the 12 months of schedule float may already be consumed. The PMOC recommends that MTA provide a description of what caused a seven-month slip just two months after the IBS was approved. MTA should also determine recovery strategies, or if necessary, prepare a revised RSD, because in the PMOC's opinion, five months of remaining schedule contingency is not adequate to provide confidence in the project schedule or cost. MTA states that there is a focus on schedule recovery and is currently optimistic that three months of schedule recovery is possible. The PMOC recommends that a viable strategy for schedule recovery be incorporated into the Final Recovery Plan***, which MTA will submit to FTA and the PMOC review in early March 2023***

The information in Table 1 – MTA Master Schedule Dates will be updated once the Final Recovery Plan reviews and approvals are complete.

Table 1 – MTA Master Schedule Dates

Activity	Latest (March 15, 2017) Approved Master Project Schedule	MTA Master Schedule August 2018 (working baseline)	MTA Master Schedule, February 29, 2020 Update
All Significant ROW Acquisition and Relocation	As needed by construction	---	All P3 contract Exhibit 9[1] properties in possession
Commencement of Trial Running[2]	---	03/09/2022	06/08/2022
Readiness to Commence Revenue Service	To Be Determined (TBD)	10/28/2022	12/26/2022
MTA Opens for Revenue Service	03/2022	---	12/26/2022
Revenue Operations Date (includes contingency)	12/31/2022	---	12/31/2022
FFGA RSD (includes contingency)	12/31/2022	12/31/2022	12/31/2022

[1] Refers to properties as included in the original P3 contract Exhibit 9 FFGA scope.

[2] The schedule dates are no longer valid. ***The Final Recovery Plan and updated FFGA will include revised dates for the activities in Table 1.***

- Cost:
  - The project's documented expenditures are ***$2,612 million through January 31, 2023***. The current EAC for the project (construction, management, and LRVs) ***is approximately $4,926 million.*** This budget estimate has not yet been officially adopted. FTA and the PMOC have reviewed the Final Recovery Plan and transmitted their comments to MTA on January 9, 2023. The Final Recovery Plan will need to be approved by FTA.
  - The replacement of the D-B contractor has resulted in added costs and schedule delays. See the **Significant Project Activities and/or Key Milestones** subsection, below.
  - Refer to **Table 4 – Core Accountability Items**, below, for additional project cost information.
  - Cost figures in this report include payments to PLTP that were required by the December 2020 settlement agreement.
  - MTA has prepared a summary of actual versus planned expenditures for high-level OSF activities in Standard Cost Category (SCC) format and is updating this summary each month. Through December 31, 2022, MTA forecasts OSF expenditures of $556.15 million, which exceed the original OSF budget by approximately $136 million. ***A significant portion of the overrun previously has been incorporated into the project budget, but additional contingency may be needed to address the increase of $35 million to $45 million that has occurred since the final recovery budget was developed.*** MTA states that these overruns are due to labor and material cost inflation as well as an extended OSF duration. The PMOC recommends that MTA closely monitor these cost overruns because of the early use of a significant portion of the budget contingency proposed in the current draft RCMP.
  - The budget to address nonconforming construction by PLTC is a concern. MTA incorporated known defects into the MTS contract. However, defects unknown at the time of the MTS contract must be paid for by MTA. MTA repeated that it is unsure of the specific budget that will be used to rectify PLTC defects found after the contract with MTS was executed. ***In February 2023, MTA estimated the total cost of these unknown defects to be approximately $10 million. Similar to the OMF overruns, the PMOC recommends that MTA closely monitor utilization of contingency to cover these costs.***
- Significant Project Activities and/or Key Milestones:
  - The COVID-19 pandemic has impacted the project in different ways and at different levels. These impacts include those related to availability of resources and labor. MTA and PMC staff are following recommended COVID-19 protocols. The PMOC continues to recommend that MTA track all actual and potential costs related to

COVID-19. On January 30, 2023, MTA stated that COVID-19 protocols for the project had been suspended.

- The third lawsuit filed by the Friends of the Capital Crescent Trail in January 2019 against U.S. Army Corps of Engineers (USACE) was dismissed in April 2020. The plaintiff subsequently filed an appeal on May 11, 2020. The District Court denied the appeal on May 13, 2021. The decision resolved the last active lawsuit related to the project.
- The original baseline schedule anticipated design completion by late fall 2017. The current progress through ***February 28, 2023***, is that 209 of the 218 total planned design packages have been issued as Released for Construction (RFC). Civil and Utility packages that remain in design or approval include traffic signal pre-emption, grade crossing safety systems, lighting, signage, and stations. Although Systems packages were scheduled to be complete by the end of the first quarter of 2022, those packages remain in progress. The current forecast for completion of all design packages is June 2023.
- MTA, PLTC, and CSX Corporation (CSX) (a rail-based freight transportation company) reached conceptual agreement on the CSX-related design issues, as summarized below. The following actions remain to be resolved:
  - WMATA's comments on design plans for the Silver Spring Transit Center (SSTC) mezzanine connector pedestrian bridge (over CSX ROW) will result in what MTA deems are betterments. Resolution of WMATA comments is nearly complete ***as of February 2023.*** MTA reports that the slow resolution of these issues has not impacted critical path activities.
  - Storm sewer construction under the CSX railroad is required in several locations. Two jack-and-bore installations of culvert pipes were completed in November 2022. ***One jack-and-bore installation remains to be completed.***
  - An encroachment into the CSX vertical clearance was discovered upon installation of girders at the SSTC. MTA completed the required design for shims, and the encroaching structural members were raised in late August 2021.
- MTA and Washington Suburban Sanitary Commission (WSSC) reached agreement on an alignment, primarily in the median of Veterans Highway, where the 66-inch water main that currently runs under the Glenridge OMF will be relocated. The original Purple Line General Engineering Consultant (GEC) team performed the design, WSSC is providing the material, and MTA has separately contracted for the construction. Using a tunnel boring machine, the initial shaft for the 66-inch water main under the roadway was completed in March 2022. The second bore shaft was completed, and carrier pipe installation occurred in June 2022. Installation of cathodic protection and final site restoration are the only remaining items as of ***February 2023.***

- PLTC reached resolution on the final remaining Alternate Technical Concept (ATC) identified during the proposal process, which is related to the use of jet fans at the Bethesda Station in lieu of vent shafts. In accordance with the established process, MTA reviewed PLTC's design package for National Environmental Policy Act (NEPA) compliance. Final documentation for the ATC is still ***pending as of February 2023.*** MTA and MTS are coordinating the noise and aesthetic impacts of the fans, and they optimistically predict that the ATC will have no Section 4(f) impacts or other impacts to the project's Record of Decision (ROD).
- In April and May 2021, 29,000 concrete railroad ties were delivered to an onsite storage location for future use by the replacement D-B contractor. As a part of OSF, MTA ordered rail, ties, special trackwork, and turnouts to mitigate supply chain risks. MTA has received and stockpiled some of this material. As of August 2022, rail materials were received at the Glenridge OMF, and MTS placed them in storage for future use.
- MTA has completed most of its non-P3 construction contract activities, as follows:
  - Prince George's County Parks (Parks) Polk Street Maintenance Facility D-B – A substantial completion letter was issued to the contractor on March 30, 2021. Parks has taken possession of the facility, and it is currently in the warranty period.
  - Offsite Wetlands Mitigation (Ken-Gar) – The Design-Bid-Build construction NTP was issued on September 5, 2019. Prince George's County took partial acceptance of the entire project on March 3, 2021. Acceptable growth of vegetation has been achieved, allowing for closure of this project. The one-year warranty review occurred on January 9, 2022, and the project is now in quarterly monitoring and annual reporting by MTA that will continue through 2028.
  - Offsite Stream Mitigation (Paint Branch) – The Design-Bid-Build construction NTP was issued on September 5, 2019, and the contractor mobilized in late November 2019. Construction of this project is complete, and revegetation has been accepted. The one-year warranty inspection occurred on August 4, 2022, and 1,700 plants were replaced in November 2022. Quarterly monitoring and annual reporting by MTA will continue through 2028.
- Building construction at the Glenridge OMF is essentially complete; however, construction of civil items outside of the building continues, as does final commissioning of systems inside the building. ***MTS was scheduled to take possession of the Glenridge OMF on December 31, 2022, but that did not occur. The turnover letter to transfer possession of the facility from MTA to MTS is in progress. However, MTS currently is working in the OMF, installing embedded track inside the building and correcting nonconforming work related to the interior track.*** There are six items remaining at the OMF that MTA cannot yet complete because of long lead times for necessary replacement parts. MTS will take control of

the facility with those items outstanding, and MTA will complete the items when feasible. MTS then will maintain the facility until it is turned over to PLTP. Outside of the building, MTS will complete the tracks for storage and testing of LRVs.

- Site preparation for the installation of Traction Power Substations (TPSSs) Q8, QYG, and QYP continues. As of December 2022, issues related to Potomac Electric Power Company (PEPCO) had delayed delivery of the TPSSs, but MTA states that these delays should not delay LRV delivery.
- The following is the status of LRV manufacturing as of ***February 2023:***
  - Assembly of 130 carshell segments in the initial procurement has been completed in Spain and all have been delivered to CAF's facility in Elmira, New York.
  - Final assembly of vehicles is being performed in CAF's facility in Elmira. Three vehicles are currently in static testing. All 26 of the original vehicles ordered are designated as "Ready for Shipment" and are in storage. These vehicles are under a schedule of inspection and maintenance until delivery can occur.
  - MTA has added two vehicles by change order to CAF's contract. The additional LRVs will support better operations at the RSA date. It is important to note that these two additional LRVs are not a part of the FFGA between MTA and FTA. MTS has incorporated these two additional LRVs into its scope of work (in addition to the cost and terms of LRV storage in Elmira). Assembly of the additional two vehicles (ten cars) has recently started in Spain. Ultimately these ten cars will be shipped to Elmira for final assembly and static testing, following the same process as the original 130 cars.
  - The previously identified quality issue related to the M33 bolt on the LRVs is nearly resolved. MTA determined that the issue does not impact safety, and the solution is likely the use of a higher strength bolt. The final report on this issue is expected in ***March or April 2023***.
  - Delivery of vehicles was expected to begin in spring of 2021; however, the location for their delivery was uncertain because the Glenridge OMF is not ready to accept railcars. MTA and CAF negotiated an agreement for CAF to store the completed cars in Elmira to await delivery. The terms of the agreement became a part of MTS's agreement. The first ***26*** LRVs have now been designated as Ready for Shipment and placed into storage in Elmira. In June 2022, the MTS team began tracking activities required while the vehicles are in storage in MTS's possession. Deliveries of LRVs to the Glenridge OMF are scheduled to commence in late 2023.
  - ***MTA has reviewed the systems testing and commissioning management plan and has provided its comments to PLTP.***
  - The project's Buy America compliance audit for the LRTs was conducted on November 14, 2022. In January, CAF provided additional documentation

requested to assist with evaluation of Buy America compliance. The draft audit report ***is expected be available in March 2023.***

- MTA is responsible for providing offsite stormwater mitigation in Montgomery County. To date, MTA has accumulated a credit for more than 10 acres of designed, Maryland Department of the Environment (MDE)-approved, offsite stormwater management (SWM) capacity in its "bank." MDE indicated that Purple Line construction can proceed provided there is a positive balance of credits compared to construction impact. MTA has determined that there is a need for additional mitigation in Prince George's County, and a project to construct additional mitigation is included in the scope of work for MTS.
- ROW acquisition activities continue for the required 464 private parcels and 137 public parcels (a total of 601 parcels). All of the private parcels related to the original P3 contract Exhibit 9 FFGA scope are in MTA's possession. ***As of February 10, 2023***, 411 of the 464 private parcels have completed settlement, and an additional 6 parcels have settlements pending.
- MTA has identified 188 small property acquisitions that are required for utility relocations, of which 134 are private and 54 are public. ***As of February 10, 2023,*** 187 of the additional 188 properties are in MTA's possession through Right of Entry (ROE), through options, and/or through agreements. In December 2022, MTA reported that six of seven critical acquisitions have been closed. The remaining acquisition is needed by June 2023 to meet schedule commitments MTA has made to MTS. MTA estimates that approximately $35 million of exposure remains in the acquisition process. This amount has been included in the risk assessment.
- To date, all 177 required property relocations have been completed. Costs for the completed relocations continue to be processed in accordance with the applicable procedures. As of ***February 2023***, there is only one potential commercial property that may need relocation.
- Due to the extended project duration, there are a number of agreements that will expire before the expected RSA date. MTA and MTS have started the process of identifying the end dates now needed for the agreements and will begin the process of obtaining extensions. MTA has evaluated the risks, estimated the cost of the extensions, and included those costs in a budget contingency. ***MTA estimates that approximately $13 million of risk exposure*** remains due to necessary Temporary Construction Easement (TCE) extensions. This amount has been included in the risk assessment.
- Preparation for safety certification is ongoing, including the development of the appropriate checklists for both design and construction. Design Criteria Conformance Checklists (DCCCs) are 96.6 percent verified. Construction Specification Conformance Checklists (CSCCs) are 10.6 percent verified.

- Staffing of management personnel has been adjusted to address the varying activities that MTA is managing. In November 2021, MTA's quality lead for the Purple Line project, Rene Schroeder, retired. It was proposed that Roland Carroll, currently the Purple Line systems and construction safety lead, add the quality lead role to his other Purple Line roles. ***The PMOC has evaluated this change as a part of the PMP review and has requested that MTA provide additional information.***

  In September 2022, MTA supplemented the Purple Line team with the hiring of Ken Forsythe as the Deputy Communications Director. On October 25, 2022, MTA announced Kevin Oberheim would assume David Fertal's role as Interim Deputy Project Director.

- MTA carefully considered a request from Montgomery County to single-track the Purple Line through the Bethesda tunnel. MDOT/MTA determined it would not be able to accommodate the request.

- MTA and PLTP coordinated to obtain a modified version of the existing TIFIA loan for the project. As of April 14, 2022, the TIFIA loan closed, and all bonds have been marketed. MTA is required to update the Transportation Investment Program and State Transportation Investment Program plans to reflect changes in the project.

- MTA's Equal Employment Opportunity Officer assigned to the project is Marquis Washington. He is supporting MTS in its hiring program. The former contractor, PLTC, left the project with a shortfall in meeting its Disadvantaged Business Enterprise (DBE) program requirements, and MTS is required to address this shortfall of approximately $12 million in contract value.

- MTA hired a consultant team that is analyzing alternatives for providing security and fare enforcement services for the Purple Line. MTA does not currently have existing facilities or staff that can adequately provide services because the distance from their location to the Purple Line light rail facilities is too far. ***On February 23, 2023,*** MTA stated that the report that summarizes alternatives for these security and fare enforcement services is in final review ***by the MTA Administrator.*** Representatives from MDOT, which is the State Safety Oversight Agency (SSOA), who are monitoring the Purple Line project development requested that MTA provide them the draft report and then consider the SSOA's comments before submitting it to MTA's upper management.

- In October 2022, MTA cancelled the project's planned Community Advisory Team meetings for late 2022, citing a lack of resources to prepare for these meetings without impacting management of the overall project. These meetings are now ***resuming; two virtual Community Advisory Team meetings occurred each week*** in February 2023. Community interest in the meetings is high. MTA continues to develop its stakeholder communications plan.

1.3. Major Issues and/or Concerns

Table 2 discusses any major issues or concerns impacting the project's scope, schedule, cost, risks, quality, safety, etc.

Table 2 – Current Major Issues and Concerns

Issue/Concern	Continuation of the project without PLTC has been a significant challenge for the project. MTA's IRP, the permanent replacement of the D-B contractor, and the management of interim design/construction activities were MTA's priorities. The replacement D-B contractor, MTS, is now mobilized on the project.
Date Identified	September 2020.
Status	The IRP was approved in January 2021, with an update approved in July 2021. Implementation is nearly complete. MTA continues to develop the Final Recovery Plan.
Project Sponsor Action	Management of a transition plan and support of PLTP in the replacement of the D-B contractor was the focus of the Project Sponsor. Another focus was the management of MTA's contractors to continue key activities that maintain the integrity of the schedule. MTA has submitted the draft Final Recovery Plan for FTA and PMOC review.
PMOC Recommendation	The Project Sponsor should continue to consider the conditions of the original project requirements and management plans during the interim period. Effective management continues to be critical to success. The PMOC recommends that MTA continue to track and provide updates to FTA on information related to schedule, budget, management, and MTS. Focus should continue to include the completion of a Final Recovery Plan and supporting management documents. The PMOC also recommends that MTA ensure that sufficient staff is dedicated to OSF project delivery and closely monitor OSF activities and the remaining potential impacts to the MTS schedule. However, now that MTS is under contract, MTA and the PMC also should continue to emphasize their oversight of PLTP and MTS.
Issue/Concern	According to the PMP, the master project schedule should be updated monthly. ***The most recent MTA-approved master project schedule, dated February 20, 2022, incorporates significant schedule delays. MTA is currently coordinating schedule mitigation efforts to recover part of the delays.***
Date Identified	2022
Status	Ongoing.
Project Sponsor Action	After the preliminary review of the updated master schedule, the PMOC noted that schedule float of one year was added to the end of the master schedule to reflect project risk. The updated master schedule indicates a significant potential schedule slip of more than six months. MTA is reviewing this issue with MTS to determine recovery and mitigation strategies.
PMOC Recommendation	The PMOC recommends that MTA track all schedule elements set forth in the IRP and the draft Final Recovery Plan, and report the status to FTA and the PMOC each month. MTA should communicate schedule recovery activities to FTA and the PMOC and include the schedule recovery strategies in the Final Recovery Plan.
Issue/Concern	MTA's settlement with the P3 concessionaire includes significant settlement payments, including compensation for claims of cost impacts from the delayed execution of the FFGA. Final resolution of the cost and schedule impacts will also depend upon the development of a recovery schedule. The project cost, as reflected in the FFGA, is affected, and it is required that an MTA Purple Line Project Final Recovery Plan, including a revised project cost estimate with adequate cost contingency to address remaining project risks, be submitted to and approved by FTA.
Date Identified	September 2020.
Status	Ongoing.

Project Sponsor Action	Develop a revised cost estimate.
PMOC Recommendation	The PMOC recommends that MTA develop a realistic cost estimate as soon as the project details and project delivery plans are developed. MTA has provided cost information to FTA and the PMOC. MTA continues to develop cost and cost contingency information that is incorporated into the draft Final Recovery Plan. Budget contingencies must reflect potential additional costs required to address potential schedule delays and support a realistic EAC.
Issue/Concern	Impacts caused by COVID-19 have occurred at different levels for different aspects of the project. To date, impacts to construction have been managed effectively. Supply chain impacts have posed some problems but have been adequately mitigated. LRV production was delayed due to manufacturing slowdowns in both Spain and New York. MTA and PMC personnel continue to observe proper precautions. In January 2023, MTA stated that COVID-19 protocols for the project have been suspended.
Date Identified	May 2020.
Status	Closed.
Project Sponsor Action	Enforce the use of Personal Protective Equipment and other preventative measures, if needed.
PMOC Recommendation	The PMOC recommends that MTA continue to track and document costs or delays related to COVID-19. MTA should incorporate COVID-19-related costs into the project cost estimate.
Issue/Concern	MTA does not have a police force located in proximity to the Purple Line.
Date Identified	September 2022.
Project Sponsor Action	MTA hired a consultant team that analyzed alternatives for providing security and fare enforcement services for the Purple Line. Alternatives include: expanding MTA's enforcement services geographically, engaging a third party to provide these services through a contract, or sharing police services with another party. ***As of February 2023, MTA has prepared a draft recommendation for providing security and fare enforcement, and that recommendation has been submitted to the MTA Administrator.***
PMOC Recommendation	Although the currently forecasted RSA date is in 2027, the PMOC recommends that MTA determine its preferred security alternative without delay and promptly move toward implementation. The PMOC recommends that the SSOA be included in the review and comment process for the security and fare enforcement recommendation.

1.4. Status of Key Indicators Dashboard (Post-grant)

Table 3 shows the project Key Indicators Dashboard after the FFGA was awarded.

Table 3 – Key Indicators Dashboard

Project Sponsor:				Maryland Transit Administration	
Project Name:				MTA National Capital Purple Line Light Rail Transit Project	
Date:				***February 28, 2023***	
Project Detail					
Oversight Frequency:				**Monthly**	
Element	**Status**			**Prior Status**	**Issue or Concern**
	●	●	●		
	G	**Y**	**R**		
Project Management Plan		●		●	An updated PMP that reflects revised project conditions needs to be developed. Project transition and recovery plans need to be developed. MTA has prepared a draft Final Recovery Plan to reflect the contractor resolicitation and agreements. In October 2022, MTA submitted a revised PMP to the PMOC and FTA for review. On February 1, 2023, FTA provided its review comments on the PMP.

Project Sponsor:				Maryland Transit Administration	
Project Name:				MTA National Capital Purple Line Light Rail Transit Project	
Date:				***February 28, 2023***	
Project Detail					
Oversight Frequency:				**Monthly**	
Element	**Status**			**Prior Status**	**Issue or Concern**
	●	●	●		
	G	**Y**	**R**		
Management Capacity and Capability		●		●	A revised organizational chart, along with MTA's ability to demonstrate MCC, was approved with the IRP. Staffing requirements for both MTA and its PMC support team have been evaluated in conjunction with the revised PMP and Final Recovery Plan. FTA and the PMOC provided comments on MTA's MCC within the PMP review transmitted to MTA on February 1, 2023.
Cost*		●		●	A revised cost estimate reflecting new project conditions is required. A risk review workshop was conducted in May 2022, and draft summary results were developed for incorporation into the MTA Final Recovery Plan. FTA provided a summary of the risk workshop to MTA on June 22, 2022, for MTA's consideration and incorporation into its management plans and contingency evaluation. MTA should re-valuate risks based on the status of recovery activities and recent schedule challenges.
Schedule			●	●	A revised project schedule that incorporates the current project status is required. MTA approved MTS's IBS on September 12, 2022, and prepared a master schedule. FTA and the PMOC have reviewed the master schedule and provided comments to MTA on January 12, 2023. MTS's first several schedule updates show significant depletion of contingency, which is a cause for concern.
Quality		●		●	Quality continues to be acceptable, although the reporting to the PMOC requires refinement to meet FTA requirements. MTA's quality lead has retired, and a replacement quality lead has been assigned from existing MTA staff. This new lead, who is also the current systems and construction safety lead for the project, requires training in quality management and may need additional consultant support. In October 2022, MTA submitted to FTA and the PMOC an updated QAP for review in conjunction with their review of the Final Recovery Plan and other management plans.
Safety		●		●	Safety continues to be acceptable, although with an increase of MTS activities, recordable incidents are increasing. Also, there appear to be problems related to MTS's communication of safety incident reporting to MTA. In October 2022, MTA submitted to FTA and the PMOC Version 13 of the SSMP and Version 5 of the SSCP for review in conjunction with their review of the Final Recovery Plan.
Risk		●		●	The RCMP and Risk Register were updated to reflect the changes related to interim MTA management and construction delivery. In October 2022, MTA submitted to FTA and the PMOC Version 15 of the RCMP for review in conjunction with their review of the Final Recovery Plan and other management plans. FTA and the PMOC ***have provided comments*** on the revised RCMP to support MTA development of budget and schedule contingency.

Project Sponsor:			Maryland Transit Administration		
Project Name:			MTA National Capital Purple Line Light Rail Transit Project		
Date:			***February 28, 2023***		
Project Detail					
Oversight Frequency:			**Monthly**		
Element	**Status**			**Prior Status**	**Issue or Concern**
	●	●	●		
	G	**Y**	**R**		
Legend					
Green	Satisfactory: No Corrective Action necessary.				
Yellow	Caution: Risk/Issues exist. Corrective Action may be necessary.				
Red	Elevated for immediate Corrective Action: Significant risk to the health of the project.				

*Note: With regard to cost, the colors indicate the following status:
Yellow – Forecast cost exceeds the project budget by up to 3%.
Red – Forecast cost exceeds the project budget by more than 5%.

1.5. Core Accountability Items

Table 4 shows the core accountability items for the project, including the current status of the project and the major issues and how they are being addressed.

Table 4 – Core Accountability Items

		Original (Grant)	Current Forecast[1]	PMOC Assessment of Current Forecast
Cost	Capital Cost Estimate	$2,407,030,289	$4,925,533,068	TBD
Contingency	Unallocated Contingency	$90,535,748	$90,000,000	TBD
	Allocated Contingency	$59,500,464	$26,805,863	TBD
	Total Contingency	$150,036,212	$116,805,863	TBD
Schedule	Revenue Service Date	12/31/2022	10/15/2027	TBD

Project Progress		**Amount ($)**	**Percent of Total**
Total Expenditures	Actual cost of all eligible expenditures completed to date	***$2,612,050,530***	***53.0%***
Planned Value to Date[2]	Estimated value of work planned to date	Not Applicable (N/A)	N/A
Actual Value to Date[2]	Actual value of work completed to date	N/A	N/A

Contract Status		**Amount ($)**	**Percent of Total**
Total Contracts Awarded	Value of all contracts (design, support, construction, equipment) awarded; % of total value to be awarded	TBD	TBD
Construction Contracts Awarded	Value of construction contracts awarded; % of total construction value to be awarded	TBD	TBD
Physical Construction Completed	Value of physical construction (infrastructure) completed; % of total construction value completed	***$765,767,921***	***39.5%***

Rolling Stock Vehicle Status	Date Awarded	No. Ordered	No. Delivered
28 total car sets[3]	First 26 LRVs: 2016 Additional 2 LRVs: January 2022	28 car sets	0
Next Quarterly Progress Review Meeting Date:	***May 10, 2023***		

[1]The D-B contractor has been replaced. Draft budget figures, including the work under contract, are being incorporated into this report as they are provided by MTA. Not all information is up-to-date as ***of February 2023***.
[2]Earned value information is not available.
[3]The approved FFGA includes a total of 26 LRVs.

2. OBSERVATIONS AND FINDINGS

2.1. Summary of Monitoring Activities

The PMOC received an update from the Purple Line project team during ***the February 23, 2023, monthly meeting with MTA, the PMC, and the PMOC. Information from the FTA/MTA/PMOC Biweekly Progress Conference Calls held on February 14 and 28, 2023, also contribute to this report. The PMOC also attended the Quarterly Progress Review Meeting on February 8, 2023, and a site tour on February 9, 2023.*** Monitoring activities include review of MTA-provided scope, schedule, risk, financial, construction, safety and security, and real estate information.

After the U.S. Court of Appeals reversed the vacation of the ROD in July 2017 (refer to the **NEPA Process and Environmental Mitigation** section, below, for details), the FFGA was executed on August 22, 2017, approximately one year later than planned. The project is currently in the construction phase. The construction (D-B) contractor, PLTC, left the project, and a new project delivery plan was developed, including replacement of the D-B contractor. During the period when the replacement D-B contractor was being solicited, MTA managed select construction and design activities (OSF activities) in order to reduce uncertainty and support the project schedule. On November 5, 2021, MTS was selected as the replacement D-B contractor, and financial and commercial close occurred on April 14, 2022. MTA continues to manage OSF construction and design activities, and as of October 2022, MTS had mobilized and started work on activities throughout the entire project corridor. MTA and MTS held initial partnering activities during which they developed relationships, general project priorities for teamwork, and an understanding of key issues for different stakeholders. MTA ***has indicated that they would provide partnering information to FTA and the PMOC, yet has not for several months***.

2.2. Oversight Triggers

The oversight triggers most applicable to the project are the Oversight Procedure (OP) 25 cost and schedule triggers. The project did not have a mutually agreed-upon baseline schedule between March 2017 and September 2022. Significant schedule delays, and the need to modify the RSA date, keep the project eligible for rigorous oversight. Project schedule delays typically impact project cost, another significant indicator of project health. A revised project EAC must be developed in conjunction with development of the project's schedule and Final Recovery Plan. The development of a revised construction cost estimate and schedule will support effective project oversight.

2.3. Project Management Plan and Sub-plans

2.3.1. Project Management Plan

The PMOC reviewed the Purple Line PMP Version 10 in accordance with OP 20 for a PMP at the FFGA execution stage of a project. Subsequently, FTA and the PMOC reviewed PMP Versions 11, 12, and 13. Due to significant project team changes since those versions, another update to the PMP was required. In October 2022, MTA provided an updated PMP (Version 14) to FTA and the PMOC for review. On February 1, 2023, FTA provided review comments on PMP Version 14 to MTA. ***Also in February 2023, FTA provided its review comments on the most recently submitted SSMP, SSCP, and the Real Estate Acquisition Management Plan (RAMP) to MTA.***

MTA currently is using the approved IBS to develop a master schedule that incorporates operational readiness activities and schedule contingency (float). In October 2022, MTA provided a version of the master schedule to FTA for review along with the draft Final Recovery Plan. The PMOC also received .XER files and will conduct a thorough analysis of the schedule. MTS's first, second, third, ***and fourth*** updates to its schedule indicated a significant slip to the expected construction substantial completion date. MTA is evaluating the projected delays and, working with MTS, is developing potential recovery options. Realistic recovery strategies should be included in the Final Recovery Plan.

MTA has been providing an OSF project schedule biweekly. In addition, the IRP provided a schedule of activities during the D-B contractor replacement period. On April 11, 2022, private activity bonds went to market, and there was sufficient demand to sell all of the bonds. The TIFIA loan for the project closed on April 14, 2022, allowing financial close and commercial close on that same day. MTS is now the D-B contractor for the project. Financial and commercial close triggered NTP for PLTP. (See the **Project Schedule** section of this report, below, for further details.)

2.3.2. Safety and Security Management Plan

In February 2016, the PMOC reviewed the project's SSMP Version 6, dated October 22, 2014, in accordance with OP 22 for a project at the FFGA execution stage. The PMOC review found that the SSMP was compliant with FTA content requirements for execution of the FFGA, but the PMOC requested that MTA resubmit the SSMP after execution of the FFGA and address the comments in the PMOC report with updated information from the P3 concessionaire. Subsequently, SSMP Versions 7 through 11 were reviewed by the PMOC and FTA over the next four years. MDOT, which is the SSOA for the project, also reviewed SSMP Versions 8 through 11. On January 13, 2022, FTA provided comments on SSMP Version 12 to MTA. MTA submitted SSMP Version 13 as well as Version 5 of the Purple Line SSCP to FTA and the PMOC for review in October 2022. ***FTA and the PMOC have reviewed the SSCP and SSMP updates and provided their comments to MTA in February 2023.***

2.3.3. Quality Assurance Plan

In August 2017, MTA submitted for FTA/PMOC review a complete QAP update, the MTA Purple Line Quality Assurance Plan Revision 8.0. In January 2020, MTA prepared QAP Revision 9 and Document Control Plan Version 5. In October 2022, MTA submitted QAP Version 10 to FTA and the PMOC for review.

MTA meets with HNTB weekly to discuss quality. ***In February 2023,*** MTA reported the following recent quality management activities:

- Field inspections for OSF
- Meetings to coordinate closure of outstanding PLTC Non-conformance Reports
- ***Processing of Quality Oversight Assessment Reports (QOARs)***
- ***Field audits of materials testing and precast concrete materials***
- ***Offsite inspection of OCS pole and bridge girder manufacturing facilities***
- Field inspections of MTS activities
- Interdisciplinary Design Reviews
- Quality Control Reviews
- Design Submittal Reviews
- Design Services During Construction coordination with Atkins
- Reviews of asphalt, concrete, and earthwork sample and in-situ test results
- Monthly Quality Control (QC) review meeting scheduling

On January 18, 2023, the PMOC observed the monthly MTA Quality Team Meeting. The PMOC's observations will support its review of the QAP.

During OSF, MTA provided notes from monthly CAF and SNC Lavalin LRV manufacturing quality meetings for PMOC review. The information provided summarized issues and corrective actions, and upcoming quality audits. MTS is now responsible for preparing these notes.

One manufacturing quality issue, the recurring failure of a bolt in multiple vehicles, has not been resolved. MTA determined that the issue does not impact safety, and the solution is likely the use of a higher strength bolt. The final report on this issue is expected in ***March 2023.***

In November 2021, MTA's quality lead for the Purple Line project, Rene Schroeder, retired. Roland Carroll has been assigned to add the quality lead role to his other Purple Line roles (he is currently the systems and construction safety lead). MTA is modifying its Quality Assurance (QA) efforts as MTS mobilizes its quality program, and a revised QAP was submitted to FTA in October 2022. ***The PMOC completed its review of the QAP and FTA will be provide comments to MTA in March 2023.***

2.3.4. Real Estate Acquisition Management Plan

The PMOC reviewed the project's RAMP Versions 10, 11, and 12. The PMOC reviewed the plans with respect to the guidelines in OP 23 for a project in the construction phase. MTA submitted an updated RAMP Version 13 to FTA and the PMOC in October 2022.

2.3.5. Fleet Management Plans

The Purple Line project's Rail Fleet Management Plan (RFMP) Version 7.0, dated February 15, 2016, is the version of the plan reviewed by FTA and the PMOC, and it incorporates information from the P3 concessionaire's proposal. The PMOC completed its review of RFMP Version 7.0 and documented, in its OP 37 RFMP review report issued on May 27, 2016, that RFMP Version 7.0 met the requirements of OP 37 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 RFMP, after a review by MTA confirmed that it met the requirements of the Purple Line project. The P3 contract required PLTP to submit its RFMP for MTA review and approval within 90 days of June 17, 2016 (P3 contract financial close), to then 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 before the scheduled beginning of revenue service, and to update the RFMP annually once the project is in revenue service. MTA received, reviewed, and approved PLTP's Purple Line RFMP Revision 0, dated June 22, 2016, after P3 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 then submitted PLTP's RFMP Revision 0 to FTA and the PMOC. PLTP's RFMP Revision 0 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 OP 37.

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 on March 4, 2016, issued its final OP 37 BFMP review report, concluding that the BFMP met the requirements of OP 37 for the execution of an FFGA for the Purple Line project.

2.3.6. Risk and Contingency Management Plan

The current approved version of the RCMP is Version 14, dated May 2016. The PMOC's OP 40 review found that RCMP Version 10 met the requirements of OP 40 for an RCMP at the FFGA stage of a project. However, because of the impacts of the lawsuit filed by the Friends of the Capital Crescent Trail, MTA had not been able to establish routine bimonthly 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 initial lawsuit was resolved and the FFGA was executed. MTA completed an update of the project's Risk Register in March 2018 and continues to conduct subsequent periodic updates and to provide copies of those updates 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 sub-plans. In early 2020, MTA commenced another update to the RCMP to incorporate the results of the latest quantitative risk assessment that, in turn, incorporated the results of the replacement D-B contractor resolicitation and the revised project implementation details. MTA held a risk management workshop that focused on the interim period on January 26, 2021.

MTA has provided a comprehensive Risk Register and risk mitigation activities in conjunction with the draft Final Recovery Plan. In preparation for a risk analysis, MTA held risk assessment interviews with individual risk owners to review existing risk items and identify new risks. In December 2021, MTA prepared an updated Risk Register that includes over 100 risk items, including PLTP and MTS risks. MTA must utilize the Risk Register and the draft RCMP to develop contingency estimates and a revised EAC.

A risk workshop was held the week of May 2, 2022, at which the PMOC and FTA participated in an OP 40 risk and contingency review that evaluated cost, schedule, and project contingency. Confirmation and finalization of the Risk Register, the quantitative risk assessment, and an update of the RCMP was prepared by MTA. The PMOC developed a draft summary of the risk review results; however, because of the preliminary nature of baseline schedule information available, further schedule analysis is required now that MTA has a comprehensive baseline schedule. FTA provided a risk summary to MTA on June 22, 2022, for MTA's consideration while it was updating the RCMP. MTA provided responses to FTA comments on the risk summary on July 15, 2022. MTA provided further clarification on August 25, 2022. MTA's responses indicated that most of the comments would be addressed as recommended by FTA and the PMOC. MTA submitted RCMP Version 15 to FTA and the PMOC for review in October 2022. ***FTA and the PMOC have provided comments*** on the revised RCMP to support MTA's development of the project's budget and schedule contingency.

2.3.7. Safety and Security Certification Plan

Version 3 of the Purple Line SSCP is dated November 4, 2014. The PMOC review found that the SSCP Version 3 met the FTA requirements in support of the FFGA application. MTA submitted SSCP Version 4 on February 3, 2020, in conjunction with the updated SSMP submittal (see the **Safety and Security Management Plan** subsection, above). The SSOA completed its review of SSCP Version 4 and discussed its comments with the PMOC. MTA decided that the new emergency management working group would be a subcommittee to the Fire Life Safety and Security Committee, and this decision would be reflected in the next revisions of the SSMP and the SSCP, which were planned for after the replacement D-B contractor was in place. MTA submitted SSMP Version 13 and SSCP Version 5 to FTA and the PMOC in October 2022. ***In February 2023, FTA and the PMOC completed their reviews and provided comments on these plan documents to MTA.***

2.4. Management Capacity and Capability

Through the PMOC's observations and discussions with MTA, especially with MTA Transit Development and Delivery and Purple Line project management personnel, the PMOC has noted that MTA has been responsive to finding and assigning MCC, as needed, to sufficiently complete the project in compliance with applicable FTA requirements. These efforts have included bringing staff, either MTA or MDOT personnel or consultants, onto the project to manage the current needs, such as planning, P3 procurement and contracting, real estate acquisition, and construction.

In November 2021, MTA's quality lead for the Purple Line project, Rene Schroeder, retired. It was proposed that Roland Carroll, currently the Purple Line systems safety and construction safety lead, add the quality lead role to his other Purple Line roles. In February 2022, MTA provided a white paper outlining Mr. Carroll's experience, his recent training, and the proposed supporting staff related to the new quality management role. ***The PMOC has evaluated this change as a part of the PMP review and has requested that MTA provide additional information.***"

Vernon Hartsock, Purple Line Project Director, retired on February 1, 2022. MTA began the search for a replacement, and in the interim, Matt Pollack and Anita Rodgers shared the Project Director responsibilities. As of July 2022, MTA filled the vacancy with Ray Biggs, an engineer and manager who has experience with FTA and transportation projects. The PMOC will include Mr. Biggs's role as Project Director in its review of MTA's MCC.

The PMOC continues to monitor the effectiveness of the MTA staff and the personnel resources from consultants, MDOT, and other modal administrations as they have been integrated into the overall MTA management of the project. MTA currently is evaluating support staff and its effectiveness in consideration of the end of OSF and the mobilization of MTS staff to the project. The PMOC will evaluate MTA's MCC during readiness reviews conducted in parallel with MTA's development of a Final Recovery Plan. FTA and the PMOC provided comments on MTA's MCC within the PMP review transmitted to MTA on February 1, 2023.

In April 2022, Jenny Barkett from the PMC team left the project. Ms. Barkett held a significant role during the OSF period and D-B contractor resolicitation process. In September 2022, MTA supplemented the Purple Line team with the hiring of Ken Forsythe as the Deputy Communications Director. As of October 25, 2022, MTA hired Kevin Oberheim to fill the Deputy Program Director position. On December 20, 2022, MTA announced that David Fertal had left the PMC support team. Kevin Oberheim has assumed Mr. Fertal's duties as Interim Deputy Project Director.

2.5. NEPA Process and Environmental Mitigation

2.5.1. NEPA Process

FTA issued a ROD on March 19, 2014. The National Park Service issued its ROD on July 16, 2014.

MTA has continued to submit environmental re-evaluations as required based on design advancement and other causes. To date, PLTC (before it left the project) 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. The most recent status ***(as of January 2023)*** of NEPA items is:

- All LOD cases have been approved. There are currently no additional LOD cases expected.
- The ATC for the Bethesda Station jet fan has been vetted, and final documentation is being prepared for submittal to FTA for concurrence that the ATC meets project

requirements. Final documentation for the ATC is still pending as of ***January 2023***. MTA and MTS are coordinating the noise and aesthetic impacts of the fans, and they optimistically predict that the fans will not have Section 4(f) impacts or other impacts to the ROD**.**

On August 3, 2016, in response to the lawsuit filed by the Friends of the Capital Crescent Trail against FTA, a federal judge filed his Order and accompanying Memorandum Opinion. In those documents, it was ordered that the ROD for the Purple Line project be 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 whether 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 in 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 U.S. Court of Appeals issued its ruling on December 19, 2017, in which the judges ruled in favor of FTA and the project, and ruled that the transit agencies would not have to conduct a new environmental study to examine other potential routes for the Purple Line.

The Friends of the Capital Crescent Trail filed a second lawsuit after the FFGA signing and after the groundbreaking ceremony was held on August 28, 2017. The September 19, 2017 Preliminary Hearing for this suit resulted in no temporary injunctions or restraining orders, and project construction proceeded as the case progressed 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 FTA.

The Friends of the Capital Crescent Trail filed a third lawsuit in January 2019, this time against USACE. The USACE legal staff and the Office of the Attorney General provided the defense. 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 USACE. In October 2019, USACE filed for a Summary Judgment to Dismiss the case, and the plaintiffs filed their response; a hearing date was set for March 23, 2020. However, in late February 2020, the assigned judge recused himself from the case, and the scheduled hearing was canceled. In mid-April 2020, the District Court ruled in favor of the USACE/MTA motion for Summary Judgement to Dismiss, and the case was dismissed. The plaintiff subsequently filed an appeal on May 11, 2020, and the case continued in the legal process. Oral arguments related to the appeal occurred on March 11, 2021. The District Court denied the appeal on May 13, 2021. The decision resolved the last remaining lawsuit related to the project.

2.5.2. Environmental Mitigation

The project achieved the required mitigation for reforestation through the purchase of 82.5 acres of offsite credits (combined, in both Montgomery County and Prince George's County). This amount of offsite credits is expected to be more than needed and the P3 concessionaire's design will monitor that this remains the case. PLTP's Forest Conservation Plan (FCP), which documented a need of 75.73 acres, 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. In Maryland, need is based on land disturbance rather than only forest removal. MTA's tracking of additional disturbance due to the progress of design and construction indicated that the total need is still within the amount of available offsite credits.

The Joint Permit Application for Wetlands and Stream Mitigation was formally submitted to USACE and 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, because time had passed since the permit was drafted, MDE updated and issued the finalized permit the first week of April 2018. USACE completed its NEPA and conditions review as well as its 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 the longer construction periods resulting from construction moratoriums for forests and streams. The project received approval from MDE during the week of December 3, 2018, and received the USACE approval letter in mid-June 2019.

The project team has been addressing the environmental mitigation for wetlands through the development of the offsite Ken-Gar location, which is implemented through 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 the bids underwent MTA Procurement Department review. The BPW approval of the award was received on September 4, 2019. As of June 2021, the Ken-Gar wetlands mitigation project is essentially complete and has completed its one-year warranty period. See the **Construction** section of this report, below, for further discussion of the progress on this Ken-Gar Wetlands Mitigation construction contract.

The project team has been addressing the environmental mitigation for streams through the development of the offsite Paint Branch location, which is implemented through 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 the award was received on September 4, 2019. The Paint Branch stream restoration is complete, and warranty corrections (partial replanting) occurred in December 2022. See the **Construction** section of this report, below, for further discussion of the progress on this contract.

The project has plans to address stormwater mitigation, beyond what can be mitigated on the project site, through retrofitting offsite locations in both Montgomery County and Prince George's County. On November 12, 2021, MTA determined that there is a need for additional stormwater mitigation in Prince George's County. A project to construct additional stormwater mitigation is included in the scope of work for MTS.

The joint MTA and University of Maryland (UMD) technical board resumed meetings in December 2021 to coordinate efforts related to the mitigation of noise, vibration, and electromagnetic interference at the UMD facilities. Following this meeting, the members of the joint technical board voted to approve the outstanding design packages. This action effectively ended the activities of the technical board until the LRT is in trial running.

The Purple Line project team submits quarterly Environmental Mitigation Monitoring Reports for the project. MTA has continued to manage the environmental mitigation and monitoring activities as the project has transitioned to the replacement D-B contractor, MTS. Because MTS is now performing construction, MTA will monitor the environmental activities performed by MTS. On May 3, 2022, MTA provided the first quarter 2022 environmental report, and the report summary states that "no problems, gaps, nonconformances, or NEPA issues of any sort were found as a result of this quarterly assessment."

In November 2022, MTA submitted to FTA and the PMOC the third quarter 2022 ROD Commitment Tracking report (i.e., the monthly environmental management report). ***MTS and MTA submitted the fourth quarter 2022 ROD Commitment Tracking report on February 20, 2023.***

2.6. Project Delivery Method and Procurement

The Purple Line project team identified P3 as the project delivery method for the Purple Line project. The majority of the capital cost of the Purple Line project has been packaged into a Design-Build-Finance-Operate-Maintain 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") in which appropriate risks and benefits are allocated in a cost-effective manner between the contractual partners. The P3 concessionaire is intended to perform some functions normally undertaken by the transit agency, but MTA remains ultimately accountable for the Purple Line project 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 PLTP had been selected as the P3 concessionaire. Commercial close of the P3 contract occurred on April 7, 2016, and financial close occurred on June 17, 2016.

In late April 2020, PLTC notified PLTP that due to PLTC's forecasted schedule delays on the project (which did not receive agreement from MTA), PLTC intended to exercise the clause that allowed it to terminate its contract with PLTP for the design and construction services under the P3 contract if delays exceed 365 days. MTA sent a formal request to PLTP for a response that would include a definitive path forward. On the response due date of May 14, 2020, PLTP

submitted its response, which stated that PLTP intended to continue to negotiate with PLTC to retain PLTC as part of the P3 concessionaire team. On June 23, 2020, PLTP sent a formal Notice of Unconditional Election to Terminate the P3 Agreement to MTA, although PLTP indicated a willingness to negotiate a settlement. On June 24, 2020, MTA sent a Formal Notice of Concessionaire Default. This notice essentially refuted the validity of the PLTP delay claims and stated that if PLTP fails to perform, MTA has a number of options related to the P3 Agreement. Through July 2020, construction activities continued at the levels previously planned and were not affected by the dispute.

In early August 2020, PLTC and subcontractors demobilized equipment, materials, and personnel. In response, the Maryland Attorney General filed a motion for a Temporary Restraining Order (TRO) that prevented PLTP from abandoning the work or demobilizing. Upon issuance of the TRO, the contractor and subcontractors remobilized some equipment and restarted many construction activities. A hearing to uphold or rescind the TRO occurred before the expiration of the TRO on September 14, 2020, and the court rescinded the TRO, allowing PLTP to leave the project. If the TRO had been upheld, PLTP would have been required to continue working until the contractual dispute resolution procedures were followed.

When an agreement was not reached, the bond holder firms had the first right to take over the project. However, MTA planned an alternate path forward based on its exercise of step-in rights. To that end, MTA assumed the contracts of over 100 subcontractors, indicating MTA's intent to continue the project. MTA adjusted staffing for construction management, resident engineers, and inspectors to move forward with the project.

On November 24, 2020, MTA and the P3 concessionaire, PLTP, reached a settlement agreement to release the project's D-B contractor from the P3 consortium and continue the project with the remaining parties. The state's BPW approved the settlement agreement on December 17, 2020. Activities set out in the agreement and the IRP have been proceeding with multiple modifications to milestone dates as needed.

The agreement includes the following key aspects, as MTA has communicated to the PMOC:

- PLTP agreed to procure a replacement D-B contractor to complete the project and to obtain project financing. The selection of the preferred replacement D-B contractor, MTS, occurred on November 5, 2021. The original settlement provisions required financing and execution of the contract with the D-B contractor by September 23, 2021, but several amendments to the settlement agreement between MTA and PLTP occurred to extend the date. The TIFIA loan for the project closed on April 14, 2022, allowing financial close and commercial close on that same day. MTS is now the D-B contractor for the project.
- The settlement agreement provided a mutual release from all disputed and undisputed amounts (incurred before September 28, 2020) for PLTP, PLTC, and subcontractors. The agreement also released outstanding litigation among the parties.

2.7. Design

2.7.1. MTA Design

MTA's GEC completed the project design to approximately the 30 percent design level in fall of 2013 and provided incremental enhancements through late 2015. This design formed the basis of the RFP for the P3 contract. See the **P3 Design** subsection, below, for a discussion of the advancement of this design by PLTC, the former PLTP partner that was responsible for the design and construction of the capital project, and continued design under MTA.

MTA was responsible for the design and construction contracts under a Design-Bid-Build delivery method (separate from the P3 scope) for the following projects:

- Stream mitigation – MTA completed the 100 percent design packages in June 2017 and received approval from MDE in May 2018. Construction of the stream mitigation is now complete. See the **Environmental Mitigation** subsection of this report, above, for additional details.
- Wetlands mitigation – MTA completed the 100 percent design packages in June 2017. Several design adjustments were subsequently made based on MDE and Montgomery County comments. The construction contract was advertised on May 3, 2019. Construction of the original wetlands mitigation is now complete. See the **Environmental Mitigation** subsection of this report, above, for additional details.
- Offsite SWM sites – MTA completed design and obtained MDE approval of more than the P3 contract-required 5 acres of offsite mitigation in Montgomery County on May 29, 2018. In late October 2019, MTA received MDE approvals for the next 5 acres to be added to the mitigation credit "bank," thus satisfying the contract requirements for 2019. As of November 2022, MTA does not have a need to seek any further additions to the current offsite mitigation credit bank. See the **Environmental Mitigation** subsection of this report, above, for the current requirements.

MTA also completed the design to support a D-B contract for the replacement of the existing Parks Maintenance Facility with a facility on Polk Street. Construction of the facility is now complete. See the **Real Estate Acquisition and Relocation** and the **Construction** (MTA Scope) sections of this report for further details.

2.7.2. P3 Design

PLTC's design progress was forecasted to achieve substantial design completion for Civil packages in August 2020, substantial design completion for Systems packages (except for Fare Collection) in September 2020, and completion of the Fare Collection design package in 2021. The original baseline schedule anticipated design completion by late fall 2017. As of August 2020, the number of planned Civil, Systems, and Utility design packages was 218.

Upon the departure of PLTC, MTA contracted with the engineer-of-record, Atkins, to continue to advance the design of limited aspects of the project.

The current progress through ***February 28, 2023, is that 209 of the 218*** total planned design packages have been issued as RFC. Civil and Utility packages that remain in design or approval include traffic signal pre-emption, grade crossing safety systems, lighting, signage, and stations. Although Systems packages were scheduled to be complete by the end of the first quarter of 2022, those packages remain in progress. The current forecast for completion of all design packages is June 2023.

PLTC reached resolution on the final remaining ATC identified during the proposal process. The ATC is related to the use of jet fans at the Bethesda Station in lieu of vent shafts. In accordance with the established process, MTA is reviewing the design package for NEPA compliance. Final documentation for the ATC is still pending as of ***February 2023***. MTA and MTS are coordinating the noise and aesthetic impacts of the fans, and they optimistically report that the ATC will have no Section 4(f) impacts or associated impacts to the ROD.

CSX informed the project team that its updated rail design criteria, which were issued after the "setting date" of the original P3 contract, were applicable to the Purple Line project design. MTA and CSX worked to resolve issues related to the applicable design criteria and which project areas were affected until, in July 2019, a mutually agreeable path forward was defined for all areas. 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 SSTC 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 May 2020, CSX indicated that the final design is acceptable. Revised documents, providing some minor clarifications related to ROW, were submitted to CSX on September 8, 2020, and ultimately CSX approved the design. The revised documents were submitted to WMATA several times in early 2021.

- WMATA's comments on design plans for the SSTC mezzanine connector pedestrian bridge (over CSX ROW) will result in what MTA deems are betterments. Resolution of WMATA comments is nearly complete ***as of February 2023.*** MTA reports that the slow resolution of these issues has not impacted critical path activities.

- An encroachment into the CSX vertical clearance was discovered upon installation of girders at SSTC. Although the designer believed the loading of the bridge deck might alleviate the issue, shimming was discussed as a potential solution. Shimming was not MTA's preferred solution; therefore, an exception was requested from CSX to allow the ¾-inch encroachment to remain. CSX denied the exception. MTA and the designer prepared for a contractor to jack and shim the structure to create the required clearance. Construction of this work was completed in August 2021.

- CSX provided review comments disallowing revised drainage networks, related to the Capital Crescent Trail work, which would connect to CSX's existing drainage culverts. The work on the Capital Crescent Trail is not part of the FFGA and is separately funded by Montgomery County. As a result of work with Montgomery County, the connections

were relocated from CSX property to Montgomery County property and therefore are no longer a CSX issue. To fully accomplish this approach, two connections required resolution. Montgomery County acquired two parcels of land from CSX (not FFGA-funded) and then accepted responsibility for one connection currently under the responsibility of CSX. Storm sewer construction under the CSX railroad is required in several locations. Two jack-and-bore installations of culvert pipes were completed in November 2022. Another 72-inch-diameter culvert installation has been delayed because it is waiting on completion of technical reviews and the design of structural track support during construction.

2.8. Real Estate Acquisition and Relocation

As of ***February 10, 2023,*** the total number of planned property acquisitions is 601, including 464 privately owned properties and 137 public acquisitions. For the private properties, to date, a total of 476 offers were made, including for parcels that were subsequently eliminated, and 234 offers were accepted. All of the original Exhibit 9 FFGA-scope private parcels in the P3 contract are in MTA's possession, some of which are properties that continue in condemnation under the State Highway Administration process. To date, 411 of the original 464 private properties have completed settlement, 6 additional properties (not part of the original 464 private properties) are pending settlement, and 53 condemnations remain to be 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 ROE. Montgomery County will prepare a deed of transfer of the Woodmont Plaza property to MTA in return for MTA's transferring the Kaldis property (acquired to provide project access during the construction phase) to Montgomery County at the end of project construction. MTA determined that federal funds were used in the acquisition of the Kaldis property and will therefore engage FTA in the transfer. A conveyance plat has been issued, and MTA continues with due diligence on the purchase agreement and appraisal. Both the Woodmont Plaza and Kaldis properties are slowly moving toward resolution.

All required public properties have been available for construction when needed. Several public property rights transfers are currently being coordinated to accommodate sidewalk changes, utility easements, and ROW exchanges.

As the project has progressed and new utility relocation needs have been identified, additional small parcel acquisitions have been added to the total as utility down-guys. In December 2017, PLTC initially submitted a list of approximately 280 such parcels related to utility relocations and subsequently added to that list. MTA resolved that it would acquire these properties, rather than execute amendments to the utility agreement that would 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. ***As of February 10, 2023,*** the list of additional acquisitions totals 188 parcels, with several more potential acquisitions that may be needed for stormwater facilities. Of these parcels, 54 are public property and will be acquired by agreement, and 134 are private acquisitions. MTA is tracking the additional parcels

(approximately 98 percent are for utility relocations) separately in its ROW tracking system to best manage changes to parcels already acquired or in the process of acquisition. Sixty-seven of the 188 properties are filed for condemnation, excluding those that were subsequently optioned or settled, and 89 are settled. MTA estimates that ***approximately $35 million*** of exposure remains in the acquisition process. This amount has been included in the risk assessment.

The project required a total of 177 relocations, of which 57 were residential and 120 were businesses. To date, all 177 of those identified relocations have been completed in accordance with the applicable procedures, and no active claims remain to be settled. Also, MTA is monitoring terms of agreement of the property acquisitions discussed above that have not yet completed settlement, because some of them could potentially result in the need for additional relocations. As of October 2022, there were two new relocations related to commercial properties that potentially will be required.

On November 22, 2022, MTA reported that six of seven critical acquisitions had been closed. The remaining acquisition is needed by June 2023 to meet commitments that MTA has made to MTS.

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 MTA shares this information with the PMOC. Based on actual settlement amounts and projected amounts for those not yet closed, settlement/condemnation values are 46.4 percent higher than the SCC budget for ROW. Settlements have not yet been reached for a significant number of properties. Currently, with 134 properties that still need to be closed, the total ROW budget is likely to continue to increase. MTA has included these cost projections into its development of a Final Recovery Plan project cost estimate (see the **Project Cost** section of this report, below).

Due to the extended project duration, there are a number of agreements that will expire before the expected RSA date. MTA and MTS have started the process of identifying the end dates now needed for the agreements and will begin the process of obtaining extensions. MTA has evaluated the risks, estimated the cost of the extensions, and included those costs in a budget contingency. MTA estimates that ***approximately $13 million of risk exposure*** remains due to necessary TCE extensions. This amount has been included in the risk assessment.

The relocation of the existing Parks Maintenance Facility to make way for the siting of the new Purple Line Glenridge OMF was implemented as a negotiated/functional replacement. MTA's Procurement Department led the D-B contract solicitation for the Prince George's County facility. The replacement facility is complete and has been turned over to Prince George's County Parks.

2.9. Third-party Agreements and Utilities

All major third-party agreements (specifically, those agreements with Washington Gas, Verizon, PEPCO, CSX, UMD, Montgomery County Parks, Prince George's County Parks, WMATA, 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 lines that are currently overhead be placed underground when they cross the light rail alignment. To minimize the total

cost impact of this change, MTA and Verizon reduced the number of locations where Verizon lines cross the alignment to 34. MTA is of the opinion that this reduction 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 for placing 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 upon in early March 2019. MTA had planned to negotiate the cost responsibility with PLTC and Verizon after all major Verizon relocations were completed. However, since the departure of PLTC, MTA carries this cost as a betterment outside of the FFGA scope.

In early June 2018, MTA and PLTP completed the negotiation of all remaining third-party agreements with the smaller utility and telecommunications (telecom) 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 to existing executed agreements continues to be evaluated. The current significant items include:

- To date, the design differences with CSX, as discussed earlier in this report, have been adequately resolved through design review and concurrences, and have not resulted in the need to amend the CSX agreement.
- WSSC proposed that the project relocate a 66-inch underground water main that runs through the Glenridge OMF site. The project designers determined that it was acceptable for the water main to remain in place, but that it would need to be under significantly deeper cover, complicating future access. MTA agreed that the line will be relocated. In March 2020, MTA and WSSC agreed on a water main alignment primarily in the median of Veterans Parkway, as well as a strategy for completing the relocation. The original Purple Line project GEC performed the design; WSSC is providing the material; and MTA has separately contracted for the construction, thus avoiding impact to the P3 concessionaire's scope of work. On January 8, 2021, the GEC team submitted the 100 percent design to MTA for review. MTA submitted a revised 100 percent design package to WSSC for review in February 2021. On May 21, 2021, WSSC authorized work, and mobilization began August 9, 2021. Installation of cathodic protection and final site restoration are the only remaining items of this water main work as of January 2023.
- MTA Administrator Holly Arnold, Matt Pollack, and Vernon Hartsock met in December 2021 with the senior administrator at PEPCO to reinforce the need to process Transfer of Ownership Agreements (TOAs) in a timely matter, because delays were putting the completion of OSF construction at risk. After this meeting occurred, the processing of the TOAs accelerated.

- In late July 2022, MTA and MDOT held a summit with the many utility providers that experience relocations related to transportation projects to discuss best practices and improvements to the utility relocation process.

The project has been addressing its interface with 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 has drafted a separate Memorandum of Understanding (MOU) with the Montgomery County Schools system, which was approved by the School Board and signed by the School Superintendent, Montgomery County, and MTA. In the interim, work continued under an executed ROE. A similar MOU was negotiated between MTA and the Rosemary Hills School and was approved at the School Board meeting on February 12, 2019. The Rosemary Hills School also provided an interim ROE, and work at the school has continued unimpeded. ***MTA submitted a draft second MOU to Montgomery County Schools on November 3, 2022, and currently is awaiting a response from Montgomery County Schools.***

As MTS commences construction work, coordination meetings will be needed to ensure that prior agreements with third parties (utility companies and others) are followed. It is MTA's position that the transfer of third-party agreements from PLTC to MTA and now to MTS should not allow for a change in the terms of the agreements.

2.10. Construction

2.10.1. 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 replacement Parks Maintenance Facility (which is part of the real estate effort and budget), wetlands mitigation, stream mitigation, and possibly some offsite SWM sites. MTA has accomplished forest mitigation without the need for additional construction. The following discussion presents the current status of the MTA construction contracts:

- **Prince George's County Parks Polk Street Replacement Maintenance Facility** – This D-B contract was awarded after the BPW approved the construction contract award on March 20, 2019. NTP for the base scope was issued to the D-B contractor, Forrester Construction Company (Forrester), on April 5, 2019. Forrester mobilized for construction in January 2020, and construction is complete. Parks has taken possession of the facility, and it is currently in the warranty period.
- **Offsite Wetlands Mitigation (Ken-Gar)** – The Wetlands Mitigation construction contract was awarded after the BPW approved the award on September 4, 2019, and NTP was issued to Environmental Quality Resources, LLC on September 5, 2019. The contractor mobilized in December 2019 and completed site surveys and the installation of Erosion and Sedimentation (E&S) controls. Clearing and grubbing began in February 2020. Prince George's County took partial acceptance of the entire project on March 3, 2021. Acceptable growth of vegetation has been achieved, allowing for closure of this

project. The one-year warranty review occurred on January 9, 2022, and now the project requires MTA quarterly monitoring until closeout in 2028.

- **Offsite Stream Mitigation (Paint Branch)** – The Stream Mitigation construction contract was awarded after the BPW approved the award on September 4, 2019, 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. Installation of E&S controls was completed and approved by MDE in early February 2020. Substantial completion of construction has occurred. Revegetation has been accepted, and E&S control measures have been removed. The one-year warranty inspection occurred on August 4, 2022, and 1,700 plants were replaced in November 2022.

2.10.2. P3 Scope

Highlights of construction activities ***through February 2023*** throughout the alignment include*:*

- General: As a result of the dispute with PLTP (see the **Project Delivery Method and Procurement** section, above), all project activities slowed in the fall of 2020. In early August 2020, contractor forces, equipment, and materials were demobilized, and work in some areas ceased. Upon legal action from MTA, partial remobilization occurred. Following the court's rescission of the TRO, demobilization and safe-up activities in the construction area began in earnest in mid-September 2020 and continued into October 2020. Following PLTC's exit, MTA engaged a number of former PLTC subcontractors to continue select project activities. This work has been progressing under MTA management with a goal of advancing critical path activities and reducing risk for the replacement D-B contractor.
- Status of ongoing P3 construction items that MTA manages:
  - Utility installations of all types are underway, including construction by the electric provider, PEPCO, and the communications company, Verizon. Water, storm sewer, sanitary sewer, and gas lines are also being constructed.
  - TPSSs were expected to be delivered at a pace of approximately one every other month, beginning with TPSS QYG in November 2022. Site preparation for the installation of TPSSs Q8, QYG, and QYP continues. As ***of February 2023, the PEPCO-related*** issues that delayed delivery of the TPSSs ***have been resolved. MTA expects that*** these delays will not delay the delivery of LRVs in mid-2023.
  - In April and May 2021, 29,000 concrete railroad ties were delivered to an onsite storage location for future use by the replacement D-B contractor. As a part of OSF, MTA ordered rail, ties, special trackwork, and turnouts to mitigate supply chain risks. MTA has received and stockpiled some of this material. As of August 2022, materials were received at the Glenridge OMF, and MTS unloaded and placed them in storage for future installation by MTS.

- Building construction at the Glenridge OMF is essentially complete; however, construction of civil items outside of the building continues, as does final commissioning of systems inside the building. MTS is scheduled to assume control of the facility in early 2023. ***In February 2023, MTA was coordinating the final details of the turnover of the facility to MTS.*** MTS currently is working in the OMF, installing embedded track inside the building and correcting nonconforming work related to the interior track. There are six items remaining that MTA cannot yet complete because of long lead times for necessary replacement parts. ***MTA is still responsible for completing these six items and expects to complete several of them in March 2023.*** MTS will assume control of the facility with those items outstanding, and MTA will complete the items when feasible. MTS then will maintain the facility until it is turned over to PLTP. MTS will complete the tracks for storage and testing of LRVs.
- Based on the status of construction, MTA determined which items would be completed before mobilization of the replacement D-B contractor. Some of the subcontractors working now, and especially the utility companies, have resource limitations that may not allow MTA to complete all of the items within the original schedule presented in the IRP. Some OSF utility installation activities fell behind schedule, but MTA implemented mitigation measures to recover the lost time. MTA reports that it is coordinating with MTS to address construction items that have fallen behind the OSF schedule. OSF construction activities were expected to be completed before September 1, 2022, but the most recent schedule provided by MTA indicated a ***March 2023*** completion for most OSF activities, including Verizon relocations. In late July 2022, MTA and MDOT held a summit with the many utility providers that experience relocations related to transportation projects to discuss best practices and improvements to the utility relocation process.
- MTS has taken responsibility for traffic control, E&S controls, security, and other housekeeping activities.
- MTA's Equal Employment Opportunity Officer assigned to the project is Marquis Washington. He is supporting MTS in its hiring program. The former contractor, PLTC, left the project with a shortfall in meeting the requirements of its DBE program, and MTS is required to address this shortfall of approximately $12 million in contract value.

2.11. Vehicle Technology and Procurement

The LRVs are five-car vehicles consisting of 136-foot-long, articulated units. Twenty-six vehicles (22 in operation and 4 spares) will be provided under the FFGA for the opening year. PLTP executed the LRV contract with CAF on June 17, 2016, and issued NTP to CAF on July 5, 2016.

MTA has added two vehicles by change order to CAF's contract, for a total of 28 vehicles to be supplied by CAF. The two additional LRVs will support better operations at RSA. MTS will

incorporate these two additional LRVs into its scope of work (in addition to the cost and terms of LRV storage in Elmira).

Vehicle carshell manufacturing activities, which are coordinated with design progress, occurred until the facility in Spain was shut down in late March 2020 due to supply chain issues and to limit the spread of COVID-19. The facility in Spain reopened at approximately 50 percent of its workforce capacity during the week of April 20, 2020, and is currently fully functional on the Purple Line project. The final assembly facility in Elmira, New York, was shut down in early April 2020 due to New York State restrictions related to COVID-19 and reopened on May 18, 2020, at 50 percent of its workforce capacity. As of early August 2020, both the Spain facility and the Elmira facility were back to 100 percent staffing levels.

The final assembly of vehicles is being performed in CAF's facility in Elmira. MTA, its PMC, and SNC Lavalin are meeting weekly with CAF to resolve all open items for design, testing, and manufacturing activities. First Article Inspections (FAIs) for Interior and Cab were completed on March 18, 2021, and FAIs for Exterior, Roof, and Undercar were completed on April 2, 2021.

Shipment of the first vehicle to the project site was expected in late spring of 2021. The lack of available storage at the yet-to-be-completed Glenridge OMF requires use of an offsite storage facility where vehicles can be stored, occasionally powered, and occasionally "exercised" or moved on tracks. MTA and CAF negotiated an agreement for CAF to store the completed LRVs in Elmira. That storage agreement subsequently transferred to MTS, and its terms are part of MTS's agreement. Twenty-six LRVs have been designated as Ready for Shipment and have been placed into storage in Elmira. MTS has assumed the CAF contract and is preparing and submitting to MTA reports on LRV maintenance activities required during the storage period. MTS's proposed construction schedule establishes when the test tracks will be available for acceptance of the railcars at the Glenridge OMF. Currently, the schedule indicates that initial deliveries of LRVs will commence in the fall of 2023.

The status of the LRV manufacturing as of ***February 28, 2023,*** is:

- To date, 130 carshell segments have been assembled in Spain.
- All 130 carshells have been delivered to CAF's facility in Elmira, New York.
- All 26 full LRVs in the FFGA are designated as Ready for Shipment and are in storage at CAF's Elmira facility.
- Two additional LRVs are under contract. These LRVs are not a part of the FFGA, but rather an addition to the contract by MTA to support rail operations. Assembly of the two additional vehicles is underway in Spain.

2.12. Project Cost

Table 5 summarizes the project's current actual expenditures and EAC, and compares them to the project budget as reported in MTA's SCC Workbook dated June 1, 2016, which is the basis of the project's FFGA. The project's documented expenditures total ***$2,612,050,530 through January 31, 2023.*** Refer also to **Table 4 – FFGA Core Accountability Items** in the **Executive**

Summary section of this report for details on the project's planned and actual expenditures. The following table shows project budgets, actual expenditures, and forecast at completion amounts through ***January 31, 2023***, compared with the project budget as reported in MTA's SCC Workbook dated June 1, 2016, and MTA's current working budget.

Table 5 – Project Cost Versus Budget

SCC	Cost Category	Budget (June 1, 2016 SCC Workbook)	Working Budget[1] (Jan. 1, 2017 SCC Workbook)	Expended (as of ***December 31, 2022***)	Forecast at Completion[2]
10	Guideway and Track	$280,620,726	$258,782,885	***$165,383,685***	$371,508,681
20	Stations	$114,857,016	$116,127,445	$11,176,123	$161,159,923
30	Maintenance Facility	$94,155,591	$94,155,591	***$84,329,787***	***$93,454,387***
40	Sitework	$521,968,990	$315,482,782	***$410,167,917***	***$784,223,302***
50	Systems	$263,887,313	$263,887,313	***$94,710,409***	$517,256,196
	Subtotal 10–50	$1,275,489,636	$1,048,436,017	***$765,767,921***	***$1,939,460,477***
60	Right-of-Way	$229,600,000	$229,600,000	***$284,222,553***	$329,126,214
70	Vehicles	$212,940,927	$212,940,927	***$132,982,716***	$292,780,600
80	Professional Services (total)	$571,658,114	$798,711,733	***$1,429,077,341***	***$2,562,367,290***
80.01	Project Development	$87,149,878	$85,469,312	$85,469,312	$85,469,312
80.02	Engineering	$139,766,036	$114,618,846	***$186,486,131***	***$196,722,014***
80.03	Project Management for Design and Construction	$148,555,323	$227,047,206	***$294,456,689***	$655,185,988
80.04	Construction Administration & Management	$83,269,280	$255,349,776	***$454,190,193***	***$734,209,735***
80.05	Professional Liability; Other Non-Construction Insurance	$34,534,796	$34,534,796	***$71,937,474***	$85,701,891
80.06	Legal; Permits; Review Fees by Other Agencies, Cities, etc.	$5,805,117	$10,205,293	***$293,343,835***	$341,013,319
80.07	Surveys, Testing, Investigation, Inspection	$15,164,346	$16,798,570	***$38,412,172***	***$92,504,023***
80.08	Startup	$57,413,338	$53,007,367	$4,781,535	$56,553,635
	Subtotal 10–80	$2,289,688,678	$2,289,688,678	***$2,612,050,530***	$4,808,727,206
90	Unallocated Contingency	$90,535,748	$90,000,000	$0	$90,000,000
100	Finance Charges	$26,805,863	$26,805,863	$0	$26,805,863
	Total	$2,407,030,288	$2,407,030,288	***$2,612,050,530***	***$4,925,533,068***

[1]The Purple Line project working budget is based on the currently 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 updated accordingly.

[2]The D-B contractor has been replaced. Draft budget figures, including the work under contract, are being incorporated into this report as they are developed for the Final Recovery Plan. Not all information in this table is up to date as of ***February 2023***. Moving forward, this report will reconcile and report this information as it becomes available and is verified.

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

Allocated Contingency	$59,500,464
Unallocated Contingency (SCC 90)	$90,000,000
Total Contingency	$149,500,464

Through May 2022, the unallocated contingency for the project was proposed at $90,000,000. MTA is refining contingencies, both allocated and unallocated, as it is performing a quantitative risk analysis. RCMP Version 15 includes proposed contingency amounts. Once they are finalized, the updated contingency amounts will be incorporated into this report.

On July 15, 2021, the PMOC requested that MTA provide revised budget tracking information that accurately reflects the combined IRP and OSF expenditures. MTA prepared a summary of actual versus planned expenditures for high-level OSF activities for review by the PMOC. MTA submitted the latest version of the summary that provides information through December 2022. MTA forecasts OSF expenditures of $556.15 million, which exceed the original OSF budget by approximately $136 million. ***MTA previously incorporated a significant portion of the overrun into the project budget, but additional contingency may be needed to address the increase of $35 million to $45 million that has occurred since the final recovery budget was developed.*** MTA states that these overruns are due to labor and material cost inflation as well as an extended OSF duration. The PMOC recommends that MTA closely monitor these cost overruns because of the early use of a significant portion of the budget contingency proposed in the current draft RCMP.

With the significant changes to the P3 concessionaire's team, significant changes to the FFGA project cost are occurring. A project Recovery Plan, including a revised project cost estimate with adequate cost contingency to address remaining project risks, is required. Accordingly, MTA prepared an IRP and is preparing a Final Recovery Plan in accordance with the requirements of the FFGA. The Final Recovery Plan must incorporate cost, schedule, and risk details. The PMOC also recommends that MTA continuously update its schedule for review and approval of project plan updates in order to facilitate FTA and PMOC reviews. In October 2022, MTA submitted a draft Final Recovery Plan to FTA and the PMOC for review and comment.

2.12.1. Project Funding

The funding for the project, as reflected in Attachment 3 of the FFGA, is shown in Table 6.

Table 6 – Sources of Federal Funding and Matching Share Ratios

	Costs Attributed to Source of Funds	Federal/ Local Match Ratio within Source	All Federal Funds	Local Funds*
Federal – 5309 New Starts	$2,362,030,286	38/62	$900,000,000	$1,462,030,286
Federal – Other (FTA Section 5307)	$45,000,000	80/20	$36,000,000	$9,000,000
Total	$2,407,030,286		$936,000,000	$1,471,030,286

	Costs Attributed to Source of Funds	Federal/ Local Match Ratio within Source	All Federal Funds	Local Funds*
Overall Federal Share of Project		38.9%		
New Starts Share of Project		37.4%		

***** Local funds include costs funded by the MDOT Transportation Trust Fund as well as the P3 concessionaire-funded costs. The P3 concessionaire uses funds from the Transportation Infrastructure Finance and Innovation Act, private financing, and equity to fund its costs. The P3 concessionaire-funded costs are treated as "Local Match" for the 5309 New Starts funds. ***The PMOC will update this table upon approval of a revised FFGA.***

As noted in other sections of this report, the project EAC has changed significantly. Budget updates are in progress. The current EAC for SCCs 10 through 90 is $4,925,533,068.

Standard Cost Category Worksheets

Table 7 presents the Purple Line project cost estimate, based on the June 1, 2016 update of the SCC Workbook, which is the basis of the current FFGA.

Table 7 – FTA SCC Workbook – Build Main, June 1, 2016 Update

MAIN WORKSHEET-BUILD ALTERNATIVE								0
Maryland Transit Administration						Today's Date	5/24/16	
Maryland National Capital Purple Line						Yr of Base Year $	2016	
FFGA Application						Yr of Revenue Ops	2022	
	Quantity	Base Year Dollars w/o Contingency (X000)	Base Year Dollars Allocated Contingency (X000)	Base Year Dollars TOTAL (X000)	Base Year Dollars Unit Cost (X000)	Base Year Dollars Percentage of Construction Cost	Base Year Dollars Percentage of Total Project Cost	YOE Dollars Total (X000)
10 GUIDEWAY & TRACK ELEMENTS (route miles)	**16.20**	**259,766**	**0.00**	**259,766**	**$16,035**	**22%**	**12%**	**280,621**
10.01 Guideway: At-grade exclusive right-of-way	3.26	2,978		2,978	$913			3,244
10.02 Guideway: At-grade semi-exclusive (allows cross-traffic)	9.67	12,497		12,497	$1,292			13,205
10.03 Guideway: At-grade in mixed traffic	1.20	12,862		12,862	$10,718			13,961
10.04 Guideway: Aerial structure	0.46	67,018		67,018	$145,692			73,222
10.05 Guideway: Built-up fill	0.00	0		0				0
10.06 Guideway: Underground cut & cover	0.00	0		0	$0			0
10.07 Guideway: Underground tunnel	0.36	58,344		58,344	$162,068			62,735
10.08 Guideway: Retained cut or fill	1.25	20,805		20,805	$16,644			22,693
10.09 Track: Direct fixation		6,948		6,948				7,570
10.10 Track: Embedded		29,159		29,159				30,811
10.11 Track: Ballasted		30,012		30,012				32,575
10.12 Track: Special (switches, turnouts)		19,141		19,141				20,606
10.13 Track: Vibration and noise dampening		0		0				0
20 STATIONS, STOPS, TERMINALS, INTERMODAL (number)	**21**	**103,521**	**0**	**103,521**	**$4,930**	**9%**	**5%**	**114,857**
20.01 At-grade station, stop, shelter, mall, terminal, platform	16	23,884		23,884	$1,493			26,295
20.02 Aerial station, stop, shelter, mall, terminal, platform	3	45,703		45,703	$15,234			51,031
20.03 Underground station, stop, shelter, mall, terminal, platform	2	30,698		30,698	$15,349			33,933
20.04 Other stations, landings, terminals: Intermodal, ferry, trolley, etc.	0	0		0				0
20.05 Joint development		0		0				0
20.06 Automobile parking multi-story structure		0		0				0
20.07 Elevators, escalators		3,236		3,236				3,599
30 SUPPORT FACILITIES: YARDS, SHOPS, ADMIN. BLDGS	16.20	**87,590**	**0**	**87,590**	**$5,407**	**7%**	**4%**	**94,156**
30.01 Administration Building: Office, sales, storage, revenue counting		29,571		29,571				31,894
30.02 Light Maintenance Facility		951		951				1,062
30.03 Heavy Maintenance Facility		44,357		44,357				47,842
30.04 Storage or Maintenance of Way Building		0		0				0
30.05 Yard and Yard Track		12,710		12,710				13,358
40 SITEWORK & SPECIAL CONDITIONS	16.20	**481,579**	**2,405**	**483,984**	**$29,876**	**41%**	**22%**	**521,969**
40.01 Demolition, Clearing, Earthwork		45,651		45,651				48,789
40.02 Site Utilities, Utility Relocation		143,356	1,596	144,952				154,044
40.03 Haz. mat'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
50 SYSTEMS	16.20	**225,424**	**10,376**	**235,800**	**$14,556**	**20%**	**11%**	**263,887**
50.01 Train control and signals		53,515		53,515				60,164
50.02 Traffic signals and crossing protection		32,772		32,772				36,580
50.03 Traction power supply: substations		29,992		29,992				32,849
50.04 Traction power distribution: catenary and third rail		42,788		42,788				47,710
50.05 Communications		33,620		33,620				37,775
50.06 Fare collection system and equipment		2,918	10,376	13,294				15,568
50.07 Central Control		29,819		29,819				33,240
Construction Subtotal (10 - 50)	16.20	**1,157,880**	**12,781**	**1,170,661**	**$72,263**	**100%**	**52%**	**1,275,490**
60 ROW, LAND, EXISTING IMPROVEMENTS	16.20	**186,092**	**37,187**	**223,279**	**$13,783**		**10%**	**229,600**
60.01 Purchase or lease of real estate		166,132	32,483	198,615				203,143
60.02 Relocation of existing households and businesses		19,959	4,704	24,664				26,457
70 VEHICLES (number)	**25**	**192,691**	**0**	**192,691**	**$7,708**		**9%**	**212,941**
70.01 Light Rail	25	186,771		186,771	$7,471			206,351
70.02 Heavy Rail	0			0				0
70.03 Commuter Rail	0			0				0
70.04 Bus	0			0				0
70.05 Other	0	5,920		5,920				6,590
70.06 Non-revenue vehicles	0			0				0
70.07 Spare parts	0			0				0
80 PROFESSIONAL SERVICES (applies to Cats. 10-50)	16.20	**535,369**	**6,032**	**541,401**	**$33,420**	**46%**	**24%**	**571,658**
80.01 Project Development		87,150		87,150				87,150
80.02 Engineering		136,688		136,688				139,766
80.03 Project Management for Design and Construction		131,594	5,872	137,466				148,555
80.04 Construction Administration & Management		76,410		76,410				83,269
80.05 Professional Liability and other Non-Construction Insurance		32,697		32,697				34,535
80.06 Legal; Permits; Review Fees by other agencies, cities, etc.		5,530	88	5,618				5,805
80.07 Surveys, Testing, Investigation, Inspection		14,214	73	14,287				15,164
80.08 Start up		51,086		51,086				57,413
Subtotal (10 - 80)	16.20	**2,072,032**	**56,000**	**2,128,032**	**$131,360**		**95%**	**2,289,689**
90 UNALLOCATED CONTINGENCY				**81,652**			**4%**	**90,536**
Subtotal (10 - 90)	16.20			**2,209,684**	**$136,400**		**99%**	**2,380,224**
100 FINANCE CHARGES				**24,128**			**1%**	**26,806**
Total Project Cost (10 - 100)	16.20			**2,233,812**	**$137,890**		**100%**	**2,407,030**
Allocated Contingency as % of Base Yr Dollars w/o Contingency				2.70%				
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

2.13. Project Schedule

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. Later submissions of schedule updates from PLTC were not approved for various reasons, but the primary reason was

the inability of MTA and the P3 concessionaire to agree on the schedule impacts of the approximately one-year delay in the execution of the FFGA. It should be noted that the initial delay went through the dispute resolution process, and it was ruled that the initial environmental lawsuit delays yielded 160 days of concurrent and noncompensable delay. In response to a letter that FTA issued to MTA in early August 2018 expressing concerns about the amount of time that the project had advanced without an approved schedule, MTA prepared a working schedule update of the master project schedule. The working schedule update was based on the negotiations of the P3 contract schedule occurring at the time, which had been ongoing between MTA and PLTP since late 2017 and which have been detailed in prior PMOC Monthly Monitoring reports; however, the update is not based on a mutually agreed-upon P3 contract schedule. The working schedule update is titled "MTA Master Schedule August 2018" and was progressed through August 31, 2018. Although the MTA Master Schedule August 2018 is not a final recovery schedule that reflects the mutual agreement of MTA and PLTP, it does provide a more accurate representation of the current project status than the last approved master project schedule, which is dated March 15, 2017.

The most significant differences between the prior approved master project schedule (March 15, 2017) and the MTA Master Schedule August 2018 (the proposed new baseline schedule) were a change in the schedule critical path from going through Segment 4 (Plymouth Tunnel) to going through Segment 7 (Riverdale aerial structure) and a slip in the PLTP Commence Revenue Service date from March 11, 2022, to October 28, 2022. However, according to the MTA Master Schedule August 2018 (the proposed new baseline schedule), the Purple Line was still scheduled to start revenue service earlier than the FFGA RSA date of December 31, 2022.

When PLTC was the D-B contractor, it was submitting monthly schedule progress updates for its scope in accordance with the P3 contract. MTA then performed monthly progress updates of the MTA master schedule based on the progress updates received from PLTC as well as from its internal staff, relative to the MTA Master Schedule August 2018 baseline. All of the schedule progress updates that PLTC submitted were rejected by MTA.

The MTA master schedule progress update dated February 29, 2020, continued to show the start of revenue service occurring before the FFGA RSA date of December 31, 2022, and included the major interim milestones of the Commencement of Trial Running of June 8, 2022, and the PLTP Commencement of Revenue Service of December 26, 2022.

When 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 schedule submitted by the P3 concessionaire, which MTA never accepted, reflected a phased project opening, with the first phase opening at the end of 2022, and the second phase opening in mid-2023.

In late April 2020, PLTC notified PLTP that, based on its forecasting of schedule delays on the project (which were not mutually agreed upon), PLTC intended to exercise the clause in its P3 contract with PLTP that allows it to terminate the contract for design and construction services under the P3 contract if delays exceed 365 days. MTA sent a formal request to PLTP for a response that included a definitive path forward for PLTP's intended management of the P3 contract. On

May 14, 2020 (the date the response to the formal request was due), PLTP submitted its response, which stated that PLTP intended to continue to negotiate with PLTC to retain PLTC as part of the P3 concessionaire team. On June 23, 2020, PLTP sent a formal Notice of Unconditional Election to Terminate the P3 Agreement, although PLTP indicated a willingness to negotiate a settlement. On June 24, 2020, MTA sent a Formal Notice of Concessionaire Default. This notice essentially refuted the validity of the PLTP delay claims and stated that if PLTP failed to perform, MTA had a number of options related to the agreement. Through late July 2020, construction activities continued at the level previously planned, and construction progress was not affected.

In early August 2020, PLTC and subcontractors demobilized equipment, materials, and personnel. In response, the Maryland Attorney General filed a motion for a TRO that prevented PLTP from abandoning the work or demobilizing. Upon issuance of the TRO, the contractor and subcontractors remobilized some equipment and restarted many construction activities. A hearing to uphold or rescind the TRO was held on September 14, 2020. The court rescinded the TRO, allowing PLTP to leave the project. Through negotiation, it was determined that PLTP would remain on the project, although PLTC would not.

MTA contracted with numerous subcontractors to continue the project. MTA developed organizational options with respect to construction management, resident engineers, inspectors, and other staff needed to move forward select project activities.

It was certain that the project schedule as reflected in the FFGA would be negatively affected, and a Recovery Plan for the project, including a revised project schedule with adequate schedule contingency to address remaining project risks, would be required. MTA submitted its draft IRP to FTA in December 2020, and FTA approved the IRP on January 12, 2021. A schedule for the period during which the D-B contractor was to be replaced was developed, and MTA monitored project progress against the schedule. On November 5, 2021, PLTP announced the selection of the preferred replacement D-B contractor, MTS.

PLTP and MTA continued to coordinate during the financial process and State of Maryland approvals for the replacement D-B contractor. In addition, MTA has successfully coordinated other key issues that needed to be resolved before PLTP could execute the contract with MTS.

The following is a summary of IRP milestones:

- January 6, 2021 – PLTP issued an RFQ for replacement D-B contractors.
- March 8, 2021 – PLTP issued an RFP to the short list of replacement D-B contractors based on the RFQ.
- October 15, 2021 – PLTP received RFP responses.
- November 5, 2021 – PLTP and MDOT/MTA selected the replacement D-B contractor firm (MTS).
- January 26, 2022 – BPW approved the replacement D-B contractor, contract amendments, schedule, cost, and financing.
- April 11, 2022 – Private activity bonds went to market.

- September 12, 2022 – MTA approved the IBS.
- October 14, 2022 – MTS was required to have commenced action on the 11 critical elements that are specified in the D-B contract. At the December 2022 PMOC meeting, MTA confirmed that MTS missed the 180-day window to commence action on 3 of the 11 critical elements. MTA and MTS are coordinating these specific activities and generally agree that a delayed start for each is logical based on construction sequencing. These items are not currently on the critical path.
- October 28, 2022 – MTA was required to have submitted a draft Final Recovery Plan to FTA and the PMOC for review and comment. On October 4, 2022, MTA submitted the draft Final Recovery Plan to FTA and the PMOC for review.

A milestone not specifically mentioned in the IRP is the requirement to extend the current RSD. The PMOC therefore adds the following milestone to this list:

- December 31, 2022 – The RSD in the original FFGA is December 31, 2022. MTA must request an extension to the current RSD identified in the FFGA. FTA will consider approving this extension, which also must include a revised EAC that includes adequate schedule and cost contingency. FTA's approval of the Final Recovery Plan is a critical step in approval of a revised FFGA budget and RSD.

The resolicitation of a replacement D-B contractor required that the project have a Final Recovery Plan, prepared in accordance with the requirements of the FFGA and including cost, schedule, and risk details.

Current critical path analysis indicates that the critical path runs through the Segment 5 activities of installation of Civil and Systems packages. There are ten other near-critical paths with activities that have less than two weeks of float. MTA reports that MTS's IBS includes a proposed sequence and duration of activities that have zero float and a completion date in October 2026. MTA has used MTS's approved IBS to develop a master schedule that incorporates operational readiness activities and schedule contingency (float).

The most recent master schedule provided by MTA, dated November 18, 2022, reflects MTS's updates since the IBS was approved in September 2022. This schedule update is a cause for concern because, even without any recovery, nearly 7 months of the 12 months of schedule float may already be consumed. The PMOC recommends that MTA provide a description of what caused a seven-month slip just two months after the IBS was approved. MTA should also determine recovery strategies or, if necessary, a revised RSA date, because, in the PMOC's opinion, five months of remaining schedule contingency is not adequate to provide confidence in the project schedule or budget. MTA states that there is a focus on schedule recovery and is currently optimistic that three months of schedule recovery is possible. The PMOC recommends that a viable strategy be incorporated into the Final Recovery Plan.

The PMOC recommends that MTA continue to refine the project's management plan reviews and approval dates. The PMOC further recommends that MTA stagger submittals of management

plans to make approvals more efficient, because conducting multiple simultaneous reviews typically tends to take longer.

2.13.1. Key Milestones

Table 8 shows the current key milestone dates for the project for the last approved (March 2017) progress update of the master project schedule, the MTA Master Schedule August 2018 (proposed new baseline schedule), and the February 29, 2020, progress update of the MTA master schedule. Issuance of NTP to PLTP on April 14, 2022, triggered the contract requirement for an MTA-approved MTS IBS for the full project to be in place within 120 days of financial close (by August 14, 2022). MTS submitted its IBS, and on September 12, 2022, MTA approved it. MTS submitted the 120-day mobilization schedule, which MTA also has approved. In January 2022, MTA submitted a draft version of the master schedule for FTA and PMOC review, and FTA and the PMOC transmitted their review comments to MTA in April 2022.

In August 2022, MTA and the PMOC discussed the current state of the baseline schedule, particularly the inclusion of adequate float to address schedule risk. The P65 date that MTA proposed before the risk workshop held in May 2022 included approximately seven months of float and an RSA date in October 2026. The current but unapproved schedule (dated October 3, 2022) proposed by MTS has a similar RSA date but adds approximately one year of contingency to reach an "FFGA Revenue Service Date – Final Completion" of October 15, 2027. In the PMOC's opinion, float should be assigned to specific project activities, and the project budget must include the cost related to the float duration. A budget that does not include the cost (in the form of contingency) for the float period in the schedule is not realistic. MTA concurs that the master schedule will have float added to specific activities where applicable, logical, and as appropriate. In October 2022, MTA provided a schedule in .XER format to the PMOC for the PMOC's analysis of the schedule.

The PMOC recommends that MTA include adequate schedule contingency and the corresponding budget contingency when developing the RSA date and the EAC that are incorporated into the Final Recovery Plan. The following information will be updated once the schedule reviews and approvals are complete.

Table 8 – Key Milestone Dates

Activity	Last Approved Master Project Schedule (March 15, 2017)	MTA Master Schedule August 2018 (working baseline)	MTA Master Schedule February 29, 2020 Update
Locally Preferred Alternative Approval Date	08/04/2009 (A)[a]	---	---
FTA Approval to Enter Preliminary Engineering	10/07/2011 (A)	---	---
FTA ROD	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)	---	---

Activity	Last Approved Master Project Schedule (March 15, 2017)	MTA Master Schedule August 2018 (working baseline)	MTA Master Schedule February 29, 2020 Update
P3 Financial Proposals Due	12/08/2015 (A)	---	---
Evaluation and Announcement of Selected P3 Proposer	01/02/2016 through 03/02/2016 (A)	---	---
BPW Approval of P3	04/06/2016 (A)	---	---
P3 Commercial Close	04/07/2016 (A)	---	---
Limited NTP for P3 Engineering	04/07/2016 (A)	---	---
MTA Submit FFGA Application	05/24/2016 (A)	---	---
P3 Financial Close	06/17/2016 (A)	---	---
FFGA Signed	08/22/2017 (A)	---	---
Start of First Major Construction Activity	08/28/2017 (A)	---	---
All Significant ROW Acquisition and Relocation	As needed by construction	---	All P3 contract Exh. 9 properties in possession
Commencement of Trial Running	---	03/09/2022	06/08/2022
P3 Ready to Commence Revenue Service	TBD	10/28/2022[b]	12/26/2022
MTA Opens for Revenue Service	03/2022	---	12/26/2022
Revenue Operations Date (includes contingency)	12/31/2022	---	---
FFGA RSA Date (includes contingency)	12/31/2022	12/31/2022	12/31/2022

[a] A = Actual.
[b] P3 ready to commence revenue service date is based on MTA's working version of an updated integrated master project schedule, which is based on earlier negotiations between MTA and the P3 concessionaire. ***MTA is currently preparing a master schedule update.***

2.13.2. 90-day Look-ahead

The critical 90-day (***March 2023 through May 2023***) look-ahead includes activities planned in general accordance with the IRP. MTA and MTS also are preparing four-week look-ahead schedules to manage interim activities. Key activities that MTA has identified for the short term are:

- Retaining wall construction in multiple locations.
- Water and sanitary sewer construction in multiple locations, including the completion of the 66-inch WSSC water main.
- Completion of the police force alternatives study.
- Completion of the Tiger Team schedule mitigation recommendations.
- Overhead electrical line, communications line, and buried gas line relocations.
- MTA's closeout of Glenridge OMF punch lists and MTS's track and OCS construction.
- Response to comments and revisions of draft management plans based on FTA and PMOC review. .

- Activities related to the new D-B contractor, including the continuation of required activities by MTS on the key structures and other elements on the critical path.

2.13.3. Critical Path Activities

In the MTA master schedule update dated February 29, 2020, for which final agreement with PLTP was never reached, the critical path goes through Segment 7 (primarily the "test track"), including finalization of approvals from MDE; civil, track, traction power, OCS, and communications construction along Veterans Parkway and Ellin Road; LRV site and dynamic testing; emergency drills; trip time testing; revenue service demonstration testing; safety certification; and other activities leading to revenue service. Since the departure of PLTC, MTA has been re-evaluating the entire master project schedule, especially the critical path. The most recent draft master project schedule identifies the October 15, 2021 RFP submittal and contracting with the replacement D-B contractor as near-term critical path activities. Before the approval of a Final Recovery Plan, FTA and the PMOC will review and provide input on the schedule information, including the schedule contingency, to be included in a revised RSA date and FFGA.

2.14. Project Risk

MTA has established a risk management organization that is defined in the RCMP and 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 the Risk Register.

During the approximately one-year period during 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 quantitative risk assessments, or perform formal updates of the Risk Register. However, the Purple Line project management team did assess and respond to the risks associated with the unforeseen chain of events related to the lawsuit.

The project team resumed formal risk management 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 in draft form in January 2018, and was updated further and reissued in March 2018. As an ongoing process, MTA currently is performing updates of the Risk Register periodically, though somewhat less frequently than bimonthly (the frequency established in its RCMP). The current status of the RCMP is discussed in the **Project Management Plan and Sub-plans** section of this report, above.

MTA provides copies of significant updates of the Risk Register to FTA and the 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; the project's top five project risks are included as Attachment C of this report and are updated quarterly. A risk management workshop was held on January 26, 2021, at which the PMOC and FTA participated. The workshop focused on the resolicitation period for the replacement D-B contractor (January through October 2021).

Now that the replacement D-B contractor is under contract, risk updates are being prepared. A risk workshop was held the week of May 2, 2022, at which the PMOC and FTA participated in an OP 40 risk and contingency review that evaluated cost, schedule, and project contingency. Confirmation and finalization of the Risk Register, the quantitative risk assessment, and an update of the RCMP are components of the required Final Recovery Plan. Because of the preliminary nature of the baseline schedule information that is currently available, further schedule analysis will be required once MTA submits a comprehensive baseline schedule. FTA provided a summary of the risk workshop to MTA on June 22, 2022, for MTA's consideration and incorporation into its management plans and contingency evaluation. MTA provided responses to FTA comments on the risk workshop summary on July 15, 2022, and clarification on August 25, 2022. In October 2022, MTA submitted RCMP Version 15 to FTA and the PMOC for review.

2.15. Quality Assurance/Quality Control

The project's QA/QC is addressed in Section 10 of the PMP, the Quality Program Plan, and the updated MTA QAP Revision 8.0, which incorporates the quality plans prepared by PLTC. The most current versions of the PMP and the QAP are as discussed in the **Project Management Plan and Sub-plans** section of this report, above. MTA also submitted to FTA the package of inter-related quality plans prepared by the P3 concessionaire after it was reviewed and approved by MTA.

MTA has obtained PLTP's quality logs and other applicable documents and procedures for use during the transition to the replacement D-B contractor. Several former subcontractors are now under contract with MTA and conducted QA/QC activities during the replacement D-B contractor solicitation period. The budget to address nonconforming construction by PLTC is a concern. MTA incorporated known defects into the MTS contract; however, MTA has not clarified the specific budget that will be used to rectify defects found since the contract with MTS was executed. ***MTA estimates that the magnitude of this potential budget impact will be no more than $10 million.***

The project has continued to conduct its monthly meeting to review the QA/QC activities performed by the Purple Line project team, including those activities performed by the PMC and the GEC. Documentation from this meeting is distributed and maintained. The project's Monthly Progress Report to FTA also contains a summary of the significant current QA/QC activities and events, including quality audits and quality reviews. ***February 2023,*** quality management topics included quality process improvements, records storage, field inspections to close open issues, equipment testing inspections, OMF systems commissioning, records spot checks, approval of MTS's quality management plans, MTS offsite inspections at the fabrication location for OCS poles, and planning of monthly QC meetings.

In November 2021, MTA's quality lead for the Purple Line project, Rene Schroeder, retired. Roland Carroll, currently the Purple Line systems and construction safety lead, has added the quality lead role to his other Purple Line roles. In February 2022, MTA provided a white paper outlining Mr. Carroll's experience, his recent training, and the proposed supporting staff related to

the new quality management role. ***The PMOC has evaluated this change as a part of the PMP review and has requested that MTA provide additional information.***

2.16 Safety and Security

PLTP has conducted 44 Preliminary Hazards Analysis (PHA) workshop sessions to date. These workshops were held to resolve MTA's comments on the PHAs completed to date.

To support the ultimate Safety and Security Certification of the Purple Line project, the PLTP System Safety team completed development of its first DCCC in May 2017 and submitted it to MTA for approval. MTA (assisted by the PMC) reviews the DCCCs as part of the Final Design package, according to the established submittal review process. According to PLTP, the DCCCs were being verified before the issuance of RFC packages. To date, an estimated 96.6 percent of the DCCCs have been verified. All previous comments on PLTP's Certified Elements List (CEL), which includes operations and maintenance and system integration testing elements, have been resolved, and CEL Revision 2 was accepted in March 2020. The Certified Items List (CIL) Revision 1 has been accepted. The next revision of the CIL is expected soon, now that the replacement D-B contractor is under contract. MTA will provide the revised CIL to FTA and the PMOC as soon as it is completed. Approximately 10.6 percent of the CSCCs have been verified to date.

MTA chairs a Safety and Security Certification Committee (SSCC) that reviews, comments on, and approves any PLTP hazard management and safety and security certification issues. The first meeting of the MTA SSCC was conducted on March 20, 2018. Since July 11, 2018, the SSCC meeting has been held regularly and will continue as a monthly meeting until the level of activity requires more frequent meetings.

As of February 2023, monthly SSCC meetings continue. Resolution of comments is still needed from Atkins (the designer) for a previous blast analysis review, but as of January 2023, MTA believes that resolution of these comments is nearly complete. In addition, a progressive collapse analysis of the Carr Building currently being conducted may lead to remedial actions that MTA must implement. Neither the cost nor the funding source of these remedial actions is known. Use of funds from the Purple Line contingency budget may be required.

PLTC submitted a Threat and Vulnerability Assessment, and on July 15, 2019, MTA accepted and verified the comment responses and approved PLTC's Threat and Vulnerability Assessment. PLTC then completed its Threat and Vulnerability Assessment process.

MTA continues to conduct bimonthly Fire/Life Safety meetings with Montgomery County and Prince George's County. The meetings provide a basis for the counties' emergency responders to understand the features of the Purple Line systems and to resolve any concerns. Topics of discussion include: Police Department MOUs; Fire Department connection and hydrant locations; access, signage, and station naming conventions; MOUs for training; the PHA at the Glenridge OMF maintenance gate; station names; and addresses/emergency phone numbers for locations along the corridor. Other topics of discussion have included closed circuit television cameras and Mobile Emergency Vehicle Response access. It is the opinion of the PMOC that MTA should

emphasize resolving the project's outstanding Fire/Life Safety issues, because progress on the resolution of these issues is not apparent.

MTA police continue coordinating MOUs with local safety agencies and developing MOUs with police jurisdictions (such as the Maryland National Capital Park Police) along the Purple Line. These MOUs are related to training the existing police agencies on how to respond to transit situations. During the September MTA/PMOC meeting, a larger related issue was discussed at length. The SSOA staff participated in this discussion as well. The crux of the issue is that MTA does not have a police force located in proximity to the Purple Line. MTA hired a consultant team to analyze alternatives for providing security and fare enforcement services for the Purple Line. Alternatives include: expanding MTA's enforcement services geographically, bringing on a third party to provide these services through a contract, or sharing police services with another party. The PMOC believes that this issue is significant, and although the currently forecast RSA date is in 2027, MTA should determine its preferred alternative for providing Purple Line security and fare enforcement services without delay and promptly move toward implementation. On ***February 23, 2023, MTA has prepared a draft recommendation for providing security and fare enforcement, and that recommendation has been submitted to the MTA Administrator.*** The SSOA representatives who are monitoring the Purple Line development had requested that MTA provide them the draft report and consider the SSOA's comments before submitting the alternatives report to MTA's upper management.

As required by the P3 contract, PLTP was responsible for directly implementing many of the safety and security requirements for the project, including those for construction safety and the collection and maintenance of the Occupational Safety and Health Administration (OSHA) safety statistics for the project. PLTC performed this work until its departure from the project, at which time MTA assumed responsibility. MTS is now transitioning into the safety and security role that PLTC held. MTS and MTA are holding regular safety and security coordination meetings.

Safety continues to be acceptable, although with an increase of MTS activities, recordable incidents are increasing. Also, MTS appears to be having difficulties in its communication of incident reporting. MTA determined the methodology for reporting of, and assumed reporting of, OSHA statistics for the project under OSF. For the period from January 1, 2022, through ***December 2022***, the OSHA statistics are:

- TCIR (Total Case Incident Rate) (Recordable Rate):
  - Actual: ***3.33***
  - MTA goal: 0.45
  - National average: 2.8 (for heavy civil construction)
- LTIR (Lost Time Injury Rate) (Recordable Rate):
  - Actual: ***3.33***
  - MTA goal: 0.00
  - National average: 0.9 (Construction – heavy civil)

MTA had assumed responsibility for safety oversight until MTS assumed control of the project. As of December 2022, MTA reports that MTS needs coaching on expectations for the required reporting of safety statistics.

In late October 2022, MTA submitted updated SSMP and SSCP documents in conjunction with the updated PMP. FTA and the PMOC. ***As of February 28, 2023, FTA had provided to MTA review comments on all these management plans but the QAP***

See the **Project Management Plan and Sub-plans** section of this report, above, for the status of the sub-plans of the PMP related to safety and security. Attachment B of this report includes additional quarterly safety and security-related information for the Purple Line project.

2.17 Americans with Disabilities Act

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

Accessibility and compliance with the ADA are required as part of the functional requirements for stations and guideway, and as part of the codes and standards for LRVs within the P3 contract (Book 2, Part 2) for the Purple Line project. MTA and its consultants reviewed the design packages prepared by PLTC. Based on project reviews conducted by the PMOC, MTA has confirmed that it included ADA compliance in its QA oversight reviews of PLTC's design packages. A full-time Purple Line project Maintenance of Traffic construction representative also monitors whether temporary pedestrian accommodations during construction continue to comply with ADA requirements. ADA compliance is included in the PMOC's periodic project reviews, during which timely project ADA-related items are discussed. Such discussions during the PMOC's most recent reviews identified no current ADA-related issues.

2.18 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 also to the 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's standard clauses for its procurements, and the P3 contract contains explicit Buy America language in its Appendix 16.

As designs were finalized, PLTC encountered more incidences when as-designed commodities that are compliant with Buy America provisions were not available. However, because PLTC was responsible for the design and had committed to compliance with Buy America provisions, MTA held PLTC responsible for complying with the regulations and the P3 contract in this respect. The Purple Line project team continues to spot check materials being used in ongoing construction, and especially utility relocations, because Buy America compliance of utility-supplied materials has historically been more troublesome and because utility relocation constitutes a significant

percentage of the current construction activity. During November and December 2019, MTA QA inspectors issued QOARs related to two potential Buy America non-compliance cases at the Glenridge OMF. PLTC submitted responses to these QOARs 055 and 056 in January 2020, and MTA replied in disagreement with PLTC's conclusions in its submittal.

PLTC passed the Buy America requirements on to the vehicle supplier, CAF. The Buy America Pre-Award audit was conducted by Virginkar and Associates, Inc., which concluded that there is reasonable certainty that CAF will satisfy the Buy America requirements as stated in 49 Code of Federal Regulations (CFR) 661. MTA's interpretation is that, because the vehicle RFP was advertised before December 4, 2015 (which is the date of passage of the Fixing America's Surface Transportation Act, also known as the FAST Act), the 49 CFR 661 Public Interest Waiver that limits domestic content to a minimum of 60 percent, as opposed to the escalating domestic content requirements of the FAST Act, applies in this case. During the week of October 2, 2017, an intermediate post-award Buy America audit was conducted of CAF's facility in Elmira, New York, for added confidence that the post-delivery audit would not identify issues. There were no significant findings, and, based on the audit, the domestic content of the LRVs is currently estimated at approximately 62 percent, compared to the required 60 percent for these vehicles. CAF is targeting 65 percent domestic content in the completed vehicle. MTA has also been in communication with the U.S. Maritime Administration regarding the use of U.S. Flagship carriers for the transport of carshells from Spain to the United States for final assembly.

In July 2022, the PMOC asked MTA about the status of the Buy America requirements with respect to the LRV supplier. MTA provided an update on August 11, 2022, confirming that the most recent audit was performed in 2017. The project's Buy America compliance audit for the LRVs was conducted on November 14, 2022. In January, CAF provided additional documentation requested to assist with evaluation of Buy America compliance. The draft audit report will be available ***March 1, 2023.***

2.19 Start-up, Commissioning, Testing

TBD

2.20 Before-and-After Study Reporting

TBD

2.21 Lessons Learned

The resolicitation of a D-B contractor has given MTA the opportunity to apply several lessons learned to the new D-B contract documents and to amend the PLTP agreement. After the May 2022 risk workshop with MTA and the PMOC, MTA provided an update on opportunities for improvement that MTA had identified during the resolicitation and is incorporating into the project.

2.22 Action Items

Action Items are identified at MTA/FTA Quarterly Progress Review Meetings, at MTA/PMOC Monthly Update Meetings, and at MTA/FTA Biweekly New Starts Progress Conference Calls. Action Items from the most recent biweekly conference call on ***February 28, 2023***, are as follows:

1. MTA will provide updates to the OSF schedule, including when management plan drafts are completed. OPEN – This item will remain open until the Final Recovery Plan has been approved.
2. MTA will provide a list of meetings to the PMOC, so the PMOC can consider attending specific meetings during monthly site visits. OPEN
3. ***MTA will provide the state legislative update for the Purple Line to FTA. OPEN***
4. ***MTA will include data date and print date information on all submitted schedules. OPEN***
5. MTA will provide the updated project communications plan when complete. OPEN
6. MTA will provide documentation from the schedule mitigation Tiger Team effort when available. OPEN

ATTACHMENT A – LIST OF ACRONYMS

ADA	Americans with Disabilities Act
ATC	Alternate Technical Concept
BFMP	Bus Fleet Management Plan
BPW	Board of Public Works
CAF	Construcciones y Auxiliar de Ferrocarriles
CEL	Certified Elements List
CFR	Code of Federal Regulations
CIL	Certified Items List
CSCC	Construction Specification Conformance Checklist
CSX	CSX Corporation
D-B	Design-Build
DBE	Disadvantaged Business Enterprise
DCCC	Design Criteria Conformance Checklist
DNR	Maryland Department of Natural Resources
E&S	Erosion and Sedimentation
EAC	Estimate at Completion
FAI	First Article Inspection
FCP	Forest Conservation Plan
FFGA	Full Funding Grant Agreement
FTA	Federal Transit Administration
GEC	General Engineering Consultant
IBS	Initial Baseline Schedule
IRP	Interim Recovery Plan
LOD	Limits of Disturbance
LRT	Light Rail Transit
LRV	Light Rail Vehicle
LTIR	Lost Time Injury Rate
MCC	Management Capacity and Capability
MDE	Maryland Department of the Environment

MDOT	Maryland Department of Transportation
MOU	Memorandum of Understanding
MTA	Maryland Transit Administration
MTS	Maryland Transit Solutions
N/A	Not Applicable
NEPA	National Environmental Policy Act
NTP	Notice to Proceed
OCS	Overhead Contact System
OMF	Operation and Maintenance Facility
OP	Oversight Procedure
OSF	Operation Step Forward
OSHA	Occupational Safety and Health Administration
P3	Public-Private Partnership
PEPCO	Potomac Electric Power Company
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 Management Plan
RCMP	Risk and Contingency Management Plan
RFC	Released for Construction
RFMP	Rail Fleet Management Plan
RFP	Request for Proposals
RFQ	Request for Qualifications
ROD	Record of Decision
ROE	Right of Entry

ROW	Right-of-Way
RSA	Revenue Service Availability
RSD	Revenue Service Date
SCC	Standard Cost Category
SEIS	Supplemental Environmental Impact Statement
SSCC	Safety and Security Certification Committee
SSCP	Safety and Security Certification Plan
SSMP	Safety and Security Management Plan
SSOA	State Safety Oversight Agency
SSP	Safety and Security Plan
SSPP	System Safety Program Plan
SSTC	Silver Spring Transit Center
SWM	Stormwater Management
TBD	To Be Determined
TCE	Temporary Construction Easement
TCIR	Total Case Incident Rate
TIFIA	Transportation Infrastructure Finance and Innovation Act
TOA	Transfer of Ownership Agreement
TPSS	Traction Power Substation
TRO	Temporary Restraining Order
UMD	University of Maryland
USACE	U.S. Army Corps of Engineers
WMATA	Washington Metropolitan Area Transit Authority
WSSC	Washington Suburban Sanitary Commission

ATTACHMENT B – SAFETY AND SECURITY CHECKLIST

Note: References to the System Safety Program Plan (SSPP), Safety and Security Plan (SSP), and 49 Code of Federal Regulations (CFR) Part 659 as they are contained in the FTA standard checklist form have been retained in the following update. However, it is recognized that Maryland Transit Administration is transitioning to the Public Transportation Agency Safety Plan and 49 CFR Parts 673 and 674.

Refer to the July 2020 PMOC Monitoring Report for the most recent update.

ATTACHMENT C – TOP PROJECT RISKS

An internal risk workshop to support the Interim Recovery Plan (IRP) was held on January 26, 2021. Maryland Transit Administration (MTA) and Purple Line Transit Partners (PLTP) used information from the meeting as they solicited a replacement Design-Build (D-B) contractor. The MTA Risk Management Committee is tracking the following risks identified during development of the IRP:

Procurement/Settlement Risks:

- PLTP solicitation of replacement D-B contractor:
  - Market resolicitation in a compressed time frame
  - Delay in finalizing solicitation
  - Weak bidder interest – two or fewer proposals
- D-B contract and other contract negotiations

Schedule Risks:

- Inability of MTA subcontractors to meet the Operation Step Forward (OSF) schedule dates, causing delay to certain activities to be performed by the replacement D-B contractor
- Unanticipated delay to the replacement D-B contractor "ramp up" of activities, resulting in impacts to the critical path anticipated by MTA

Design and Construction Risks:

- Performance risk assumed by MTA by contracting for and performing work during the replacement D-B contractor resolicitation period (subcontracting risk)
- Quality, commercial, coordination, and unforeseen conditions unknown to MTA at the time of assumption of former Purple Line Transit Constructors subcontracts

A risk workshop was held May 3 through May 5, 2022. After the risk workshop, MTA prepared supplementary or updated documents for review, including an updated Risk Register. FTA provided a risk summary to MTA on June 22, 2022, for MTA's consideration when updating risk, contingency, and other project management plans. MTA provided a response to each of the comments on the risk summary to FTA on July 18, 2022, and provided further clarifications on August 25, 2022. MTA incorporated the FTA comments in the revised RCMP that is a part of the Final Recovery Plan.

On October 7, 2022, MTA submitted RCMP Version 15 to FTA and the PMOC for review.

In December 2022, MTA presented the top project risks in the table below:

ID Ref	Category	Risk Summary	Risk Description - Event & Consequences	Risk Owner	Rating
85	Construction	Exhibit 24 Utility Adjust-ments	The remaining utility adjustments, if not finished, by the promised completion dates could impact DB2 schedule. This risk relates to RCO1 cost impact, (schedule delay due to RCO1 and others is included in Risk ID 122)	J. Mitchell	Significant
122	Construction	RCO1 and RCO7 Utility Delay	The remaining utility adjustments, if not finished, by the promised completion dates could impact DB2 schedule and would result in a delay to the RSA Date.	J. Mitchell	Significant
24	Construction	Utility Relocation	Due to utility moratorium or other projects in the vicinity, utility companies may not be able to accomplish the Pro-ject's utility work as planned. This may result in delay and additional cost.	Concessionaire	High
82	Construction	Remaining utility adjust-ment pursuant to Exhibit 24 - Verizon Cop-per and Fiber Relocations	Failure of Verizon to make available, as needed, two Veri-zon copper crews to work concurrently along the alignment in respect of a Remaining Utility Adjustment for which Verizon is the applicable Utility Owner - Potential cost and schedule impacts. DB2 is entitled to a time extension and potentially equitable adjustment if the delay is on the criti-cal path.	P. Hager	High

ID Ref	Category	Risk Summary	Risk Description - Event & Consequences	Risk Owner	Rating
92	Construction	Unknown Existing Construction Defects	MTA took the risk that work installed by the prior DB contractor might be defective unless proposers were notified of defects as of the New Setting Date.	J. Mitchell	High
118	Design	TCE Extension	MTA may need to extend out their TCE (Temporary Construction Easement) acquisition costs for 17 properties project wide, this could lead to additional costs and delay the project if property owners object particularly if this occurs at the staging locations.	B. Horn	High
120	Construction	CSX Flaggers	MTS is responsible for scheduling with CSX for flaggers. However, CSX flaggers may not be available as needed to support contractor's work, difficulties with coordination and scheduling CSX flaggers could lead to additional costs and schedule delays.	Concessionaire	High

ATTACHMENT D – AWARDED CONTRACTS

A significant update to awarded contracts is forthcoming due to the transition within the original Public-Private Partnership concessionaire and Maryland Transit Administration's assumption of some, but not all, subcontracts.

ATTACHMENT E – ROLLING STOCK VEHICLE STATUS REPORT

Date: ***February 28, 2023***

Vendor: Construcciones y Auxiliar de Ferrocarriles (CAF)

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

Year: The first vehicle was completed in 2021, and currently 26 vehicles are designated as "Ready for Shipment." Completion of the storage and testing facilities at the Glenridge Operation and Maintenance Facility (OMF) has been delayed, so Maryland Transit Administration (MTA) and CAF negotiated terms for storage of vehicles at the CAF facility in Elmira, New York. The storage agreement has now transferred to the replacement Design-Build (D-B) contractor, Maryland Transit Solutions (MTS).

Quantity: 26 vehicles (130 cars) original contract (Full Funding Grant Agreement [FFGA])

2 vehicles (10 cars) in July 2021 change order (non-FFGA)

Identification: The original light rail vehicles (LRVs) will be numbered from 101 through 126. The numbering of the two additional LRVs is to be determined.

New Technologies: None planned (all major suppliers have service-proven equipment)

Status and Significant Activities:

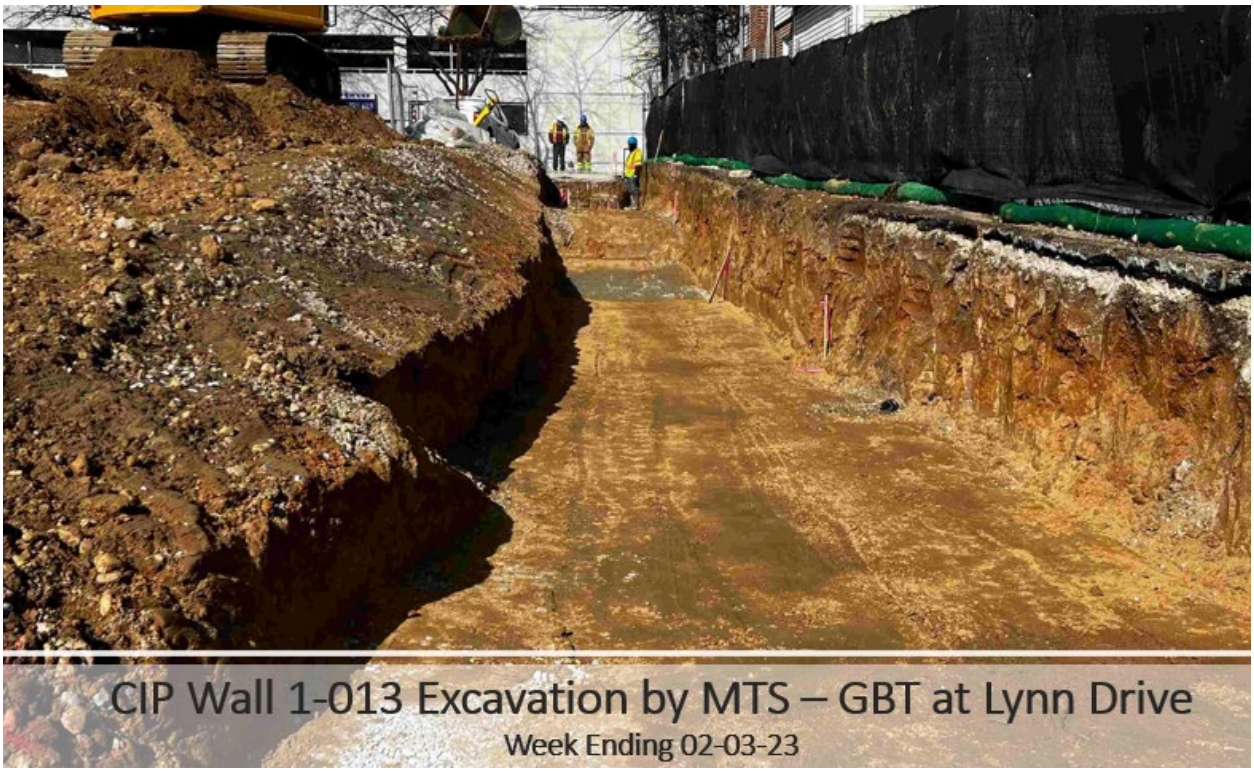
- In total, 130 cars were assembled in Spain, all of which have been delivered to CAF in Elmira, New York. Assembly of the additional 2 vehicles (10 cars) has recently started in Spain. Ultimately these 10 cars will be shipped to Elmira for final assembly and static testing, following the same process as the original 130 cars.
- Delivery of finished vehicles was expected to begin in spring 2021; however, because the Glenridge OMF is not ready to accept railcars, MTA and CAF have negotiated an agreement for CAF to store the completed cars in Elmira.
- Cost risk for delivery of the finished vehicles has been transferred to MTS. If delays in construction cause a delay, then MTS is responsible to CAF for additional storage cost.
- ***Twenty-six*** LRVs have passed static testing, have been designated as Ready for Shipment, and have been placed into storage in Elmira. These include vehicle 110, which was returned to Ready for Shipment status after a second period in static testing.
- Delivery of the first of the original 26 vehicles is currently scheduled for July 2023. Approximately one vehicle per week will be delivered thereafter. The Glenridge OMF will be able to store three or four vehicles on the yard and in the building, so track must be available for additional storage. The Overhead Contact System and Traction Power

Substation (TPSS) Q7 and TPSS QYG must also be completed and installed before delivery of vehicles.

- MTA added two vehicles by change order to CAF's contract, outside of the MTA/Federal Transit Administration (FTA) FFGA. The additional LRVs will support better operations at Revenue Service Availability. The replacement D-B contractor, MTS, has incorporated these two additional LRVs into its scope of work (in addition to the cost and terms of LRV storage in Elmira). Fabrication of the two additional LRVs at CAF's facility in Spain has begun.
- SNC-Lavalin (now an MTS subcontractor) prepares a monthly quality report documenting safety, production, and quality items at both the Spain and New York production facilities. Many of the same SNC-Lavalin staff who observed the original vehicle fabrication work are overseeing the fabrication of the two additional vehicles in Spain.
- MTA, the Project Management Consultant, and CAF are holding weekly coordination meetings to review all outstanding testing and factory/shop activities, including onsite testing procedures for when the vehicles are delivered to Maryland.
- MTS, which has assumed the CAF contract, is preparing and submitting to MTA reports on LRV maintenance activities required during the storage period. To date, none of these reports have been transmitted to FTA or the Project Management Oversight Contractor.

ATTACHMENT F – PROJECT MILESTONES/KEY EVENTS

Photos courtesy of Maryland Transit Administration.







18-inch RCP Installation by MTS – GBT near Pearl Street
Week Ending 02-10-23



S08 LRT Developer Bridge SIP Installation by MTS – Chevy Chase Lake
Week Ending 02-10-23



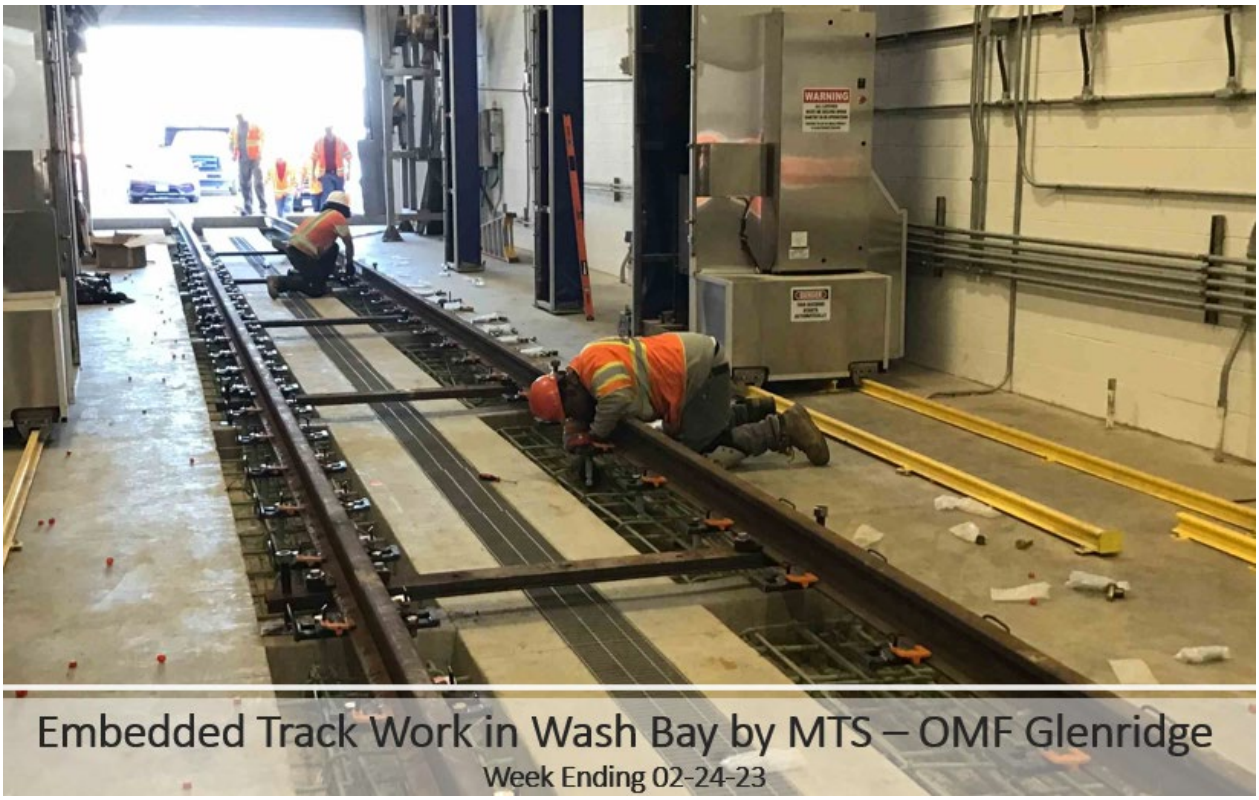
Curb & Gutter Concrete Placement by MTS – Riverdale Rd.
Week Ending 02-17-23



Concrete for Embedded Track No. 1 by MTS – Ellin Road
Week Ending 02-17-23



Concrete Placed OCS Foundation #QP-798.30 by MTS – Riverdale Rd.
Week Ending 02-24-23



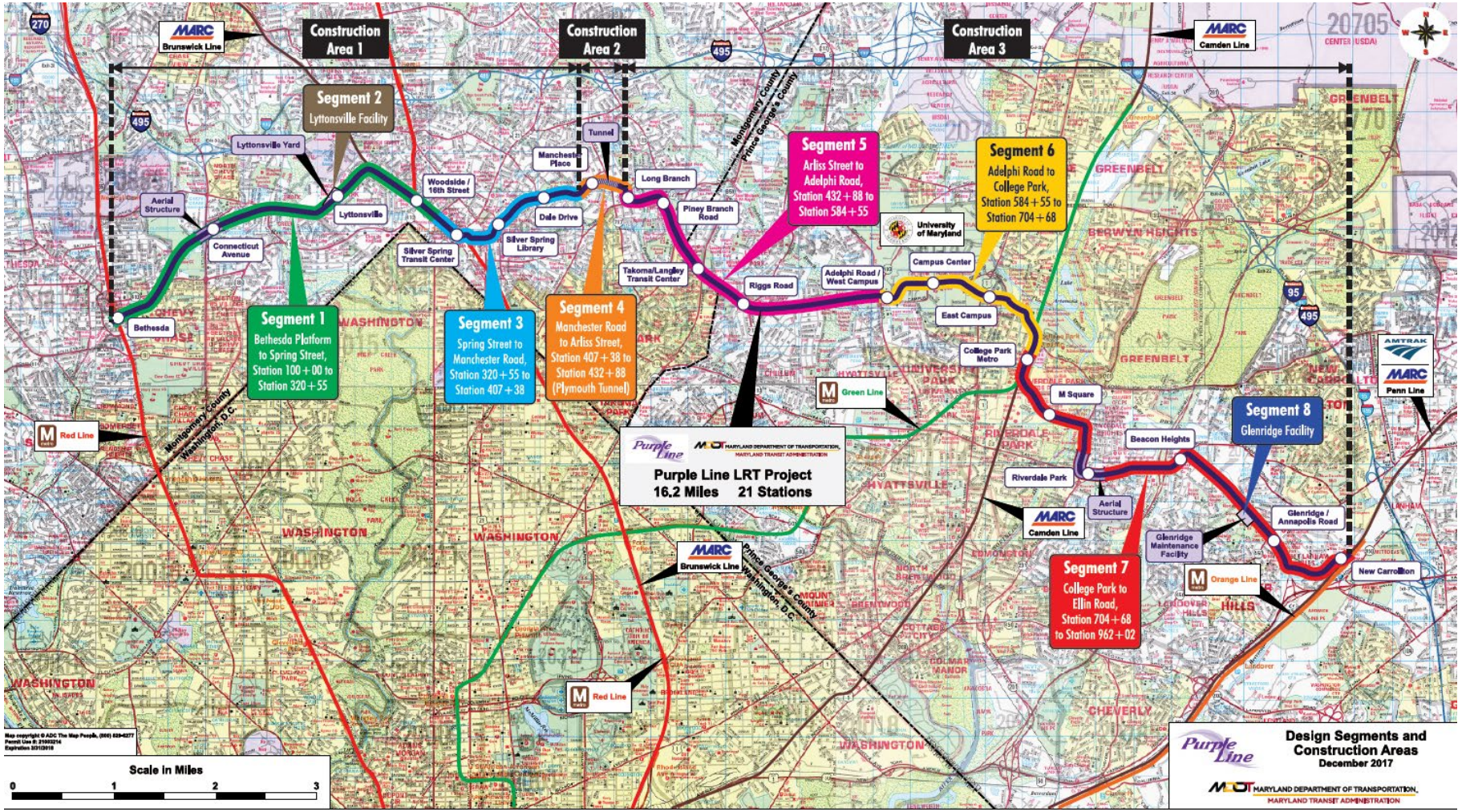
Embedded Track Work in Wash Bay by MTS – OMF Glenridge
Week Ending 02-24-23

ATTACHMENT G – ROADMAP TO REVENUE OPERATIONS

In accordance with Oversight Procedure (OP) 25, the Roadmap to Revenue Operations, prepared from the Project Sponsor's master schedule, is issued quarterly as a separate electronic file. Because the Project Sponsor's master schedule is undergoing a major revision for schedule recovery, the dates currently shown will change.

Per OP 25, this item is issued quarterly "as a separate attachment." Due to the transition to a new Design-Build contractor, quarterly updates will be provided when available. Refer to the July 2020 Project Management Oversight Contractor Monitoring Report for the most recent update.

ATTACHMENT H – PROJECT MAP



PMOC MONITORING REPORT
March 2023

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

Maryland Transit Administration
Baltimore, Maryland
Final

Draft Report Delivered to FTA on ***April 10, 2023***
Final Report Delivered to FTA on ***April 25, 2023***

PMOC Contract No.: 69319519D000016
Task Order No.: 69319520F300095
Project No.: 69319519D000016/69319520F300095
Requisition/Reference No.: FTA-TPM20-20-0106
OPs Referenced: 20, 22, 24, 25, 26
CLINs 0001, 0002, and 0005

David Evans and Associates, Inc.
Pete Hankovszky, Task Order Manager
Voice –720.448.6730; Email – pzh@deainc.com
Time on Project: 05/18/2020 through 05/17/2025

REPORT FORMAT AND FOCUS

This report is submitted in compliance with the terms of the Federal Transit Administration (FTA) Contract #69319519D000016, Task Order #69319520F300095. Its purpose is to provide information and data to assist FTA as it continually monitors the management capacity and capability of the Maryland Transit Administration (MTA) (the Project Sponsor) to execute the project efficiently and effectively, and hence, whether the Project Sponsor continues to be ready to receive federal funds for further project development. This report covers the project management activities on the National Capital Purple Line Light Rail Transit Project managed by MTA as the Project Sponsor and financed by the FTA Full Funding Grant Agreement (FFGA). The cost and schedule information in this report was extracted from MTA's submitted information except where noted. The report is organized to comply with the requirements of updated Oversight Procedure 25 – Recurring Oversight and Related Reports, dated June 2020.

THIRD-PARTY DISCLAIMER

This report and all subsidiary reports are prepared solely for FTA. This report should not be relied upon by any party, except FTA or the Project Sponsor, in accordance with the purposes as described below.

For projects funded through the FTA FFGA program, FTA and its Project Management Oversight Contractor (PMOC) use a risk-based assessment process to review and validate a Project Sponsor's budget and schedule. This risk-based assessment process is a tool for analyzing project development and management. Moreover, the assessment process is iterative in nature; any results of an FTA or PMOC risk-based assessment represent a "snapshot in time" for a particular project under the conditions known at that same point in time. The status of any assessment may be altered at any time by new information, changes in circumstances, or further developments in the project, including any specific measures a Project Sponsor may take to mitigate the risks to project costs, budget, and schedule, or the strategy a Project Sponsor may develop for project execution. Therefore, the information in the monthly reports will change from month to month, based on relevant factors for the month and/or previous months.

TABLE OF CONTENTS

1. EXECUTIVE SUMMARY 1
1.1. Project Description 1
1.2. Project Status 1
1.3. Major Issues and/or Concerns 12
1.4. Status of Key Indicators Dashboard (Post-grant) 14
1.5. Core Accountability Items 15
2. OBSERVATIONS AND FINDINGS 16
2.1. Summary of Monitoring Activities 16
2.2. Oversight Triggers 17
2.3. Project Management Plan and Sub-plans 17
2.4. Management Capacity and Capability 21
2.5. NEPA Process and Environmental Mitigation 22
2.6. Project Delivery Method and Procurement 25
2.7. Design 26
2.8. Real Estate Acquisition and Relocation 28
2.9. Third-party Agreements and Utilities 30
2.10. Construction 32
2.11. Vehicle Technology and Procurement 34
2.12. Project Cost 35
2.13. Project Schedule 39
2.14. Project Risk 44
2.15. Quality Assurance/Quality Control 45
2.16 Safety and Security 46
2.17 Americans with Disabilities Act 48
2.18 Buy America 48
2.19 Start-up, Commissioning, Testing 49
2.20 Before-and-After Study Reporting 49
2.21 Lessons Learned 49
2.22 Action Items 49
ATTACHMENT A – LIST OF ACRONYMS 51
ATTACHMENT B – SAFETY AND SECURITY CHECKLIST 54

ATTACHMENT C – TOP PROJECT RISKS....55
ATTACHMENT D – AWARDED CONTRACTS....57
ATTACHMENT E – ROLLING STOCK VEHICLE STATUS REPORT....58
ATTACHMENT F – PROJECT MILESTONES/KEY EVENTS....60
ATTACHMENT G – ROADMAP TO REVENUE OPERATIONS....64
ATTACHMENT H – PROJECT MAP....65

LIST OF TABLES

Table 1 – MTA Master Schedule Dates....6
Table 2 – Current Major Issues and Concerns....12
Table 3 – Key Indicators Dashboard....14
Table 4 – Core Accountability Items....15
Table 5 – Project Cost Versus Budget....35
Table 6 – Sources of Federal Funding and Matching Share Ratios....37
Table 7 – FTA SCC Workbook – Build Main, June 1, 2016 Update....38
Table 8 – Key Milestone Dates....42

1. EXECUTIVE SUMMARY

1.1. 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, Maryland, to New Carrollton in Prince George's County, Maryland. The Purple Line will operate largely at street level in a combination of dedicated and semi-exclusive right-of-way (ROW) and 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) service at Bethesda, Silver Spring, College Park, and New Carrollton, Maryland. The project will also connect to all three Maryland Area Regional Commuter rail lines, Amtrak, and local bus routes. The project includes 21 stations, 2 operations control/vehicle storage and maintenance facilities, and 25 light rail vehicles (LRVs). Maryland Transit Administration (MTA) is executing the project using a Public-Private Partnership (P3) method of project delivery. As documented in the Federal Transit Administration (FTA) Full Funding Grant Agreement (FFGA), the original estimated project cost is $2,407,030,289, and the scheduled Revenue Service Availability (RSA) date is December 31, 2022. On January 26, 2022, the Maryland Board of Public Works (BPW) approved significant revisions to the project cost and the RSA date. On April 11, 2022, private activity bonds went to market, and there was sufficient demand to sell all of the bonds. The Transportation Infrastructure Finance and Innovation Act (TIFIA) loan closed on April 14, 2022, allowing financial close and commercial close on that same day. Financing approvals and subsequent financial close allowed Purple Line Transit Partners (PLTP), the P3 concessionaire, to issue Notice to Proceed (NTP) to the replacement Design-Build (D-B) contractor. Maryland Transit Solutions (MTS) is now the D-B contractor for the project. A revised Final Recovery Plan (FRP) prepared by MTA and approved by FTA is required after cost, schedule, and risk management elements are fully defined. Management plan updates are also required.

1.2. Project Status

The FFGA was executed on August 22, 2017. The Purple Line project is currently in the construction phase. Due to a contractual dispute, PLTP demobilized the assets/staff and subcontractors of the original D-B contractor, Purple Line Transit Constructors (PLTC), from the project in September 2020.

On November 24, 2020, MTA and PLTP reached a settlement agreement to release PLTC from the P3 consortium and continue the project with the remaining parties. The BPW approved the agreement on December 17, 2020. The settlement agreement included the following key aspects, as MTA communicated to the Project Management Oversight Contractor (PMOC):

- The settlement provided a mutual release from all disputed and undisputed amounts (incurred before September 28, 2020) for PLTP, PLTC, and subcontractors. The settlement also released outstanding litigation among the parties.
- PLTP agreed to procure a replacement D-B contractor to complete the project and obtain project financing. After a reprocurement process, a replacement D-B contractor, MTS (a

joint venture of Dragados USA and OHL USA) was selected on November 5, 2021. The contract with MTS was executed on April 14, 2022.

MTA and PLTP progressed new agreements through the financial process and State of Maryland approvals. Maryland BPW approved the new agreements with PLTP on January 26, 2022. Financial and contractual close occurred on April 14, 2022.

MTA submitted a Draft Interim Recovery Plan (IRP), dated December 15, 2020, to FTA. The IRP provided additional details related to the settlement agreement and MTA management activities. The PMOC reviewed the IRP and submitted findings, opinions, and recommendations to FTA. FTA approved the IRP on January 12, 2021. MTA committed to monitoring project progress against this IRP and to updating the IRP as required. On October 4, 2022, MTA submitted the draft FRP to FTA and the PMOC for review. ***FTA and the PMOC have reviewed the Project Management Plan (PMP) and other MTA management plans, along with the FRP, over the past six months***. FTA has transmitted review comments on the management plans to MTA. The FRP requires FTA approval.

Despite changes within the P3 consortium, MTA intends to complete the full scope of the project as envisioned in the original contract documents, with some minor exceptions such as the addition of three more LRVs.

MTA made deliberate choices about how to proceed with the major project elements once PLTC was released from the project, and continues to implement effective management controls. MTA's planning criteria included schedule, budget, and the reduction of risk for the replacement D-B contractor. To address budget constraints, some project activities that were identified for completion in the IRP were later deferred. MTA and its Project Management Consultant (PMC) added staff to support subcontractor invoicing, payment processes, and other administrative tasks.

MTA is currently managing a significant number of construction activities that will continue until completion in ***mid-2023***, including some utility relocations, particularly work by Verizon and Comcast. Despite the careful planning, these Operation Step Forward (OSF) activities fell behind schedule. Delays related to third-party utility relocations and other unforeseen issues caused MTA to miss several milestone dates included in the April 2022 revised agreements with PLTP. Evaluation of the impacts on schedule and budget from these missed milestones by MTA is continuing in ***March 2023.***

Construction work continues under both MTA and MTS management, including activities and elements such as erosion and sediment control maintenance, bridge structures, retaining walls, the Glenridge Operation and Maintenance Facility (OMF), and utility relocations. The Polk Street Maintenance Facility (for Prince George's County), the Paint Branch stream restoration, and the Ken-Gar wetlands mitigation projects are essentially complete. Turnover of the Polk Street Maintenance Facility to Prince George's County has occurred. The Paint Branch stream restoration is complete, and warranty-related corrections (partial replanting) occurred in December 2022. The Ken-Gar wetlands mitigation project has conducted final inspection and completed final non-native plant treatments.

Completion of the Glenridge OMF has been on or near the critical path and continues to be a focus. MTA completed the majority of the OMF building and utilities, but construction of track that accommodates LRV storage and testing was deferred for completion by MTS. There are six outstanding OSF items that MTA must complete at the OMF. However, these items require equipment and materials that have long lead times. MTS was scheduled to assume control of the facility in early 2023, but final details are still being determined. ***As of March 2023, the date of the turnover of the facility from MTA to MTS is still being determined.*** MTA is still responsible for completing the six specific items and was expected to complete several of them in March 2023. MTS is currently installing rail and Overhead Contact System (OCS) elements inside the building.

Delayed completion of the OMF construction upon PLTC's departure required finding an alternative location to store completed LRVs. MTA reached an agreement with Construcciones y Auxiliar de Ferrocarriles (CAF) to store the LRVs at CAF's Elmira, New York facility until track is ready for acceptance of the LRVs. MTS assumed the storage agreement with CAF upon finalization of the replacement D-B contract.

MTA has revised and submitted the PMP, Risk and Contingency Management Plan (RCMP), Quality Assurance Plan (QAP), project schedule, Safety and Security Management Plan (SSMP), and Safety and Security Certification Plan (SSCP). FTA and the PMOC have reviewed these revised plan documents in conjunction with their review of the FRP.

As of March 31, 2023, FTA has provided review comments on all of the management plans to MTA. MTA is incorporating FTA and PMOC review findings and recommendations into the FRP.

In accordance with FTA direction in July 2021, the PMOC enhanced its focus on MTA scope, schedule, cost, risk, and Management Capacity and Capability (MCC) readiness metrics. As such, the PMOC requested a matrix of the associated documents that were required to facilitate reviews. MTA has regularly updated a schedule of review activities that supports the development of the project's Recovery Plan in accordance with the procurement schedule for the replacement D-B contract. In the opinion of the PMOC, reviews are critical to MTA's continued development of the FRP and associated management plans. MTA continues to share schedule, budget, and other planning information with FTA as it becomes available. MTA also continues to provide FTA and the PMOC with construction updates, as well as twice monthly updates that track project milestones, along with the progress of MTA and MTS construction activities.

- Scope: There have been no significant reductions or changes to project scope. Three LRVs were added to the project scope (non-FFGA) to support improved operations once service commences.
- Schedule:
    - PLTC never developed an approved recovery schedule to address the delayed start of construction caused by the environmental lawsuit (please see the **NEPA Process and Environmental Mitigation** section, below, for a discussion of the environmental lawsuit). In fall 2019, the P3 concessionaire submitted a revised, fully cost-loaded schedule reflecting a phased project opening (with the first phase opening at the end of 2022 and the second phase opening in mid-2023). This schedule was based on

negotiations between MTA and PLTP but was never incorporated into the working master project schedule.

- In accordance with the IRP, MTA developed a schedule for the period during which the D-B contractor was being replaced. PLTP and MTA identified several milestones and the requirement to establish a full project schedule before the end of the D-B contractor replacement period. On November 5, 2021, PLTP announced the selection of the preferred replacement D-B contractor, MTS.
- The IRP project milestones, with dates as provided by MTA, currently include:
  - January 6, 2021 – PLTP issued a Request for Qualifications (RFQ) for replacement D-B contractors.
  - March 8, 2021 – PLTP issued a Request for Proposals (RFP) to the short list of replacement D-B contractors based on the RFQ.
  - October 15, 2021 – PLTP received RFP responses.
  - November 5, 2021 – PLTP and Maryland Department of Transportation (MDOT)/MTA selected the replacement D-B contractor firm.
  - January 26, 2022 – BPW approved the replacement D-B contractor (MTS), contract amendments, schedule, cost, and financing.
  - April 11, 2022 – Private activity bonds went to market.
  - April 14, 2022 – The TIFIA loan closed on April 14, 2022, allowing financial and commercial close on that same day. MDOT/MTA issued NTP to PLTP, allowing for execution of the MTS contract.
  - September 12, 2022 – MTA approved the Initial Baseline Schedule (IBS).
  - October 14, 2022 – MTS was required to have commenced action on the 11 critical elements that are specified in the D-B contract. At the December 2022 PMOC meeting, MTA confirmed that MTS missed the 180-day window to commence action on 3 of the 11 critical elements. MTA and MTS generally agree that a delayed start for each is logical based on construction sequencing. These three elements are not currently on the critical path.
  - October 28, 2022 – MTA was scheduled to have submitted a draft FRP to FTA and the PMOC for review and comment. On October 4, 2022, MTA submitted the draft FRP to FTA and the PMOC for review.
- A milestone not specifically mentioned in the IRP is the requirement to extend the current Revenue Service Date (RSD). The PMOC therefore added the following milestone to this list:
  - December 31, 2022 – The RSD in the original FFGA is December 31, 2022. MTA must request an extension to the current RSD identified in the FFGA. FTA

will consider approving this extension, which also must include a revised Estimate at Completion (EAC) that includes adequate schedule and cost contingency. FTA's approval of the FRP is a critical step in approval of a revised FFGA budget and RSD.

See also the **Significant Project Activities and/or Key Milestones** subsection of this Executive Summary, below.

Table 1 presents MTA's key milestone dates for the project, showing the last approved (March 15, 2017) master project schedule, the MTA Master Schedule August 2018 proposed baseline, and the (most recent) February 2020 progress update of the MTA master schedule proposed re-baseline. As noted above, all milestone dates require reevaluation and revision by MTA. MTA developed a new draft master schedule for use during OSF and negotiations with the replacement D-B contractor. In the draft master schedule in October 2021, MTA assumed a sequence similar to the one that PLTC had planned before PLTC was terminated. That October 2021 schedule was utilized to develop a target RSA date for the resolicitation RFP for the replacement D-B contractor. This target RSA date was assumed to occur 1,645 calendar days from the financial close date, which occurred on April 14, 2022, resulting in an approximate RSA date of August 12, 2026, excluding schedule contingency. To clarify the terminology, the RSA date is a contractual date critical to the agreement between MTA and PLTP. The RSD is the contractual date tied to FTA FFGA funding and other project approvals.

The replacement D-B contractor was required to prepare an IBS and have it approved by MTA within 120 days of financial close. MTS submitted a 120-day mobilization schedule, which was approved by MTA. MTS submitted the IBS, and MTA provided formal comments on the IBS to MTS on July 13, 2022. MTA approved the revised IBS on September 12, 2022.

In August 2022, MTA and the PMOC discussed the current state of the baseline schedule, particularly the inclusion of adequate float to address schedule risk. The P65 date that MTA had proposed before a risk workshop that was held in May 2022 included approximately seven months of float and an RSA date in October 2026. A recent schedule (dated October 3, 2022) proposed by MTS includes an October 2026 RSA date but adds approximately one year of contingency to reach an "FFGA Revenue Service Date – Final Completion" of October 13, 2027. In the PMOC's opinion, float should be assigned to specific project activities, and the project budget must include the cost that correlates to the float duration. MTA concurs that the master schedule will require float included for specific activities and not just a lump-sum float period added after the MTS completion date.

The most recent master schedule provided by MTA, dated ***March 12, 2023,*** indicates significant delays. These delays remain a concern because, without recovery, nearly 7 months of the 12 months of schedule float may already be consumed. MTA

provided a description of what caused a seven-month slip just two months after the IBS was approved. MTA determined recovery strategies, and a revised RSD to provide more confidence in the project schedule and cost. MTA states that it is focused on schedule recovery and is currently optimistic that three months of schedule recovery is possible. The PMOC recommended that a viable strategy for schedule recovery be incorporated into the FRP***, which MTA submitted to FTA and the PMOC in March 2023. Acceptance of the FRP and recovery schedule is pending.***

The information in Table 1 – MTA Master Schedule Dates will be updated once the FRP reviews and approvals are complete.

Table 1 – MTA Master Schedule Dates

Activity	Latest (March 15, 2017) Approved Master Project Schedule	MTA Master Schedule August 2018 (working baseline)	MTA Master Schedule, February 29, 2020 Update
All Significant ROW Acquisition and Relocation	As needed by construction	---	All P3 contract Exhibit 9[1] properties in possession
Commencement of Trial Running[2]	---	03/09/2022	06/08/2022
Readiness to Commence Revenue Service	To Be Determined (TBD)	10/28/2022	12/26/2022
MTA Opens for Revenue Service	03/2022	---	12/26/2022
Revenue Operations Date (includes contingency)	12/31/2022	---	12/31/2022
FFGA RSD (includes contingency)	12/31/2022	12/31/2022	12/31/2022

[1] Refers to properties as included in the original P3 contract Exhibit 9 FFGA scope.

[2] The schedule dates are no longer valid. The FRP and updated FFGA will include revised dates for the activities in Table 1.

- Cost:
  - The project's documented expenditures are ***$2,690 million through February 28, 2023***. The current EAC for the project (construction, management, and LRVs) ***is*** approximately $4,926 million. This budget estimate has not yet been officially adopted. FTA and the PMOC have reviewed the FRP and transmitted their comments to MTA on January 9, 2023. The FRP still needs to be approved by FTA.
  - The replacement of the D-B contractor has resulted in added costs and schedule delays. See the **Significant Project Activities and/or Key Milestones** subsection, below.
  - Refer to **Table 4 – Core Accountability Items**, below, for additional project cost information.
  - Cost figures in this report include payments to PLTP that were required by the December 2020 settlement agreement.

- MTA has prepared a summary of actual versus planned expenditures for high-level OSF activities in Standard Cost Category (SCC) format and is updating this summary each month. Through December 31, 2022, MTA forecasted OSF expenditures of $556.15 million, which exceed the original OSF budget by approximately $136 million. A significant portion of the overrun previously had been incorporated into the project budget, but additional contingency may be needed to address the increase of $35 million to $45 million that has occurred since the final recovery budget was developed. MTA states that these overruns are due to labor and material cost inflation as well as the extended duration of the OSF activities. The PMOC recommends that MTA closely monitor these cost overruns given the early use of a significant portion of the budget contingency proposed in the current draft RCMP.
- The budget to address nonconforming construction by PLTC is a concern. MTA incorporated known defects into the contract with MTS. However, defects unknown at the time of the MTS contract must be paid for by MTA. MTA repeated that it is unsure of the specific budget that will be used to rectify PLTC defects found after the contract with MTS was executed. In February 2023, MTA estimated the total cost of these unknown defects to be approximately $10 million. As with the OMF overruns, the PMOC recommends that MTA closely monitor utilization of contingency to cover these costs.

- Significant Project Activities and/or Key Milestones:
  - The COVID-19 pandemic has impacted the project in different ways and at different levels. These impacts include those related to availability of resources and labor. MTA and PMC staff were following recommended COVID-19 protocols. The PMOC continues to recommend that MTA track all actual and potential costs related to COVID-19. On January 30, 2023, MTA stated that COVID-19 protocols for the project had been suspended.
  - The third lawsuit filed by the Friends of the Capital Crescent Trail in January 2019 against U.S. Army Corps of Engineers (USACE) was dismissed in April 2020. The plaintiff subsequently filed an appeal on May 11, 2020. The District Court denied the appeal on May 13, 2021. The decision resolved the last active lawsuit related to the project.
  - The original baseline schedule anticipated design completion by late fall 2017. The current progress through ***March 17, 2023***, is that ***211 of the 218*** total planned design packages have been issued as Released for Construction (RFC). Civil and Utility packages that remain in design or approval include traffic signal pre-emption, grade crossing safety systems, lighting, signage, and stations. Although Systems packages were scheduled to be complete by the end of the first quarter of 2022, those packages remain in progress. The current forecast for completion of all design packages is June 2023.

- MTA, PLTC, and CSX Corporation (CSX) (a rail-based freight transportation company) reached conceptual agreement on the CSX-related design issues, as summarized below. The following actions remain to be resolved:
  - WMATA's comments on design plans for the Silver Spring Transit Center (SSTC) mezzanine connector pedestrian bridge (over CSX ROW) will result in what MTA deems are betterments. Resolution of WMATA comments is nearly complete as of February 2023. MTA reports that the slow resolution of these issues has not impacted critical path activities.
  - Storm sewer construction under the CSX railroad is required in several locations. Two jack-and-bore installations of culvert pipes were completed in November 2022. One jack-and-bore installation remains to be completed.
  - An encroachment into the CSX vertical clearance was discovered upon installation of girders at the SSTC. MTA completed the required design for shims, and the encroaching structural members were raised in late August 2021.
- MTA and Washington Suburban Sanitary Commission (WSSC) reached agreement on an alignment, primarily in the median of Veterans Highway, for relocation of the 66-inch water main that was under the Glenridge OMF. The original Purple Line General Engineering Consultant (GEC) team performed the design, WSSC is providing the material, and MTA has separately contracted for the construction. Using a tunnel boring machine, the initial shaft for the 66-inch water main under the roadway was completed in March 2022. The second bore shaft was completed, and carrier pipe installation occurred in June 2022. Installation of cathodic protection and final site restoration are the only remaining items as of ***March 2023***. ***Completion of these items will not occur until May 2023, but the activity is not on the critical path, and delays are not expected to incur additional cost.***
- PLTC reached resolution on the final remaining Alternate Technical Concept (ATC) identified during the proposal process, which is related to the use of jet fans at the Bethesda Station in lieu of vent shafts. In accordance with the established process, MTA reviewed PLTC's design package for National Environmental Policy Act (NEPA) compliance. Final documentation for the ATC is still ***pending as of March 2023.*** MTA and MTS are coordinating the noise and aesthetic impacts of the fans, and they optimistically predict that the ATC will have no Section 4(f) impacts or other impacts to the project's Record of Decision (ROD).
- In April and May 2021, 29,000 concrete railroad ties were delivered to an onsite storage location for future use by the replacement D-B contractor. As a part of OSF, MTA ordered rail, ties, special trackwork, and turnouts to mitigate supply chain risks. MTA has received and stockpiled some of this material. As of August 2022, rail materials were received at the Glenridge OMF, and MTS placed them in storage for future use.

- MTA has completed most of its non-P3 construction contract activities, as follows:
  - Prince George's County Parks (Parks) Polk Street Maintenance Facility D-B– A substantial completion letter was issued to the contractor on March 30, 2021. Parks has taken possession of the facility, and it is currently in the warranty period.
  - Offsite Wetlands Mitigation (Ken-Gar) – The Design-Bid-Build construction NTP was issued on September 5, 2019. Prince George's County took partial acceptance of the entire project on March 3, 2021. Acceptable growth of vegetation has been achieved, allowing for closure of this project. The one-year warranty review occurred on January 9, 2022, and the project is now in quarterly monitoring and annual reporting by MTA that will continue through 2028.
  - Offsite Stream Mitigation (Paint Branch) – The Design-Bid-Build construction NTP was issued on September 5, 2019, and the contractor mobilized in late November 2019. Construction of this project is complete, and revegetation has been accepted. The one-year warranty inspection occurred on August 4, 2022, and 1,700 plants were replaced in November 2022. Quarterly monitoring and annual reporting by MTA will continue through 2028.
- Building construction at the Glenridge OMF is essentially complete; however, construction of civil items outside of the building continues, as does final commissioning of systems inside the building. MTS was scheduled to take possession of the Glenridge OMF on December 31, 2022, but that did not occur. The turnover letter to transfer possession of the facility from MTA to MTS is in progress ***as of March 2023***. However, MTS currently is working in the OMF, installing embedded track inside the building and correcting nonconforming work related to the interior track. There are six items remaining at the OMF that MTA cannot yet complete because of long lead times for necessary replacement parts. MTS will take control of the facility with those items outstanding, and MTA will complete the items when feasible. MTS then will maintain the facility until it is turned over to PLTP. ***MTS is currently performing construction in the interior and exterior locations of the OMF.***
- Site preparation for the installation of Traction Power Substations (TPSSs) Q8, QYG, and QYP continues. As of December 2022, issues related to Potomac Electric Power Company (PEPCO) had delayed delivery of the TPSSs, but MTA states that these delays should not delay LRV delivery.
- The following is the status of LRV manufacturing as of ***March 2023:***
  - Assembly of 130 carshell segments in the initial procurement has been completed in Spain, and all have been delivered to CAF's facility in Elmira, New York.
  - Final assembly of vehicles is being performed in CAF's facility in Elmira. Three vehicles are currently in static testing. All 25 of the vehicles in the FFGA project

scope description and one additional vehicle originally ordered are designated as "Ready for Shipment" and are in storage. These vehicles are under a schedule of inspection and maintenance until delivery can occur.

- MTA has added three vehicles by change order to CAF's contract. The additional LRVs will support better operations at the RSA date. It is important to note that these three additional LRVs are not a part of the FFGA between MTA and FTA. One vehicle is in storage in Elmira along with the 25 FFGA LRVs, and assembly of the additional two vehicles (ten cars) is in progress in Spain. Ultimately, these ten cars will be shipped to Elmira for final assembly and static testing, following the same process as the other 130 cars.
- The previously identified quality issue related to the M33 bolt on the LRVs is nearly resolved. MTA determined that the issue does not impact safety, and the solution is likely the use of a higher strength bolt. The final report on this issue is expected in ***April 2023***.
- Delivery of vehicles was expected to begin in spring of 2021; however, the location for their delivery was uncertain because the Glenridge OMF is not ready to accept railcars. MTA and CAF negotiated an agreement for CAF to store the completed cars in Elmira to await delivery. The terms of the agreement became a part of MTS's agreement. The first 26 LRVs have now been designated as Ready for Shipment and placed into storage in Elmira. In June 2022, the MTS team began tracking activities required while the vehicles are in storage in MTS's possession. Deliveries of LRVs to the Glenridge OMF are scheduled to commence in late 2023.
- MTA has reviewed the systems testing and commissioning management plan and has provided its comments to PLTP.
- The project's Buy America compliance audit for the LRVs was conducted on November 14, 2022. In January, CAF provided additional documentation requested to assist with evaluation of Buy America compliance. The draft audit report is expected be available in April 2023.

- MTA is responsible for providing offsite stormwater mitigation in Montgomery County. To date, MTA has accumulated a credit for more than 10 acres of designed, Maryland Department of the Environment (MDE)-approved, offsite stormwater management (SWM) capacity in its "bank." MDE indicated that Purple Line construction can proceed provided there is a positive balance of credits compared to construction impact. MTA has determined that there is a need for additional mitigation in Prince George's County, and a project to construct additional mitigation is included in the scope of work for MTS.
- ROW acquisition activities continue for the required 464 private parcels and 137 public parcels (a total of 601 parcels). All of the private parcels related to the original

P3 contract Exhibit 9 FFGA scope are in MTA's possession. ***As of March 3, 2023***, ***413*** of the 464 private parcels have completed settlement, and an additional 6 parcels have settlements pending.

- MTA has identified 188 small property acquisitions that are required for utility relocations, of which 134 are private and 54 are public. ***As of March 3, 2023,*** 187 of the additional 188 properties are in MTA's possession through Right of Entry (ROE), through options, and/or through agreements. In December 2022, MTA reported that six of seven critical acquisitions have been closed. The remaining acquisition is needed by June 2023, ***and MTA has reached an agreement with the property owner pending BPW approval, which is expected in April 2023***. MTA estimates that approximately $35 million of exposure remains in the acquisition process. This amount has been included in the risk assessment.
- To date, all 177 required property relocations have been completed. Costs for the completed relocations continue to be processed in accordance with the applicable procedures. As of ***March 2023***, there is only one commercial property that potentially may need relocation.
- Due to the extended project duration, there are a number of agreements that will expire before the expected RSA date. MTA and MTS have started the process of identifying the end dates now needed for the agreements and will begin the process of obtaining extensions. MTA has evaluated the risks, estimated the cost of the extensions, and included those costs in a budget contingency. MTA estimates that approximately $13 million of risk exposure remains due to necessary extensions of Temporary Construction Easement (TCEs). This amount has been included in the risk assessment.
- Preparation for safety certification is ongoing, including the development of the appropriate checklists for both design and construction. Design Criteria Conformance Checklists (DCCCs) are 96.6 percent verified. Construction Specification Conformance Checklists (CSCCs) are 10.6 percent verified.
- Staffing of management personnel has been adjusted to address the varying activities that MTA is managing. In November 2021, MTA's quality lead for the Purple Line project, Rene Schroeder, retired. It was proposed that Roland Carroll, currently the Purple Line systems and construction safety lead, add the quality lead role to his other Purple Line roles. The PMOC has evaluated this change as a part of the PMP review and MTA provided additional information.

  In September 2022, MTA supplemented the Purple Line team with the hiring of Ken Forsythe as the Deputy Communications Director. On October 25, 2022, MTA announced Kevin Oberheim would assume David Fertal's role as Interim Deputy Project Director.

  In March 2023, MTA hired John Donovan in the role of Construction Manager. MTA is forming a commercial project controls team, and Anita Rodgers will

assume the role of Contracting Officer. These changes are in response to the near completion of OSF and the need to increase the focus on managing MTS construction activities.

- MTA carefully considered a request from Montgomery County to single-track the Purple Line through the Bethesda tunnel. MDOT/MTA determined it would not be able to accommodate the request.
- MTA and PLTP coordinated to obtain a modified version of the existing TIFIA loan for the project. As of April 14, 2022, the TIFIA loan closed, and all bonds have been marketed. MTA is required to update the Transportation Investment Program and State Transportation Investment Program plans to reflect changes in the project.
- MTA's Equal Employment Opportunity Officer assigned to the project is Marquis Washington. He is supporting MTS in its hiring program. The former contractor, PLTC, left the project with a shortfall in meeting its Disadvantaged Business Enterprise (DBE) program requirements, and MTS is required to address this shortfall of approximately $12 million in contract value.
- MTA hired a consultant team that is analyzing alternatives for providing security and fare enforcement services for the Purple Line. MTA does not currently have existing facilities or staff that can adequately provide services because the distance from their location to the Purple Line light rail facilities is too far. ***On March 28, 2023,*** MTA stated that the report that summarizes alternatives for these security and fare enforcement services is in final review ***by several State of Maryland departments.*** MDOT is the State Safety Oversight Agency (SSOA), monitoring the Purple Line project development that provided comments on the draft recommendation before MTA submitted it to MTA's upper management and the state departments.
- In October 2022, MTA cancelled the project's planned Community Advisory Team meetings for late 2022, citing a lack of resources to prepare for these meetings without impacting management of the overall project. ***These meetings resumed, and two virtual Community Advisory Team meetings occurred each week in February 2023. MTA continues to develop its stakeholder communications plan and in March 2023 expanded its contacts with local agencies and community groups. The final plan will be submitted to FTA and the PMOC.***

1.3. Major Issues and/or Concerns

Table 2 discusses any major issues or concerns impacting the project's scope, schedule, cost, risks, quality, safety, etc.

Table 2 – Current Major Issues and Concerns

Issue/Concern	Continuation of the project without PLTC has been a significant challenge for the project. MTA's IRP, the permanent replacement of the D-B contractor, and the management of interim design/construction activities have been MTA's priorities. The replacement D-B contractor, MTS, is now mobilized on the project.

Date Identified	September 2020.
Status	The IRP was approved in January 2021, with an update approved in July 2021. Implementation is nearly complete. MTA continues to develop the draft FRP.
Project Sponsor Action	Management of a transition plan and support of PLTP in the replacement of the D-B contractor was the focus of the Project Sponsor. Another focus was the management of MTA's contractors to continue key activities that maintain the integrity of the schedule. MTA has submitted the draft FRP for FTA and PMOC review.
PMOC Recommendation	The Project Sponsor should continue to consider the conditions of the original project requirements and management plans during the interim period. Effective management continues to be critical to success. The PMOC recommends that MTA continue to track and provide updates to FTA on information related to schedule, budget, management, and MTS. Focus should continue to include the completion of a FRP and supporting management documents. The PMOC also recommends that MTA ensure that sufficient staff is dedicated to OSF project delivery and closely monitor OSF activities and the remaining potential impacts to the MTS schedule. However, now that MTS is under contract, MTA and the PMC also should continue to emphasize their oversight of PLTP and MTS.
Issue/Concern	According to the PMP, the master project schedule should be updated monthly. The most recent MTA-approved master project schedule, dated February 20, 2022, incorporates significant schedule delays. MTA is coordinating schedule mitigation efforts to recover part of the delays.
Date Identified	2022
Status	Ongoing.
Project Sponsor Action	After the preliminary review of the updated master schedule, the PMOC noted that schedule float of one year was added to the end of the master schedule to reflect project risk. The updated master schedule indicates a significant potential schedule slip of more than six months. MTA is reviewing this issue with MTS to determine recovery and mitigation strategies.
PMOC Recommendation	The PMOC recommends that MTA track all schedule elements set forth in the IRP and the draft FRP and report the status to FTA and the PMOC each month. MTA will communicate schedule recovery activities to FTA and the PMOC and include the schedule recovery strategies in the FRP.
Issue/Concern	MTA's settlement with the P3 concessionaire includes significant settlement payments, including compensation for claims of cost impacts from the delayed execution of the FFGA. Final resolution of the cost and schedule impacts will also depend upon the development of a recovery schedule. The project cost, as reflected in the FFGA, is affected, and it is required that an MTA Purple Line Project FRP, including a revised project cost estimate with adequate cost contingency to address remaining project risks, be submitted to and approved by FTA.
Date Identified	September 2020.
Status	Ongoing.
Project Sponsor Action	Develop a revised cost estimate.
PMOC Recommendation	The PMOC recommended that MTA develop a realistic cost estimate as soon as the project details and project delivery plans are developed. MTA has provided cost information to FTA and the PMOC. MTA developed cost and cost contingency information that is incorporated into the draft FRP. Budget contingencies reflect potential additional costs required to address potential schedule delays and support a realistic EAC.
Issue/Concern	Impacts caused by COVID-19 have occurred at different levels for different aspects of the project. Impacts to construction have been managed effectively. Supply chain impacts have posed some problems but have been adequately mitigated. LRV production was delayed due to manufacturing slowdowns in both Spain and New York. In January 2023, MTA stated that COVID-19 protocols for the project have been suspended.
Date Identified	May 2020.

Status	Closed.
Project Sponsor Action	Enforce the use of Personal Protective Equipment and other preventative measures, if needed.
PMOC Recommendation	The PMOC recommends that MTA continue to track and document costs or delays related to COVID-19. MTA should incorporate COVID-19-related costs into the project cost estimate.
Issue/Concern	MTA does not have a police force located in proximity to the Purple Line.
Date Identified	September 2022.
Project Sponsor Action	MTA hired a consultant team that analyzed alternatives for providing security and fare enforcement services for the Purple Line. Alternatives include: expanding MTA's enforcement services geographically, engaging a third party to provide these services through a contract, or sharing police services with another party. ***As of March 2023,*** MTA has prepared a draft recommendation for providing security and fare enforcement, and that recommendation has been submitted to ***several State of Maryland departments for review***.
PMOC Recommendation	Although the currently forecasted RSA date is in 2027, the PMOC recommends that MTA determine its preferred security alternative without delay and promptly move toward implementation. The PMOC also recommends that the SSOA be included in the review and comment process for security and fare enforcement.

1.4. Status of Key Indicators Dashboard (Post-grant)

Table 3 shows the project Key Indicators Dashboard after the FFGA was awarded.

Table 3 – Key Indicators Dashboard

Project Sponsor:				Maryland Transit Administration	
Project Name:				MTA National Capital Purple Line Light Rail Transit Project	
Date:				***March 31, 2023***	
Project Detail					
Oversight Frequency:				**Monthly**	
Element	**Status**			**Prior Status**	**Issue or Concern**
	●	●	●		
	G	**Y**	**R**		
Project Management Plan		●		●	An updated PMP that reflects revised project conditions needs to be developed. Project transition and recovery plans need to be developed. MTA has prepared a draft FRP to reflect the contractor resolicitation and agreements. In October 2022, MTA submitted a revised PMP to the PMOC and FTA for review. On February 1, 2023, FTA provided its review comments on the PMP.
Management Capacity and Capability		●		●	A revised organizational chart, along with MTA's ability to demonstrate MCC, was approved with the IRP. Staffing requirements for both MTA and its PMC support team have been evaluated in conjunction with the revised PMP and FRP. FTA and the PMOC provided comments on MTA's MCC within the PMP review transmitted to MTA on February 1, 2023. ***In February 2023, the PMOC requested that MTA provide additional detail on the construction management and oversight organizational chart to allow for the PMOC's review of MTA, PMC, and other staff classifications and headcount.***
Cost*		●		●	A revised cost estimate reflecting new project conditions is required. ***Based on PMOC and FTA review comments and a revised MTA quantitative risk analysis, MTA has established a budget contingency that appears appropriate at this stage of the project. MTA should track project status according the FRP and updated Project Management plans.***

Schedule		●		●	A revised project schedule that incorporates the current project status is in place. MTA approved MTS's IBS on September 12, 2022, and prepared a master schedule. FTA and the PMOC have reviewed the master schedule and provided comments to MTA on January 12, 2023. MTS's first several schedule updates showed significant depletion of contingency, which is a cause for concern. ***As of March 2023, MTA has increased the contingency as included in the recovery schedule that it submitted for FTA review.***
Quality		●		●	Quality continues to be acceptable, although the reporting to the PMOC requires refinement to meet FTA requirements. MTA's quality lead has retired, and a replacement quality lead has been assigned from existing MTA staff. This new lead, who is also the current systems and construction safety lead for the project, requires training in quality management and may need additional consultant support. In October 2022, MTA submitted to FTA and the PMOC an updated QAP for review in conjunction with their review of the FRP and other management plans. ***FTA and PMOC comments were provided to MTA in March of 2023.***
Safety		●		●	Safety continues to be acceptable, although with an increase of MTS activities, recordable incidents are increasing. In October 2022, MTA submitted to FTA and the PMOC Version 13 of the SSMP and Version 5 of the SSCP for review in conjunction with their review of the FRP. ***FTA and the PMOC have provided their review comments to MTA for incorporation into the safety plans.***
Risk		●		●	The RCMP and Risk Register were updated to reflect the changes related to interim MTA management and construction delivery. In October 2022, MTA submitted to FTA and the PMOC Version 15 of the RCMP for review in conjunction with their review of the FRP and other management plans. FTA and the PMOC provided comments on the revised RCMP to support MTA's development of budget and schedule contingency.

Legend	
Green	Satisfactory: No Corrective Action necessary.
Yellow	Caution: Risk/Issues exist. Corrective Action may be necessary.
Red	Elevated for immediate Corrective Action: Significant risk to the health of the project.

*Note: With regard to cost, the colors indicate the following status:
Yellow – Forecast cost exceeds the project budget by up to 3%.
Red – Forecast cost exceeds the project budget by more than 5%.

1.5. Core Accountability Items

Table 4 shows the core accountability items for the project, including the current status of the project and the major issues and how they are being addressed.

Table 4 – Core Accountability Items

		Original (Grant)	Current Forecast[1]	PMOC Assessment of Current Forecast
Cost	Capital Cost Estimate	$2,407,030,289	$4,925,533,068	TBD
Contingency	Unallocated Contingency	$90,535,748	$90,000,000	TBD
	Allocated Contingency	$59,500,464	$20,000,000	TBD
	Total Contingency	$150,036,212	$116,805,863	TBD
Schedule	Revenue Service Date	12/31/2022	10/13/2027	TBD

Project Progress		Amount ($)	Percent of Total
Total Expenditures	Actual cost of all eligible expenditures completed to date	***$2,689,950,345***	***54.6%***
Planned Value to Date[2]	Estimated value of work planned to date	Not Applicable (N/A)	N/A
Actual Value to Date[2]	Actual value of work completed to date	N/A	N/A
Contract Status		**Amount ($)**	**Percent of Total**
Total Contracts Awarded	Value of all contracts (design, support, construction, equipment) awarded; % of total value to be awarded	TBD	TBD
Construction Contracts Awarded	Value of construction contracts awarded; % of total construction value to be awarded	TBD	TBD
Physical Construction Completed	Value of physical construction (infrastructure) completed; % of total construction value completed	***$807,444,922***	***41.5%***
Rolling Stock Vehicle Status	**Date Awarded**	**No. Ordered**	**No. Delivered**
28 total car sets[3]	First 26 LRVs: 2016 Additional 2 LRVs: January 2022	28 car sets	0
Next Quarterly Progress Review Meeting Date:	***May 15, 2023***		

[1]The original D-B contractor has been replaced. Draft budget figures, including the work under contract, are being incorporated into this report as they are provided by MTA. Not all information is up-to-date as ***of March 2023***. ***Approval of the FRP and a revised FFGA, once in place, will establish revised budget figures.***
[2]Earned value information is not available.
[3]***The approved FFGA includes a total of 25 LRVs***.

2. OBSERVATIONS AND FINDINGS

2.1. Summary of Monitoring Activities

The PMOC received an update from the Purple Line project team during ***the March 23, 2023, monthly meeting with MTA, the PMC, and the PMOC. Information from the FTA/MTA/PMOC Biweekly Progress Conference Calls held on March 14 and March 28, 2023, also contributes to this report. Additional information was provided to the PMOC with the monthly PLTP disbursement request and supporting documentation.*** Monitoring activities include review of MTA-provided scope, schedule, risk, financial, construction, safety and security, and real estate information.

After the U.S. Court of Appeals reversed the vacation of the ROD in July 2017 (refer to the **NEPA Process and Environmental Mitigation** section, below, for details), the FFGA was executed on August 22, 2017, approximately one year later than planned. The project is currently in the construction phase. The construction (D-B) contractor, PLTC, left the project, and a new project delivery plan was developed, including replacement of the D-B contractor. During the period when the replacement D-B contractor was being solicited, MTA managed select construction and design activities (OSF activities) in order to reduce uncertainty and support the project schedule. On November 5, 2021, MTS was selected as the replacement D-B contractor, and financial and

commercial close occurred on April 14, 2022. MTA continues to manage OSF construction and design activities, and as of October 2022, MTS had mobilized and started work on activities throughout the entire project corridor.

MTA and MTS held initial partnering activities during which they developed relationships, general project priorities for teamwork, and an understanding of key issues for different stakeholders. ***MTA provided partnering process information to FTA and the PMOC on March 29, 2023. The PMOC is using this information to evaluate MTA management practices.***

2.2. Oversight Triggers

The oversight triggers most applicable to the project are the Oversight Procedure (OP) 25 cost and schedule triggers. The project did not have a mutually agreed-upon baseline schedule between March 2017 and September 2022. Significant schedule delays, and the need to modify the RSA date, keep the project eligible for rigorous oversight. Project schedule delays typically impact project cost, another significant indicator of project health. A revised project EAC is being developed in conjunction with development of the project's schedule and FRP.

2.3. Project Management Plan and Sub-plans

2.3.1. Project Management Plan

The PMOC reviewed the Purple Line PMP Version 10 in accordance with OP 20 for a PMP at the FFGA execution stage of a project. Subsequently, FTA and the PMOC reviewed PMP Versions 11, 12, and 13. Due to significant project team changes since those versions, another update to the PMP was required. In October 2022, MTA provided an updated PMP (Version 14) to FTA and the PMOC for review. On February 1, 2023, FTA provided review comments on PMP Version 14 to MTA. Also in February 2023, FTA provided its review comments on the most recently submitted SSMP, SSCP, and the Real Estate Acquisition Management Plan (RAMP) to MTA. ***In March 2023, FTA provided comments to MTA based on the PMOC's follow-up review of the FRP, and initial review of the QAP and SSCP. In March 2023, MTA submitted to FTA versions of the FRP, recovery schedule, and quantitative risk assessment.***

MTA currently is using the approved IBS to develop a master schedule that incorporates operational readiness activities and schedule contingency (float). In October 2022, MTA provided a version of the master schedule to FTA for review along with the draft FRP. The PMOC also received .XER files and conducted a thorough analysis of the schedule. MTS's ***initial five updates*** to its schedule indicate a significant slip to the construction substantial completion date. MTA is evaluating the projected delays and, working with MTS, is developing potential recovery options. Realistic recovery strategies are included in the FRP ***and, once the FRP is approved, will be incorporated into the master project schedule.***

MTA provided an OSF project schedule biweekly ***through the end of 2022***. In addition, the IRP provided a schedule of activities during the D-B contractor replacement period. On April 11, 2022, private activity bonds went to market, and there was sufficient demand to sell all of the bonds. The TIFIA loan for the project closed on April 14, 2022, allowing financial close and commercial

close on that same day. MTS is now the D-B contractor for the project. Financial and commercial close triggered NTP for PLTP. (See the **Project Schedule** section of this report, below, for further details.)

2.3.2. Safety and Security Management Plan

In February 2016, the PMOC reviewed the project's SSMP Version 6, dated October 22, 2014, in accordance with OP 22 for a project at the FFGA execution stage. The PMOC review found that the SSMP was compliant with FTA content requirements for execution of the FFGA, but the PMOC requested that MTA resubmit the SSMP after execution of the FFGA and address the comments in the PMOC report with updated information from the P3 concessionaire. Subsequently, FTA and the PMOC reviewed SSMP Versions 7 through 11 over the next four years. MDOT, which is the SSOA for the project, also reviewed SSMP Versions 8 through 11. On January 13, 2022, FTA provided comments on SSMP Version 12 to MTA. MTA submitted SSMP Version 13 as well as Version 5 of the Purple Line SSCP to FTA and the PMOC for review in October 2022. FTA and the PMOC reviewed the SSCP and SSMP updates and provided their comments to MTA in February 2023.

2.3.3. Quality Assurance Plan

In August 2017, MTA submitted for FTA/PMOC review a complete QAP update, the MTA Purple Line Quality Assurance Plan Revision 8.0. In January 2020, MTA prepared QAP Revision 9 and Document Control Plan Version 5. In October 2022, MTA submitted QAP Version 10 to FTA and the PMOC for review, ***and on March 8, 2023, FTA provided review comments on QAP Version 10 to MTA.***

MTA meets with PLTP, PMC, and the GEC monthly to review quality status. ***In March 2023,*** MTA reported the following quality management activities ***that took place in February 2023***:

- Field inspections for OSF
- Meetings to coordinate closure of outstanding PLTC Non-conformance Reports
- Processing of Quality Oversight Assessment Reports (QOARs)
- ***Field audits of the Quality Assurance (QA) materials laboratory quality control manual and the precast concrete quality plan***
- Field inspections of MTS activities
- Interdisciplinary Design Reviews
- Quality Control Reviews
- Design Submittal Reviews
- Design Services During Construction coordination with Atkins
- Reviews of asphalt, concrete, and earthwork sample and in-situ test results
- Monthly Quality Control (QC) review meeting

On January 18, 2023, the PMOC observed the monthly MTA Quality Team Meeting. The PMOC's observations supported its review of the QAP.

During OSF, MTA provided notes from monthly CAF and SNC-Lavalin LRV manufacturing quality meetings for PMOC review. The information provided summarized issues and corrective actions, and upcoming quality audits. MTS is now responsible for preparing these notes.

One manufacturing quality issue, the recurring failure of a bolt in multiple vehicles, has not been resolved. MTA determined that the issue does not impact safety, and the solution is likely the use of a higher strength bolt. The final report on this issue is expected in ***April 2023.***

In November 2021, MTA's quality lead for the Purple Line project, Rene Schroeder, retired. Roland Carroll has been assigned to add the quality lead role to his other Purple Line roles (he is currently the systems and construction safety lead). MTA is modifying its QA efforts as MTS mobilizes its quality program, and a revised QAP was submitted to FTA in October 2022. The PMOC completed its review of the QAP, and FTA provided comments to MTA ***in March 2023.***

2.3.4. Real Estate Acquisition Management Plan

The PMOC reviewed the project's RAMP Versions 10, 11, and 12. The PMOC reviewed the plans with respect to the guidelines in OP 23 for a project in the construction phase. MTA submitted an updated RAMP Version 13 to FTA and the PMOC in October 2022. ***FTA provided RAMP review comments to MTA on February 27, 2023.***

2.3.5. Fleet Management Plans

The Purple Line project's Rail Fleet Management Plan (RFMP) Version 7.0, dated February 15, 2016, is the version of the plan reviewed by FTA and the PMOC, and it incorporates information from the P3 concessionaire's proposal. The PMOC completed its review of RFMP Version 7.0 and documented, in its OP 37 RFMP review report issued on May 27, 2016, that RFMP Version 7.0 met the requirements of OP 37 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 RFMP, after a review by MTA confirmed that it met the requirements of the Purple Line project. The P3 contract required PLTP to submit its RFMP for MTA review and approval within 90 days of June 17, 2016 (P3 contract financial close), to then 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 before the scheduled beginning of revenue service, and to update the RFMP annually once the project is in revenue service. MTA received, reviewed, and approved PLTP's Purple Line RFMP Revision 0, dated June 22, 2016, after P3 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 then submitted PLTP's RFMP Revision 0 to FTA and the PMOC. PLTP's RFMP Revision 0 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 OP 37.

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 on March 4, 2016, issued its final OP 37 BFMP review report, concluding

that the BFMP met the requirements of OP 37 for the execution of an FFGA for the Purple Line project.

2.3.6. Risk and Contingency Management Plan

The current approved version of the RCMP is Version 14, dated May 2016. The PMOC's OP 40 review found that RCMP Version 10 met the requirements of OP 40 for an RCMP at the FFGA stage of a project. However, because of the impacts of the lawsuit filed by the Friends of the Capital Crescent Trail, MTA had not been able to establish routine bimonthly 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 initial lawsuit was resolved and the FFGA was executed. MTA completed an update of the project's Risk Register in March 2018 and continues to conduct subsequent periodic updates and to provide copies of those updates 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 sub-plans. In early 2020, MTA commenced another update to the RCMP to incorporate the results of the latest quantitative risk assessment that, in turn, incorporated the results of the replacement D-B contractor resolicitation and the revised project implementation details. MTA held a risk management workshop that focused on the interim period on January 26, 2021.

MTA has provided a comprehensive Risk Register and risk mitigation activities in conjunction with the draft FRP. In preparation for a risk analysis, MTA held risk assessment interviews with individual risk owners to review existing risk items and identify new risks. In December 2021, MTA prepared an updated Risk Register that includes over 100 risk items, including PLTP and MTS risks. MTA must utilize the Risk Register and the draft RCMP to develop contingency estimates and a revised EAC.

A risk workshop was held the week of May 2, 2022, at which the PMOC and FTA participated in an OP 40 risk and contingency review that evaluated cost, schedule, and project contingency. MTA prepared confirmation and finalization of the Risk Register, the quantitative risk assessment, and an update of the RCMP. The PMOC developed a draft summary of the risk review results; however, because of the preliminary nature of the baseline schedule information available, further schedule analysis is required now that MTA has a comprehensive baseline schedule. FTA provided a risk summary to MTA on June 22, 2022, for MTA's consideration while it was updating the RCMP. MTA provided responses to FTA comments on the risk summary on July 15, 2022. MTA provided further clarification on August 25, 2022. MTA submitted RCMP Version 15 to FTA and the PMOC for review in October 2022. In February 2023, FTA and the PMOC provided comments on the revised RCMP that supports MTA's development of the project's budget and schedule contingency.

2.3.7. Safety and Security Certification Plan

Version 3 of the Purple Line SSCP is dated November 4, 2014. The PMOC review found that the SSCP Version 3 met the FTA requirements in support of the FFGA application. MTA submitted SSCP Version 4 on February 3, 2020, in conjunction with the updated SSMP submittal (see the **Safety and Security Management Plan** subsection, above). The SSOA completed its review of

SSCP Version 4 and discussed its comments with the PMOC. MTA decided that the new emergency management working group would be a subcommittee to the Fire Life Safety and Security Committee, and this decision would be reflected in the next revisions of the SSMP and the SSCP, which were planned for after the replacement D-B contractor was in place. MTA submitted SSMP Version 13 and SSCP Version 5 to FTA and the PMOC in October 2022. In February 2023, FTA and the PMOC completed their reviews and provided comments on these plan documents to MTA.

2.4. Management Capacity and Capability

Through the PMOC's observations and discussions with MTA, especially with MTA Transit Development and Delivery and Purple Line project management personnel, the PMOC has noted that MTA has been responsive to finding and assigning MCC, as needed, to sufficiently complete the project in compliance with applicable FTA requirements. These efforts have included bringing staff, either MTA or MDOT personnel or consultants, onto the project to manage the current needs, such as planning, P3 procurement and contracting, real estate acquisition, and construction.

In November 2021, MTA's quality lead for the Purple Line project, Rene Schroeder, retired. It was proposed that Roland Carroll, the Purple Line systems safety and construction safety lead, add the quality lead role to his other Purple Line roles. In February 2022, MTA provided a white paper outlining Mr. Carroll's experience, his recent training, and the proposed supporting staff related to the new quality management role. The PMOC has evaluated this change as a part of the PMP review and has requested that MTA provide additional information.

Vernon Hartsock, Purple Line Project Director, retired on February 1, 2022. MTA began the search for a replacement, and in the interim, Matt Pollack and Anita Rodgers shared the Project Director responsibilities. As of July 2022, MTA filled the vacancy with Ray Biggs, an engineer and manager who has experience with FTA and transportation projects. The PMOC will include Mr. Biggs's role as Project Director in its review of MTA's MCC.

The PMOC continues to monitor the effectiveness of the MTA staff and the personnel resources from consultants, MDOT, and other modal administrations as they have been integrated into the overall MTA management of the project. MTA currently is evaluating support staff and its effectiveness in consideration of the upcoming end of OSF and the mobilization of MTS staff to the project. The PMOC has evaluated MTA's MCC during readiness reviews conducted in parallel with MTA's development of a FRP. FTA and the PMOC provided comments on MTA's MCC within the PMP review transmitted to MTA on February 1, 2023.

In April 2022, Jenny Barkett from the PMC team left the project. Ms. Barkett held a significant role during the OSF period and D-B contractor resolicitation process. In September 2022, MTA supplemented the Purple Line team with the hiring of Ken Forsythe as the Deputy Communications Director. As of October 25, 2022, MTA hired Kevin Oberheim to fill the Deputy Project Director position. On December 20, 2022, MTA announced that David Fertal had left the PMC support team. Mr. Oberheim has assumed Mr. Fertal's duties as Interim Deputy Project Director.

In February 2023, the PMOC requested additional detail on the construction management and oversight organizational chart to allow for the PMOC's review of MTA, PMC, and other staff classifications and headcount.

In March 2023, MTA hired John Donovan in the role of Construction Manager. MTA is also forming a commercial project controls team, and Anita Rodgers will assume the role of Contracting Officer. These changes are in response to: (1) the near completion of OSF and (2) the need to support the management of MTS's increasing amount of work.

2.5. NEPA Process and Environmental Mitigation

2.5.1. NEPA Process

FTA issued a ROD on March 19, 2014. The National Park Service issued its ROD on July 16, 2014.

MTA has continued to submit environmental re-evaluations as required based on design advancement and other causes. To date, PLTC (before it left the project) 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. The most recent status ***(as of March 2023)*** of NEPA items is:

- All formally submitted LOD cases have been approved. ***MTA currently expects one additional LOD case and is preparing a submittal for review by FTA.***
- The ATC for the Bethesda Station jet fan has been vetted, and final documentation is being prepared for submittal to FTA for concurrence that the ATC meets project requirements. Final documentation for the ATC is still pending as of ***March 2023***. MTA and MTS are coordinating the noise and aesthetic impacts of the fans, and they optimistically predict that the fans will not have Section 4(f) impacts or other impacts to the ROD.

On August 3, 2016, in response to the lawsuit filed by the Friends of the Capital Crescent Trail against FTA, a federal judge filed his Order and accompanying Memorandum Opinion. In those documents, it was ordered that the ROD for the Purple Line project be 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 whether 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 in 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 U.S. Court of Appeals issued its ruling on December 19, 2017, in which the judges ruled in favor of FTA and the project, and ruled that the transit agencies would

not have to conduct a new environmental study to examine other potential routes for the Purple Line.

The Friends of the Capital Crescent Trail filed a second lawsuit after the FFGA signing and after the groundbreaking ceremony was held on August 28, 2017. The September 19, 2017 Preliminary Hearing for this suit resulted in no temporary injunctions or restraining orders, and project construction proceeded as the case progressed 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 FTA.

The Friends of the Capital Crescent Trail filed a third lawsuit in January 2019, this time against USACE. The USACE legal staff and the Office of the Attorney General provided the defense. 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 USACE. In October 2019, USACE filed for a Summary Judgment to Dismiss the case, and the plaintiffs filed their response; a hearing date was set for March 23, 2020. However, in late February 2020, the assigned judge recused himself from the case, and the scheduled hearing was canceled. In mid-April 2020, the District Court ruled in favor of the USACE/MTA motion for Summary Judgement to Dismiss, and the case was dismissed. The plaintiff subsequently filed an appeal on May 11, 2020, and the case continued in the legal process. Oral arguments related to the appeal occurred on March 11, 2021. The District Court denied the appeal on May 13, 2021. The decision resolved the last remaining lawsuit related to the project.

2.5.2. Environmental Mitigation

The project achieved the required mitigation for reforestation through the purchase of 82.5 acres of offsite credits (combined, in both Montgomery County and Prince George's County). This amount of offsite credits is expected to be more than needed and the P3 concessionaire's design will monitor that this remains the case. PLTP's Forest Conservation Plan (FCP), which documented a need of 75.73 acres, 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. In Maryland, need is based on land disturbance rather than only forest removal. MTA's tracking of additional disturbance due to the progress of design and construction indicated that the total need is still within the amount of available offsite credits.

The Joint Permit Application for Wetlands and Stream Mitigation was formally submitted to USACE and 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, because time had passed since the permit was drafted, MDE updated and issued the finalized permit the first week of April 2018. USACE completed its NEPA and conditions review as well as its 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 the longer construction periods resulting from construction moratoriums for forests and streams. The project received approval from MDE during the week of December 3, 2018, and received the USACE approval letter in mid-June 2019.

The project team has been addressing the environmental mitigation for wetlands through the development of the offsite Ken-Gar location, which is implemented through 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 the bids underwent MTA Procurement Department review. The BPW approval of the award was received on September 4, 2019. As of June 2021, the Ken-Gar wetlands mitigation project is essentially complete and has completed its one-year warranty period. See the **Construction** section of this report, below, for further discussion of the progress on this Ken-Gar Wetlands Mitigation construction contract.

The project team has been addressing the environmental mitigation for streams through the development of the offsite Paint Branch location, which is implemented through 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 the award was received on September 4, 2019. The Paint Branch stream restoration is complete, and warranty corrections (partial replanting) occurred in December 2022. See the **Construction** section of this report, below, for further discussion of the progress on this contract.

The project has plans to address stormwater mitigation, beyond what can be mitigated on the project site, through retrofitting offsite locations in both Montgomery County and Prince George's County. On November 12, 2021, MTA determined that there is a need for additional stormwater mitigation in Prince George's County. A project to construct additional stormwater mitigation is included in the scope of work for MTS.

The joint MTA and University of Maryland (UMD) technical board resumed meetings in December 2021 to coordinate efforts related to the mitigation of noise, vibration, and electromagnetic interference at the UMD facilities. Following this meeting, the members of the joint technical board voted to approve the outstanding design packages. This action effectively ended the activities of the technical board until the LRT is in trial running.

The Purple Line project team submits quarterly Environmental Mitigation Monitoring Reports for the project. MTA has continued to manage the environmental mitigation and monitoring activities as the project has transitioned to the replacement D-B contractor, MTS. Because MTS is now performing construction, MTA will monitor the environmental activities performed by MTS. On May 3, 2022, MTA provided the first quarter 2022 environmental report, and the report summary states that "no problems, gaps, nonconformances, or NEPA issues of any sort were found as a result of this quarterly assessment."

In November 2022, MTA submitted to FTA and the PMOC the third quarter 2022 ROD Commitment Tracking report (i.e., the monthly environmental management report). MTS and MTA submitted the fourth quarter 2022 ROD Commitment Tracking report on February 20, 2023.

2.6. Project Delivery Method and Procurement

The majority of the capital cost of the Purple Line project has been packaged into a Design-Build-Finance-Operate-Maintain 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") in which appropriate risks and benefits are allocated in a cost-effective manner between the contractual partners. The P3 concessionaire is intended to perform some functions normally undertaken by the transit agency, but MTA remains ultimately accountable for the Purple Line project 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 PLTP had been selected as the P3 concessionaire. Commercial close of the P3 contract occurred on April 7, 2016, and financial close occurred on June 17, 2016.

In late April 2020, PLTC notified PLTP that due to PLTC's forecasted schedule delays on the project (which did not receive agreement from MTA), PLTC intended to exercise the clause that allowed it to terminate its contract with PLTP for the design and construction services under the P3 contract if delays exceed 365 days. MTA sent a formal request to PLTP for a response that would include a definitive path forward. On the response due date of May 14, 2020, PLTP submitted its response, which stated that PLTP intended to continue to negotiate with PLTC to retain PLTC as part of the P3 concessionaire team. On June 23, 2020, PLTP sent a formal Notice of Unconditional Election to Terminate the P3 Agreement to MTA, although PLTP indicated a willingness to negotiate a settlement. On June 24, 2020, MTA sent a Formal Notice of Concessionaire Default. This notice essentially refuted the validity of the PLTP delay claims and stated that if PLTP fails to perform, MTA has a number of options related to the P3 Agreement. Through July 2020, construction activities continued at the levels previously planned and were not affected by the dispute.

In early August 2020, PLTC and subcontractors demobilized equipment, materials, and personnel. In response, the Maryland Attorney General filed a motion for a Temporary Restraining Order (TRO) that prevented PLTP from abandoning the work or demobilizing. Upon issuance of the TRO, the contractor and subcontractors remobilized some equipment and restarted many construction activities. A hearing to uphold or rescind the TRO occurred before the expiration of the TRO on September 14, 2020, and the court rescinded the TRO, allowing PLTP to leave the project. If the TRO had been upheld, PLTP would have been required to continue working until the contractual dispute resolution procedures were followed.

When an agreement was not reached, the bond holder firms had the first right to take over the project. However, MTA planned an alternate path forward based on its exercise of step-in rights. To that end, MTA assumed the contracts of over 100 subcontractors, indicating MTA's intent to

continue the project. MTA adjusted staffing for construction management, resident engineers, and inspectors to move forward with the project.

On November 24, 2020, MTA and the P3 concessionaire, PLTP, reached a settlement agreement to release the project's D-B contractor from the P3 consortium and continue the project with the remaining parties. The state's BPW approved the settlement agreement on December 17, 2020. Activities set out in the agreement and the IRP have proceeded with multiple modifications to milestone dates as needed.

The agreement includes the following key aspects, as MTA has communicated to the PMOC:

- PLTP agreed to procure a replacement D-B contractor to complete the project and to obtain project financing. The selection of the preferred replacement D-B contractor, MTS, occurred on November 5, 2021. The original settlement provisions required financing and execution of the contract with the D-B contractor by September 23, 2021, but several amendments to the settlement agreement between MTA and PLTP occurred to extend the date. The TIFIA loan for the project closed on April 14, 2022, allowing financial close and commercial close on that same day. MTS is now the D-B contractor for the project.
- The settlement agreement provided a mutual release from all disputed and undisputed amounts (incurred before September 28, 2020) for PLTP, PLTC, and subcontractors. The agreement also released outstanding litigation among the parties.

2.7. Design

2.7.1. MTA Design

MTA's GEC completed the project design to approximately the 30 percent design level in fall of 2013 and provided incremental enhancements through late 2015. This design formed the basis of the RFP for the P3 contract. See the **P3 Design** subsection, below, for a discussion of the advancement of this design by PLTC, the former PLTP partner that was responsible for the design and construction of the capital project, and continued design under MTA.

MTA was responsible for the design and construction contracts under a Design-Bid-Build delivery method (separate from the P3 scope) for the following projects:

- Stream mitigation – MTA completed the 100 percent design packages in June 2017 and received approval from MDE in May 2018. Construction of the stream mitigation is now complete. See the **Environmental Mitigation** subsection of this report, above, for additional details.
- Wetlands mitigation – MTA completed the 100 percent design packages in June 2017. Several design adjustments were subsequently made based on MDE and Montgomery County comments. The construction contract was advertised on May 3, 2019. Construction of the original wetlands mitigation is now complete. See the **Environmental Mitigation** subsection of this report, above, for additional details.

- Offsite SWM sites – MTA completed design and obtained MDE approval of more than the P3 contract-required 5 acres of offsite mitigation in Montgomery County on May 29, 2018. In late October 2019, MTA received MDE approvals for the next 5 acres to be added to the mitigation credit "bank," thus satisfying the contract requirements for 2019. As of November 2022, MTA did not have a need to seek any further additions to the current offsite mitigation credit bank. See the **Environmental Mitigation** subsection of this report, above, for the current requirements.

MTA also completed the design to support a D-B contract for the replacement of the existing Parks Maintenance Facility with a facility on Polk Street. Construction of the facility is now complete. See the **Real Estate Acquisition and Relocation** and the **Construction** (MTA Scope) sections of this report for further details.

2.7.2. P3 Design

PLTC's design progress was forecasted to achieve substantial design completion for Civil packages in August 2020, substantial design completion for Systems packages (except for Fare Collection) in September 2020, and completion of the Fare Collection design package in 2021. The original baseline schedule anticipated design completion by late fall 2017. As of August 2020, the number of planned Civil, Systems, and Utility design packages was 218.

Upon the departure of PLTC, MTA contracted with the engineer-of-record, Atkins, to continue to advance the design of limited aspects of the project.

The current progress through ***March 17, 2023, is that 211 of the 218*** total planned design packages have been issued as RFC. Civil and Utility packages that remain in design or approval include traffic signal pre-emption, grade crossing safety systems, lighting, signage, and stations. Although Systems packages were scheduled to be complete by the end of the first quarter of 2022, those packages remain in progress. The current forecast for completion of all design packages is June 2023.

PLTC reached resolution on the final remaining ATC identified during the proposal process. The ATC is related to the use of jet fans at the Bethesda Station in lieu of vent shafts. In accordance with the established process, MTA is reviewing the design package for NEPA compliance. Final documentation for the ATC is still pending as of ***March 2023***. MTA and MTS are coordinating the noise and aesthetic impacts of the fans, and they optimistically report that the ATC will have no Section 4(f) impacts or associated impacts to the ROD.

CSX informed the project team that its updated rail design criteria, which were issued after the "setting date" of the original P3 contract, were applicable to the Purple Line project design. MTA and CSX worked to resolve issues related to the applicable design criteria and which project areas were affected until, in July 2019, a mutually agreeable path forward was defined for all areas. 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 SSTC 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 May 2020, CSX indicated that the final design is acceptable. Revised documents, providing some minor clarifications related to ROW, were submitted to CSX on September 8, 2020, and ultimately CSX approved the design. The revised documents were submitted to WMATA several times in early 2021.

- WMATA's comments on design plans for the SSTC mezzanine connector pedestrian bridge (over CSX ROW) will result in what MTA deems are betterments. Resolution of WMATA comments is nearly complete ***as of March 2023.*** MTA reports that the slow resolution of these issues has not impacted critical path activities.
- An encroachment into the CSX vertical clearance was discovered upon installation of girders at SSTC. Although the designer believed the loading of the bridge deck might alleviate the issue, shimming was discussed as a potential solution. Shimming was not MTA's preferred solution; therefore, an exception was requested from CSX to allow the ¾-inch encroachment to remain. CSX denied the exception. MTA and the designer prepared for a contractor to jack and shim the structure to create the required clearance. Construction of this work was completed in August 2021.
- CSX provided review comments disallowing revised drainage networks, related to the Capital Crescent Trail work, which would connect to CSX's existing drainage culverts. The work on the Capital Crescent Trail is not part of the FFGA and is separately funded by Montgomery County. As a result of work with Montgomery County, the connections were relocated from CSX property to Montgomery County property and therefore are no longer a CSX issue. To fully accomplish this approach, two connections required resolution. Montgomery County acquired two parcels of land from CSX (not FFGA-funded) and then accepted responsibility for one connection currently under the responsibility of CSX. Storm sewer construction under the CSX railroad was required in several locations. Two jack-and-bore installations of culvert pipes were completed in November 2022. Another 72-inch-diameter culvert installation has been delayed because it is waiting on completion of technical reviews and the design of structural track support during construction.

2.8. Real Estate Acquisition and Relocation

As of ***March 3, 2023,*** the total number of planned property acquisitions is 601, including 464 privately owned properties and 137 public acquisitions. For the private properties, to date, a total of 476 offers were made, including for parcels that were subsequently eliminated, and 234 offers were accepted. All of the original Exhibit 9 FFGA-scope private parcels in the P3 contract are in MTA's possession, some of which are properties that continue in condemnation under the State Highway Administration process. To date, ***413*** of the original 464 private properties have completed settlement, 6 additional properties (not part of the original 464 private properties) are pending settlement, and 53 condemnations remain to be 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 ROE.

Montgomery County will prepare a deed of transfer of the Woodmont Plaza property to MTA in return for MTA's transferring the Kaldis property (acquired to provide project access during the construction phase) to Montgomery County at the end of project construction. MTA determined that federal funds were used in the acquisition of the Kaldis property and will therefore engage FTA in the transfer. A conveyance plat has been issued, and MTA continues with due diligence on the purchase agreement and appraisal. Both the Woodmont Plaza and Kaldis properties are slowly moving toward resolution.

All required public properties have been available for construction when needed. Several public property rights transfers are currently being coordinated to accommodate sidewalk changes, utility easements, and ROW exchanges.

As the project has progressed and new utility relocation needs have been identified, additional small parcel acquisitions have been added to the total as utility down-guys. In December 2017, PLTC initially submitted a list of approximately 280 such parcels related to utility relocations and subsequently added to that list. MTA resolved that it would acquire these properties, rather than execute amendments to the utility agreement that would 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. ***As of March 10, 2023,*** the list of additional acquisitions totals 188 parcels, and several more acquisitions potentially may be needed for stormwater facilities. Of these parcels, 54 are public property and will be acquired by agreement, and 134 are private acquisitions. MTA is tracking the additional parcels (approximately 98 percent are for utility relocations) separately in its ROW tracking system to best manage changes to parcels already acquired or in the process of acquisition. Sixty-seven of the 188 properties are filed for condemnation, excluding those that were subsequently optioned or settled, and 89 are settled. MTA estimates that approximately $35 million of exposure remains in the acquisition process. This amount has been included in the risk assessment.

The project required a total of 177 relocations, of which 57 were residential and 120 were businesses. To date, all 177 of those identified relocations have been completed in accordance with the applicable procedures, and no active claims remain to be settled. Also, MTA is monitoring terms of agreement of the property acquisitions discussed above that have not yet completed settlement, because some of them could potentially result in the need for additional relocations. As of October 2022, there were two new relocations related to commercial properties that potentially will be required.

On November 22, 2022, MTA reported that six of seven critical acquisitions had been closed. The remaining critical acquisition is needed by June 2023 to meet commitments that MTA has made to MTS.

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 MTA shares this information with the PMOC. Based on actual settlement amounts and projected amounts for those not yet closed, settlement/condemnation values are 46.4 percent higher than the SCC budget for

ROW. Settlements have not yet been reached for a significant number of properties. Currently, with 134 properties that still need to be closed, the total ROW budget is likely to continue to increase. MTA has included these cost projections into its development of a FRP project cost estimate (see the **Project Cost** section of this report, below).

Due to the extended project duration, some agreements will expire before the expected RSA date. MTA and MTS have started the process of identifying the end dates now needed for the agreements and will begin the process of obtaining extensions. MTA has evaluated the risks, estimated the cost of the extensions, and included those costs in a budget contingency. MTA estimates that approximately $13 million of risk exposure remains due to necessary TCE extensions. This amount has been included in the risk assessment.

The relocation of the existing Parks Maintenance Facility to make way for the siting of the new Purple Line Glenridge OMF was implemented as a negotiated/functional replacement. MTA's Procurement Department led the D-B contract solicitation for the Prince George's County facility. The replacement facility is complete and has been turned over to Prince George's County Parks.

2.9. Third-party Agreements and Utilities

All major third-party agreements (specifically, those agreements with Washington Gas, Verizon, PEPCO, CSX, UMD, Montgomery County Parks, Prince George's County Parks, WMATA, 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 lines that are currently overhead be placed underground when they cross the light rail alignment. To minimize the total cost impact of this change, MTA and Verizon reduced the number of locations where Verizon lines cross the alignment to 34. MTA is of the opinion that this reduction 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 for placing 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 upon in early March 2019. MTA had planned to negotiate the cost responsibility with PLTC and Verizon after all major Verizon relocations were completed. However, since the departure of PLTC, MTA carries this cost as a betterment outside of the FFGA scope.

In early June 2018, MTA and PLTP completed the negotiation of all remaining third-party agreements with the smaller utility and telecommunications (telecom) 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 to existing executed agreements continues to be evaluated. The current significant items include:

- To date, the design differences with CSX, as discussed earlier in this report, have been adequately resolved through design review and concurrences, and have not resulted in the need to amend the CSX agreement.

- WSSC proposed that the project relocate a 66-inch underground water main that runs through the Glenridge OMF site. The project designers determined that it was acceptable for the water main to remain in place, but that it would need to be under significantly deeper cover, complicating future access. MTA agreed that the line would be relocated. In March 2020, MTA and WSSC agreed on a water main alignment primarily in the median of Veterans Parkway, as well as a strategy for completing the relocation. The original Purple Line project GEC performed the design; WSSC is providing the material; and MTA has separately contracted for the construction, thus avoiding impact to the P3 concessionaire's scope of work. On January 8, 2021, the GEC team submitted the 100 percent design to MTA for review. MTA submitted a revised 100 percent design package to WSSC for review in February 2021. On May 21, 2021, WSSC authorized work, and mobilization began August 9, 2021. Installation of cathodic protection and final site restoration are the only remaining items of this water main work as of January 2023.
- MTA Administrator Holly Arnold, Matt Pollack, and Vernon Hartsock met in December 2021 with the senior administrator at PEPCO to reinforce the need to process Transfer of Ownership Agreements (TOAs) in a timely matter, because delays were putting the completion of OSF construction at risk. After this meeting occurred, the processing of the TOAs accelerated.
- In late July 2022, MTA and MDOT held a summit with the many utility providers that experience relocations related to transportation projects to discuss best practices and improvements to the utility relocation process.

The project has been addressing its interface with 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 has drafted a separate Memorandum of Understanding (MOU) with the Montgomery County Schools system, which was approved by the School Board and signed by the School Superintendent, Montgomery County, and MTA. A similar MOU was negotiated between MTA and the Rosemary Hills School and was approved at the School Board meeting on February 12, 2019. MTA submitted a draft second MOU to Montgomery County Schools on November 3, 2022, and currently is awaiting a response from Montgomery County Schools. Work will continue under ROE agreements with these parties through 2024.

As MTS commences construction work, coordination meetings are needed to ensure that prior agreements with third parties (utility companies and others) are followed. It is MTA's position that the transfer of third-party agreements from PLTC to MTA and now to MTS should not allow for a change in the terms of the agreements.

2.10. Construction

2.10.1. 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 replacement Parks Maintenance Facility (which is part of the real estate effort and budget), wetlands mitigation, stream mitigation, and possibly some offsite SWM sites. MTA has accomplished forest mitigation without the need for additional construction. The following discussion presents the current status of the MTA construction contracts:

- **Prince George's County Parks Polk Street Replacement Maintenance Facility** – This D-B contract was awarded after the BPW approved the construction contract award on March 20, 2019. NTP for the base scope was issued to the D-B contractor, Forrester Construction Company (Forrester), on April 5, 2019. Forrester mobilized for construction in January 2020, and construction is complete. Parks has taken possession of the facility, and it is currently in the warranty period.
- **Offsite Wetlands Mitigation (Ken-Gar)** – The Wetlands Mitigation construction contract was awarded after the BPW approved the award on September 4, 2019, and NTP was issued to Environmental Quality Resources, LLC on September 5, 2019. The contractor mobilized in December 2019 and completed site surveys and the installation of Erosion and Sedimentation (E&S) controls. Clearing and grubbing began in February 2020. Prince George's County took partial acceptance of the entire project on March 3, 2021. Acceptable growth of vegetation has been achieved, allowing for closure of this project. The one-year warranty review occurred on January 9, 2022, and now the project requires MTA quarterly monitoring until closeout in 2028.
- **Offsite Stream Mitigation (Paint Branch)** – The Stream Mitigation construction contract was awarded after the BPW approved the award on September 4, 2019, 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. Installation of E&S controls was completed and approved by MDE in early February 2020. Substantial completion of construction has occurred. Revegetation has been accepted, and E&S control measures have been removed. The one-year warranty inspection occurred on August 4, 2022, and 1,700 plants were replaced in November 2022.

2.10.2. P3 Scope

Highlights of construction activities ***through March 2023*** throughout the alignment include*:*

- General: As a result of the dispute with PLTP (see the **Project Delivery Method and Procurement** section, above), all project activities slowed in the fall of 2020. In early August 2020, contractor forces, equipment, and materials were demobilized, and work in some areas ceased. Upon legal action from MTA, partial remobilization occurred. Following the court's rescission of the TRO, demobilization and safe-up activities in the

construction area began in earnest in mid-September 2020 and continued into October 2020. Following PLTC's exit, MTA engaged a number of former PLTC subcontractors to continue select project activities. This work has been progressing under MTA management with a goal of advancing critical path activities and reducing risk for the replacement D-B contractor.

- Status of ongoing P3 construction items that MTA manages:
  - Utility installations of all types are underway, including construction by the electric provider, PEPCO, and the communications company, Verizon. Water, storm sewer, sanitary sewer, and gas lines are also being constructed.
  - TPSSs were expected to be delivered at a pace of approximately one every other month, beginning with TPSS QYG in November 2022. Site preparation for the installation of TPSSs Q8, QYG, and QYP continues. As of February 2023, the PEPCO-related issues that delayed delivery of the TPSSs were resolved. Despite TPSS delay issues, MTA expects delivery of LRVs will begin in mid-2023.
  - In April and May 2021, 29,000 concrete railroad ties were delivered to an onsite storage location for future use by the replacement D-B contractor. As a part of OSF, MTA ordered rail, ties, special trackwork, and turnouts to mitigate supply chain risks. MTA has received and stockpiled some of this material. As of August 2022, materials were received at the Glenridge OMF, and MTS unloaded and placed them in storage for future installation by MTS.
  - Building construction at the Glenridge OMF is essentially complete; however, construction of civil items outside of the building continues, as does final commissioning of systems inside the building. MTS was scheduled to assume control of the facility in early 2023. ***In March 2023,*** MTA was still coordinating the final details of the turnover of the facility to MTS. MTS currently is working in the OMF, installing embedded track inside the building and correcting nonconforming work related to the interior track. There are six items remaining that MTA cannot yet complete because of long lead times for necessary replacement parts. MTA is still responsible for completing these six items and expects to complete several of them in March 2023. MTS will assume control of the facility with those items outstanding, and MTA will complete the items when feasible. MTS then will maintain the facility until it is turned over to PLTP. MTS will complete the tracks for storage and testing of LRVs. ***MTS is currently performing construction in the interior and exterior of the OMF.***
  - Based on the status of construction, MTA determined which items would be completed before mobilization of the replacement D-B contractor. Some of the subcontractors working now, and especially the utility companies, have had resource limitations that may not allow MTA to complete all of the items within the original schedule presented in the IRP. Some OSF utility installation activities fell behind schedule, but MTA implemented mitigation measures to recover the lost time. MTA

reports that it is coordinating with MTS to address construction items that have fallen behind the OSF schedule. OSF construction activities were expected to be completed before September 1, 2022, but the most recent schedule provided by MTA indicated completion in ***mid-2023*** of most OSF activities, including Verizon relocations. In late July 2022, MTA and MDOT held a summit with the many utility providers that experience relocations related to transportation projects to discuss best practices and improvements to the utility relocation process.

- MTS has taken responsibility for traffic control, E&S controls, security, and other housekeeping activities.
- MTA's Equal Employment Opportunity Officer assigned to the project is Marquis Washington. He is supporting MTS in its hiring program. The former contractor, PLTC, left the project with a shortfall in meeting the requirements of its DBE program, and MTS is required to address this shortfall of approximately $12 million in contract value. ***In March 2023, MTA reported that the design portion and the nationally targeted worker program of the P3 contract have exceeded the DBE program goal. The percentage DBE participation for general construction is below the goal; however, MTA and PLTP are making plans to address the issue. Also, MTA has been performing 20 audits per month in 2023 to monitor the Davis Bacon prevailing wage requirements.***

2.11. Vehicle Technology and Procurement

The LRVs are five-car vehicles consisting of 136-foot-long, articulated units. Twenty-five vehicles (22 in operation and 3 spares) will be provided under the FFGA for the opening year. PLTP executed the LRV contract with CAF on June 17, 2016, and issued NTP to CAF on July 5, 2016 for the 25 FFGA vehicles. NTP to CAF also included one LRV outside of the FFGA.

Later, MTA added two additional vehicles (outside of the FFGA) by change order to CAF's contract, for a total of 28 vehicles to be supplied by CAF. The two additional LRVs will support better operations at RSA. MTS has incorporated these two additional LRVs into its scope of work (in addition to the cost and terms of LRV storage in Elmira).

Vehicle carshell manufacturing activities, which are coordinated with design progress, occurred until the facility in Spain was shut down in late March 2020 due to supply chain issues and to limit the spread of COVID-19. The facility in Spain reopened at approximately 50 percent of its workforce capacity during the week of April 20, 2020, and is currently fully functional on the Purple Line project. The final assembly facility in Elmira, New York, was shut down in early April 2020 due to New York State restrictions related to COVID-19 and reopened on May 18, 2020, at 50 percent of its workforce capacity. As of early August 2020, both the Spain facility and the Elmira facility were back to 100 percent staffing levels.

The final assembly of vehicles is being performed in CAF's facility in Elmira. MTA, its PMC, and SNC-Lavalin are meeting weekly with CAF to resolve all open items for design, testing, and

manufacturing activities. First Article Inspections (FAIs) for Interior and Cab were completed on March 18, 2021, and FAIs for Exterior, Roof, and Undercar were completed on April 2, 2021.

Shipment of the first vehicle to the project site was expected in late spring of 2021. The lack of available storage at the yet-to-be-completed Glenridge OMF requires use of an offsite storage facility where vehicles can be stored, occasionally powered, and occasionally "exercised" or moved on tracks. MTA and CAF negotiated an agreement for CAF to store the completed LRVs in Elmira. That storage agreement subsequently transferred to MTS, and its terms are part of MTS's agreement. Twenty-six LRVs have been designated as Ready for Shipment and have been placed into storage in Elmira. MTS has assumed the CAF contract and is preparing and submitting to MTA reports on LRV maintenance activities required during the storage period. MTS's proposed construction schedule establishes when the test tracks will be available for acceptance of the railcars at the Glenridge OMF. Currently, the schedule indicates that initial deliveries of LRVs will commence in the fall of 2023.

The status of the LRV manufacturing as of ***March 17, 2023,*** is:

- To date, 130 carshell segments have been assembled in Spain.
- All 130 carshells have been delivered to CAF's facility in Elmira, New York.
- All 25 full LRVs in the FFGA are designated as Ready for Shipment and are in storage at CAF's Elmira facility. One additional LRV (outside of the FFGA) is also Ready for Shipment and in storage.
- Two additional LRVs are under contract. These LRVs are not a part of the FFGA, but rather an addition to the contract by MTA to support rail operations. Assembly of the two additional vehicles is underway in Spain.

2.12. Project Cost

Table 5 summarizes the project's current actual expenditures and EAC, and compares them to the project budget as reported in MTA's SCC Workbook dated June 1, 2016, which is the basis of the project's FFGA. The project's documented expenditures total ***$2,689,950,345 through February 28, 2023.*** Refer also to **Table 4 – FFGA Core Accountability Items** in the **Executive Summary** section of this report for details on the project's planned and actual expenditures. The following table shows project budgets, actual expenditures, and forecast at completion amounts through ***February 28, 2023***, compared with the project budget as reported in MTA's SCC Workbook dated June 1, 2016, and MTA's current working budget.

Table 5 – Project Cost Versus Budget

SCC	Cost Category	Budget (June 1, 2016 SCC Workbook)	Working Budget[1] (Jan. 1, 2017 SCC Workbook)	Expended (as of ***February 28, 2023***)	Forecast at Completion[2]
10	Guideway and Track	$280,620,726	$258,782,885	***$169,798,465***	$371,508,681
20	Stations	$114,857,016	$116,127,445	***$11,932,248***	$161,159,923
30	Maintenance Facility	$94,155,591	$94,155,591	***$84,432,277***	$93,454,387

SCC	Cost Category	**Budget** (June 1, 2016 SCC Workbook)	**Working Budget**[1] (Jan. 1, 2017 SCC Workbook)	**Expended** (as of ***February 28, 2023***)	**Forecast at Completion**[2]
40	Sitework	$521,968,990	$315,482,782	***$433,675,106***	***$802,855,552***
50	Systems	$263,887,313	$263,887,313	***$107,606,826***	$517,256,196
	Subtotal 10–50	$1,275,489,636	$1,048,436,017	***$807,444,922***	***$1,946,234,740***
60	Right-of-Way	$229,600,000	$229,600,000	***$284,550,375***	$329,126,214
70	Vehicles	$212,940,927	$212,940,927	***$140,562,789***	$292,780,600
80	Professional Services (total)	$571,658,114	$798,711,733	***$1,457,392,259***	***$2,240,585,652***
80.01	Project Development	$87,149,878	$85,469,312	$85,469,312	$85,469,312
80.02	Engineering	$139,766,036	$114,618,846	***$193,215,665***	***$196,944,134***
80.03	Project Management for Design and Construction	$148,555,323	$227,047,206	***$301,186,496***	$655,185,988
80.04	Construction Administration & Management	$83,269,280	$255,349,776	***$462,358,039***	***$734,209,735***
80.05	Professional Liability; Other Non-Construction Insurance	$34,534,796	$34,534,796	***$72,060,16***	$85,701,891
80.06	Legal; Permits; Review Fees by Other Agencies, Cities, etc.	$5,805,117	$10,205,293	***$296,288,465***	$341,013,319
80.07	Surveys, Testing, Investigation, Inspection	$15,164,346	$16,798,570	***$42,032,602***	***$92,520,061***
80.08	Startup	$57,413,338	$53,007,367	$4,781,535	$56,553,635
	Subtotal 10–80	$2,289,688,678	$2,289,688,678	***$2,689,950,345***	$4,808,727,206
90	Unallocated Contingency	$90,535,748	$90,000,000	$0	$90,000,000
100	Finance Charges	$26,805,863	$26,805,863	$0	$26,805,863
	Total	$2,407,030,288	$2,407,030,288	***$2,689,950,345***	***$4,925,533,068***

[1]The Purple Line project working budget is based on the currently 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 updated accordingly.

[2]The original D-B contractor has been replaced. Draft budget figures, including the work under contract, are being incorporated into this report as they are developed for the FRP. Not all information in this table is up-to-date as of ***March 2023***. Moving forward, this report will reconcile and report this information as it becomes available and is verified. ***Approval of the FRP and a revised FFGA, once in place, will establish revised budget figures.***

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

Allocated Contingency	$59,500,464
Unallocated Contingency (SCC 90)	$90,000,000
Total Contingency	$149,500,464

Through May 2022, the unallocated contingency for the project was proposed at $90,000,000. MTA is refining contingencies, both allocated and unallocated, as it is performing a quantitative risk assessment. RCMP Version 15 includes proposed contingency amounts. Once they are finalized, the updated contingency amounts will be incorporated into this report.

On July 15, 2021, the PMOC requested that MTA provide revised budget tracking information that accurately reflects the combined IRP and OSF expenditures. MTA prepared a summary of actual versus planned expenditures for high-level OSF activities for review by the PMOC. MTA submitted the latest version of the summary that provides information through December 2022. MTA forecasted OSF expenditures of $556.15 million, which exceed the original OSF budget by approximately $136 million. MTA previously incorporated a significant portion of the overrun into the project budget, but additional contingency may be needed to address the increase of $35 million to $45 million that has occurred since the final recovery budget was developed. MTA states that these overruns are due to labor and material cost inflation as well as the extended duration of OSF. The PMOC recommends that MTA closely monitor these cost overruns given the early use of a significant portion of the budget contingency proposed in the current draft RCMP.

With the significant changes to the P3 concessionaire's team, significant changes to the FFGA project cost are occurring. A project Recovery Plan, including a revised project cost estimate with adequate cost contingency to address remaining project risks, is required. Accordingly, MTA prepared an IRP and is preparing a FRP in accordance with the requirements of the FFGA. The FRP must incorporate cost, schedule, and risk details. The PMOC also recommends that MTA continuously update its schedule for review and approval of project plan updates in order to facilitate FTA and PMOC reviews. In October 2022, MTA submitted a draft FRP to FTA and the PMOC for review and comment. ***In March 2023, MTA submitted a FRP for FTA review and approval.***

2.12.1. Project Funding

The funding for the project, as reflected in Attachment 3 of the FFGA, is shown in Table 6.

Table 6 – Sources of Federal Funding and Matching Share Ratios

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

* Local funds include costs funded by the MDOT Transportation Trust Fund as well as the P3 concessionaire-funded costs. The P3 concessionaire uses funds from the Transportation Infrastructure Finance and Innovation Act, private financing, and equity to fund its costs. The P3 concessionaire-funded costs are treated as "Local Match" for the 5309 New Starts funds. ***The PMOC will update this table upon revision of the FFGA.***

As noted in other sections of this report, the project EAC has changed significantly. Budget updates are in progress. The current EAC for SCCs 10 through 90 is $4,925,533,068.

Standard Cost Category Worksheets

Table 7 presents the Purple Line project cost estimate, based on the June 1, 2016 update of the SCC Workbook, which is the basis of the current FFGA.

Table 7 – FTA SCC Workbook – Build Main, June 1, 2016 Update

MAIN WORKSHEET-BUILD ALTERNATIVE								0
Maryland Transit Administration						Today's Date		5/24/16
Maryland National Capital Purple Line						Yr of Base Year $		2016
FFGA Application						Yr of Revenue Ops		2022
	Quantity	Base Year Dollars w/o Contingency (X000)	Base Year Dollars Allocated Contingency (X000)	Base Year Dollars TOTAL (X000)	Base Year Dollars Unit Cost (X000)	Base Year Dollars Percentage of Construction Cost	Base Year Dollars Percentage of Total Project Cost	YOE Dollars Total (X000)
10 GUIDEWAY & TRACK ELEMENTS (route miles)	**16.20**	**259,766**	**0.00**	**259,766**	**$16,035**	**22%**	**12%**	**280,621**
10.01 Guideway: At-grade exclusive right-of-way	3.26	2,978		2,978	$913			3,244
10.02 Guideway: At-grade semi-exclusive (allows cross-traffic)	9.67	12,497		12,497	$1,292			13,205
10.03 Guideway: At-grade in mixed traffic	1.20	12,862		12,862	$10,718			13,961
10.04 Guideway: Aerial structure	0.46	67,018		67,018	$145,692			73,222
10.05 Guideway: Built-up fill	0.00	0		0				0
10.06 Guideway: Underground cut & cover	0.00	0		0	$0			0
10.07 Guideway: Underground tunnel	0.36	58,344		58,344	$162,068			62,735
10.08 Guideway: Retained cut or fill	1.25	20,805		20,805	$16,644			22,693
10.09 Track: Direct fixation		6,948		6,948				7,570
10.10 Track: Embedded		29,159		29,159				30,811
10.11 Track: Ballasted		30,012		30,012				32,575
10.12 Track: Special (switches, turnouts)		19,141		19,141				20,606
10.13 Track: Vibration and noise dampening		0		0				0
20 STATIONS, STOPS, TERMINALS, INTERMODAL (number)	**21**	**103,521**	**0**	**103,521**	**$4,930**	**9%**	**5%**	**114,857**
20.01 At-grade station, stop, shelter, mall, terminal, platform	16	23,884		23,884	$1,493			26,295
20.02 Aerial station, stop, shelter, mall, terminal, platform	3	45,703		45,703	$15,234			51,031
20.03 Underground station, stop, shelter, mall, terminal, platform	2	30,698		30,698	$15,349			33,933
20.04 Other stations, landings, terminals: Intermodal, ferry, trolley, etc.	0	0		0				0
20.05 Joint development		0		0				0
20.06 Automobile parking multi-story structure		0		0				0
20.07 Elevators, escalators		3,236		3,236				3,599
30 SUPPORT FACILITIES: YARDS, SHOPS, ADMIN. BLDGS	16.20	**87,590**	**0**	**87,590**	**$5,407**	**7%**	**4%**	**94,156**
30.01 Administration Building: Office, sales, storage, revenue counting		29,571		29,571				31,894
30.02 Light Maintenance Facility		951		951				1,062
30.03 Heavy Maintenance Facility		44,357		44,357				47,842
30.04 Storage or Maintenance of Way Building		0		0				0
30.05 Yard and Yard Track		12,710		12,710				13,358
40 SITEWORK & SPECIAL CONDITIONS	16.20	**481,579**	**2,405**	**483,984**	**$29,876**	**41%**	**22%**	**521,969**
40.01 Demolition, Clearing, Earthwork		45,651		45,651				48,789
40.02 Site Utilities, Utility Relocation		143,356	1,596	144,952				154,044
40.03 Haz. mat'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
50 SYSTEMS	16.20	**225,424**	**10,376**	**235,800**	**$14,556**	**20%**	**11%**	**263,887**
50.01 Train control and signals		53,515		53,515				60,164
50.02 Traffic signals and crossing protection		32,772		32,772				36,580
50.03 Traction power supply: substations		29,992		29,992				32,849
50.04 Traction power distribution: catenary and third rail		42,788		42,788				47,710
50.05 Communications		33,620		33,620				37,775
50.06 Fare collection system and equipment		2,918	10,376	13,294				15,568
50.07 Central Control		29,819		29,819				33,240
Construction Subtotal (10 - 50)	16.20	**1,157,880**	**12,781**	**1,170,661**	**$72,263**	**100%**	**52%**	**1,275,490**
60 ROW, LAND, EXISTING IMPROVEMENTS	16.20	**186,092**	**37,187**	**223,279**	**$13,783**		**10%**	**229,600**
60.01 Purchase or lease of real estate		166,132	32,483	198,615				203,143
60.02 Relocation of existing households and businesses		19,959	4,704	24,664				26,457
70 VEHICLES (number)	**25**	**192,691**	**0**	**192,691**	**$7,708**		**9%**	**212,941**
70.01 Light Rail	25	186,771		186,771	$7,471			206,351
70.02 Heavy Rail	0			0				0
70.03 Commuter Rail	0			0				0
70.04 Bus	0			0				0
70.05 Other	0	5,920		5,920				6,590
70.06 Non-revenue vehicles	0			0				0
70.07 Spare parts	0			0				0
80 PROFESSIONAL SERVICES (applies to Cats. 10-50)	16.20	**535,369**	**6,032**	**541,401**	**$33,420**	**46%**	**24%**	**571,658**
80.01 Project Development		87,150		87,150				87,150
80.02 Engineering		136,688		136,688				139,766
80.03 Project Management for Design and Construction		131,594	5,872	137,466				148,555
80.04 Construction Administration & Management		76,410		76,410				83,269
80.05 Professional Liability and other Non-Construction Insurance		32,697		32,697				34,535
80.06 Legal; Permits; Review Fees by other agencies, cities, etc.		5,530	88	5,618				5,805
80.07 Surveys, Testing, Investigation, Inspection		14,214	73	14,287				15,164
80.08 Start up		51,086		51,086				57,413
Subtotal (10 - 80)	16.20	**2,072,032**	**56,000**	**2,128,032**	**$131,360**		**95%**	**2,289,689**
90 UNALLOCATED CONTINGENCY				**81,652**			**4%**	**90,536**
Subtotal (10 - 90)	16.20			**2,209,684**	**$136,400**		**99%**	**2,380,224**
100 FINANCE CHARGES				**24,128**			**1%**	**26,806**
Total Project Cost (10 - 100)	16.20			**2,233,812**	**$137,890**		**100%**	**2,407,030**
Allocated Contingency as % of Base Yr Dollars w/o Contingency				2.70%				
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

2.13. Project Schedule

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. Later submissions of schedule updates from PLTC were not approved for various reasons, but the primary reason was the inability of MTA and the P3 concessionaire to agree on the schedule impacts of the approximately one-year delay in the execution of the FFGA. It should be noted that the initial delay went through the dispute resolution process, and it was ruled that the initial environmental lawsuit delays yielded 160 days of concurrent and noncompensable delay. In response to a letter that FTA issued to MTA in early August 2018 expressing concerns about the amount of time that the project had advanced without an approved schedule, MTA prepared a working schedule update of the master project schedule. The working schedule update was based on the negotiations of the P3 contract schedule occurring at the time, which had been ongoing between MTA and PLTP since late 2017 and which have been detailed in prior PMOC Monthly Monitoring reports; however, the update is not based on a mutually agreed-upon P3 contract schedule. The working schedule update is titled "MTA Master Schedule August 2018" and was progressed through August 31, 2018. Although the MTA Master Schedule August 2018 is not a final recovery schedule that reflects the mutual agreement of MTA and PLTP, it does provide a more accurate representation of the current project status than the last approved master project schedule, which is dated March 15, 2017.

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

When PLTC was the D-B contractor, it was submitting monthly schedule progress updates for its scope in accordance with the P3 contract. MTA then performed monthly progress updates of the MTA master schedule based on the progress updates received from PLTC as well as from its internal staff, relative to the MTA Master Schedule August 2018 baseline. All of the schedule progress updates that PLTC submitted were rejected by MTA.

The MTA master schedule progress update dated February 29, 2020, continued to show the start of revenue service occurring before the FFGA RSD date of December 31, 2022, and included the major interim milestones of the Commencement of Trial Running of June 8, 2022, and the PLTP Commencement of Revenue Service of December 26, 2022.

When 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 schedule submitted by the P3 concessionaire, which MTA never accepted, reflected a phased project opening, with the first phase opening at the end of 2022, and the second phase opening in mid-2023.

In late April 2020, PLTC notified PLTP that, based on its forecasting of schedule delays on the project (which were not mutually agreed upon), PLTC intended to exercise the clause in its P3 contract with PLTP that allows it to terminate the contract for design and construction services under the P3 contract if delays exceed 365 days. MTA sent a formal request to PLTP for a response that included a definitive path forward for PLTP's intended management of the P3 contract. On May 14, 2020 (the date the response to the formal request was due), PLTP submitted its response, which stated that PLTP intended to continue to negotiate with PLTC to retain PLTC as part of the P3 concessionaire team. On June 23, 2020, PLTP sent a formal Notice of Unconditional Election to Terminate the P3 Agreement, although PLTP indicated a willingness to negotiate a settlement. On June 24, 2020, MTA sent a Formal Notice of Concessionaire Default. This notice essentially refuted the validity of the PLTP delay claims and stated that if PLTP failed to perform, MTA had a number of options related to the agreement. Through late July 2020, construction activities continued at the level previously planned, and construction progress was not affected.

In early August 2020, PLTC and subcontractors demobilized equipment, materials, and personnel. In response, the Maryland Attorney General filed a motion for a TRO that prevented PLTP from abandoning the work or demobilizing. Upon issuance of the TRO, the contractor and subcontractors remobilized some equipment and restarted many construction activities. A hearing to uphold or rescind the TRO was held on September 14, 2020. The court rescinded the TRO, allowing PLTP to leave the project. Through negotiation, it was determined that PLTP would remain on the project, although PLTC would not.

MTA contracted with numerous subcontractors to continue the project. MTA developed organizational options with respect to construction management, resident engineers, inspectors, and other staff needed to move forward select project activities.

It was certain that the project schedule as reflected in the FFGA would be negatively affected, and a Recovery Plan for the project, including a revised project schedule with adequate schedule contingency to address remaining project risks, would be required. MTA submitted its draft IRP to FTA in December 2020, and FTA approved the IRP on January 12, 2021. A schedule for the period during which the D-B contractor was to be replaced was developed, and MTA monitored project progress against the schedule. On November 5, 2021, PLTP announced the selection of the preferred replacement D-B contractor, MTS.

PLTP and MTA continued to coordinate during the financial process and State of Maryland approvals for the replacement D-B contractor. In addition, MTA successfully coordinated other key issues that needed to be resolved before PLTP could execute the contract with MTS.

The following is a summary of IRP milestones:

- January 6, 2021 – PLTP issued an RFQ for replacement D-B contractors.
- March 8, 2021 – PLTP issued an RFP to the short list of replacement D-B contractors based on the RFQ.
- October 15, 2021 – PLTP received RFP responses.

- November 5, 2021 – PLTP and MDOT/MTA selected the replacement D-B contractor firm (MTS).
- January 26, 2022 – BPW approved the replacement D-B contractor, contract amendments, schedule, cost, and financing.
- April 11, 2022 – Private activity bonds went to market.
- September 12, 2022 – MTA approved the IBS.
- October 14, 2022 – MTS was required to have commenced action on the 11 critical elements that are specified in the D-B contract. At the December 2022 PMOC meeting, MTA confirmed that MTS missed the 180-day window to commence action on 3 of the 11 critical elements. MTA and MTS are coordinating these specific activities and generally agree that a delayed start for each is logical based on construction sequencing. These three elements are not currently on the critical path.
- October 28, 2022 – MTA was required to have submitted a draft FRP to FTA and the PMOC for review and comment. On October 4, 2022, MTA submitted the draft FRP to FTA and the PMOC for review.

A milestone not specifically mentioned in the IRP is the requirement to extend the current RSD. The PMOC therefore adds the following milestone to this list:

- December 31, 2022 – The RSD in the original FFGA is December 31, 2022. MTA must request an extension to the current RSD identified in the FFGA. FTA will consider approving this extension, which also must include a revised EAC that includes adequate schedule and cost contingency. FTA's approval of the FRP is a critical step in approval of a revised FFGA budget and RSD.

The resolicitation of a replacement D-B contractor required that the project have a Interim Recovery Plan, prepared in accordance with the requirements of the FFGA and including cost, schedule, and risk details.

Current critical path analysis indicates that the critical path runs through the activities in Segments 7 and 8 of installation of Civil and Systems packages, and then train testing. There are ten other near-critical paths with activities that have less than two weeks of float. MTA reports that MTS's IBS included a proposed sequence and duration of activities that have zero float and a completion date in October 2026. MTA has used MTS's approved IBS to develop a master schedule that incorporates operational readiness activities and schedule contingency (float).

The most recent master schedule provided by MTA, ***dated March 12, 2023,*** reflects MTS's updates since the IBS was approved in September 2022. As noted in previous months, this schedule update is a cause for concern because, even without any recovery, nearly 7 months of the 12 months of schedule float may already be consumed. The PMOC recommended that MTA provide a description of what caused a seven-month slip just two months after the IBS was approved. MTA is determining recovery strategies and a revised RSA date. MTA states that it is

focusing on schedule recovery and is currently optimistic that schedule recovery of three months is possible. MTA incorporated a viable strategy for schedule recovery into the FRP.

2.13.1. Key Milestones

Table 8 shows the current key milestone dates for the project for the last approved (March 2017) progress update of the master project schedule, the MTA Master Schedule August 2018 (proposed new baseline schedule), and the February 29, 2020, progress update of the MTA master schedule. Issuance of NTP to PLTP on April 14, 2022, triggered the contract requirement for an MTA-approved MTS IBS for the full project to be in place within 120 days of financial close (by August 14, 2022). MTS submitted its IBS, and on September 12, 2022, MTA approved it. MTS submitted the 120-day mobilization schedule, which MTA also has approved. In January 2022, MTA submitted a draft version of the master schedule for FTA and PMOC review, and FTA and the PMOC transmitted their review comments to MTA in April 2022.

In August 2022, MTA and the PMOC discussed the current state of the baseline schedule, particularly the inclusion of adequate float to address schedule risk. The P65 date that MTA proposed before the risk workshop held in May 2022 included approximately seven months of float and an RSA date in October 2026. The current but unapproved schedule (dated October 3, 2022) proposed by MTS has a similar RSA date but adds approximately one year of contingency to reach an "FFGA Revenue Service Date – Final Completion" of October 13, 2027. In the PMOC's opinion, float should be assigned to specific project activities, and the project budget must include the cost related to the float duration. MTA concurs that the master schedule will have float added to specific activities where applicable, logical, and as appropriate. In October 2022, MTA provided a schedule in .XER format to the PMOC for the PMOC's analysis of the schedule. In January 2023, FTA provided schedule review comments to MTA for its use in preparing an updated recovery schedule.

The PMOC recommends that MTA include adequate schedule contingency and the corresponding budget contingency when developing the RSA date and the EAC that are incorporated into the FRP. The following information will be updated once the schedule reviews and approvals are complete.

Table 8 – Key Milestone Dates

Activity	Last Approved Master Project Schedule (March 15, 2017)	MTA Master Schedule August 2018 (working baseline)	MTA Master Schedule February 29, 2020 Update
Locally Preferred Alternative Approval Date	08/04/2009 (A)[a]	---	---
FTA Approval to Enter Preliminary Engineering	10/07/2011 (A)	---	---
FTA ROD	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)	---	---

Activity	Last Approved Master Project Schedule (March 15, 2017)	MTA Master Schedule August 2018 (working baseline)	MTA Master Schedule February 29, 2020 Update
P3 Financial Proposals Due	12/08/2015 (A)	---	---
Evaluation and Announcement of Selected P3 Proposer	01/02/2016 through 03/02/2016 (A)	---	---
BPW Approval of P3	04/06/2016 (A)	---	---
P3 Commercial Close	04/07/2016 (A)	---	---
Limited NTP for P3 Engineering	04/07/2016 (A)	---	---
MTA Submit FFGA Application	05/24/2016 (A)	---	---
P3 Financial Close	06/17/2016 (A)	---	---
FFGA Signed	08/22/2017 (A)	---	---
Start of First Major Construction Activity	08/28/2017 (A)	---	---
All Significant ROW Acquisition and Relocation	As needed by construction	---	All P3 contract Exh. 9 properties in possession
Commencement of Trial Running	---	03/09/2022	06/08/2022
P3 Ready to Commence Revenue Service	TBD	10/28/2022[b]	12/26/2022
MTA Opens for Revenue Service	03/2022	---	12/26/2022
Revenue Operations Date (includes contingency)	12/31/2022	---	---
FFGA RSA Date (includes contingency)	12/31/2022	12/31/2022	12/31/2022

[a] A = Actual.
[b] P3 ready to commence revenue service date is based on MTA's working version of an updated integrated master project schedule, which is based on earlier negotiations between MTA and the P3 concessionaire. ***MTA is currently preparing a master schedule update.***

2.13.2. 90-day Look-ahead

The critical 90-day (***April 2023 through June 2023***) look-ahead includes activities planned in general accordance with the IRP. MTA and MTS also are preparing four-week look-ahead schedules to manage interim activities. Key activities that MTA has identified for the short term are:

- Retaining wall construction in multiple locations.
- Water and sanitary sewer construction in multiple locations, including the completion of the 66-inch WSSC water main.
- Completion of the police force alternatives study.
- Completion of the Tiger Team schedule mitigation recommendations.
- Overhead electrical line, communications line, and buried gas line relocations.
- MTA's closeout of Glenridge OMF punch lists ***and turnover of the facility to MTS.***
- Response to comments and revisions of draft management plans based on FTA and PMOC review.

- Activities related to the replacement D-B contractor, including the continuation of required activities by MTS on the key structures and other elements on the critical path.

2.13.3. Critical Path Activities

In the MTA master schedule update dated ***March 12, 2023***, for which final agreement with PLTP was never reached, the critical path ***runs through the activities in Segments 7 and 8 of installation of Civil and Systems packages, and then train testing.*** During review of the FRP, FTA and the PMOC provided input on the schedule information, including the schedule contingency, to be included in a revised RSD and FFGA.

2.14. Project Risk

MTA has established a risk management organization that is defined in the RCMP and 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 the Risk Register.

During the approximately one-year period during 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 quantitative risk assessments, or perform formal updates of the Risk Register. However, the Purple Line project management team did assess and respond to the risks associated with the unforeseen chain of events related to the lawsuit.

The project team resumed formal risk management 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 in draft form in January 2018, and was updated further and reissued in March 2018. As an ongoing process, MTA currently is performing updates of the Risk Register periodically, though somewhat less frequently than bimonthly (the frequency established in its RCMP). The current status of the RCMP is discussed in the **Project Management Plan and Sub-plans** section of this report, above.

MTA provides copies of significant updates of the Risk Register to FTA and the 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; the project's top five project risks are included as Attachment C of this report and are updated quarterly. A risk management workshop was held on January 26, 2021, at which the PMOC and FTA participated. The workshop focused on the resolicitation period for the replacement D-B contractor (January through October 2021).

Now that the replacement D-B contractor is under contract, risk updates have been prepared. A risk workshop was held the week of May 2, 2022, at which the PMOC and FTA participated in an OP 40 risk and contingency review that evaluated cost, schedule, and project contingency. Confirmation and finalization of the Risk Register, the quantitative risk assessment, and an update of the RCMP are components of the required FRP. Because of the preliminary nature of the baseline schedule information that is currently available, further schedule analysis will be required once MTA submits a comprehensive baseline schedule. FTA provided a summary of the risk

workshop to MTA on June 22, 2022, for MTA's consideration and incorporation into its management plans and contingency evaluation. MTA provided responses to FTA comments on the risk workshop summary on July 15, 2022, and clarification on August 25, 2022. In October 2022, MTA submitted RCMP Version 15 to FTA and the PMOC for review. In February 2023, FTA and the PMOC provided comments on the revised RCMP to support MTA's development of the project's budget and schedule contingency.

2.15. Quality Assurance/Quality Control

The project's QA/QC is addressed in Section 10 of the PMP, the Quality Program Plan, and the updated MTA QAP Revision 8.0, which incorporates the quality plans prepared by PLTC. The most current versions of the PMP and the QAP are as discussed in the **Project Management Plan and Sub-plans** section of this report, above. MTA also submitted to FTA the package of inter-related quality plans prepared by the P3 concessionaire after it was reviewed and approved by MTA.

MTA has obtained PLTP's quality logs and other applicable documents and procedures for use during the transition to the replacement D-B contractor. Several former subcontractors are now under contract with MTA and conducted QA/QC activities during the replacement D-B contractor solicitation period. The budget to address nonconforming construction by PLTC is a concern. MTA incorporated known defects into the MTS contract; however, MTA has not clarified the specific budget that will be used to rectify defects found since the contract with MTS was executed. MTA estimates that the magnitude of this potential budget impact will be no more than $10 million.

In October 2022, MTA submitted QAP Version 10 to FTA and the PMOC for review, and on March 8, 2023, FTA provided review comments on the QAP to MTA.

The project has continued to conduct its monthly meeting to review the QA/QC activities performed by the Purple Line project team, including those activities performed by the PMC and the GEC. Documentation from this meeting is distributed and maintained. The project's Monthly Progress Report to FTA also contains a summary of the significant current QA/QC activities and events, including quality audits and quality reviews. ***In March 2023,*** quality management topics included quality process improvements, records storage, field inspections to close open issues, equipment testing inspections, design submittal reviews, records spot checks, approval of MTS's quality management plans, MTS offsite inspections at the fabrication location for OCS poles, and planning of monthly QC meetings.

In November 2021, MTA's quality lead for the Purple Line project, Rene Schroeder, retired. Roland Carroll, currently the Purple Line systems and construction safety lead, has added the quality lead role to his other Purple Line roles. In February 2022, MTA provided a white paper outlining Mr. Carroll's experience, his recent training, and the proposed supporting staff related to the new quality management role. The PMOC has evaluated this change as a part of the PMP review and has requested that MTA provide additional information.

2.16 Safety and Security

PLTP has conducted 44 Preliminary Hazards Analysis (PHA) workshop sessions to date. These workshops were held to resolve MTA's comments on the PHAs completed to date.

To support the ultimate Safety and Security Certification of the Purple Line project, the PLTP System Safety team completed development of its first DCCC in May 2017 and submitted it to MTA for approval. MTA (assisted by the PMC) reviews the DCCCs as part of the Final Design package, according to the established submittal review process. According to PLTP, the DCCCs were being verified before the issuance of RFC packages. To date, an estimated 96.6 percent of the DCCCs have been verified. All previous comments on PLTP's Certified Elements List (CEL), which includes operations and maintenance and system integration testing elements, have been resolved, and CEL Revision 2 was accepted in March 2020. The Certified Items List (CIL) Revision 1 has been accepted. The next revision of the CIL is expected ***after MTS completes the design.*** MTA will provide the revised CIL to FTA and the PMOC as soon as it is completed. Approximately 10.6 percent of the CSCCs have been verified to date.

MTA chairs a Safety and Security Certification Committee (SSCC) that reviews, comments on, and approves any PLTP hazard management and safety and security certification issues. The first meeting of the MTA SSCC was conducted on March 20, 2018. Since July 11, 2018, the SSCC meeting has been held regularly and will continue as a monthly meeting until the level of activity requires more frequent meetings. ***As of March 2023,*** monthly SSCC meetings continue. Resolution of comments is still needed from Atkins (the designer) for a previous blast analysis review, but as of January 2023, MTA believes that resolution of these comments is nearly complete. ***MTA stated that the progressive collapse analysis of the Carr Building, although it may lead to remedial actions, will no longer be tracked by the Purple Line project. MTA stated that there would be no use of funds from the Purple Line project for remediation at the Carr Building.***

PLTC submitted a Threat and Vulnerability Assessment, and on July 15, 2019, MTA accepted and verified the comment responses and approved PLTC's Threat and Vulnerability Assessment. PLTC then completed its Threat and Vulnerability Assessment process.

MTA continues to conduct bimonthly Fire/Life Safety meetings with Montgomery County and Prince George's County. The meetings provide a basis for the counties' emergency responders to understand the features of the Purple Line systems and to resolve any concerns. Topics of discussion include: Police Department MOUs; Fire Department connection and hydrant locations; access, signage, and station naming conventions; MOUs for training; the PHA at the Glenridge OMF maintenance gate; station names; and addresses/emergency phone numbers for locations along the corridor. Other topics of discussion have included closed circuit television cameras and Mobile Emergency Vehicle Response access. It is the opinion of the PMOC that MTA should emphasize resolving the project's outstanding Fire/Life Safety issues, because progress on the resolution of these issues is not apparent.

MTA police continue coordinating MOUs with local safety agencies and developing MOUs with police jurisdictions (such as the Maryland National Capital Park Police) along the Purple Line.

These MOUs are related to training the existing police agencies on how to respond to transit situations. During the September MTA/PMOC meeting, a larger related issue was discussed at length. The SSOA staff participated in this discussion as well. The crux of the issue is that MTA does not have a police force located in proximity to the Purple Line. MTA hired a consultant team to analyze alternatives for providing security and fare enforcement services for the Purple Line. Alternatives include: expanding MTA's enforcement services geographically, bringing on a third party to provide these services through a contract, or sharing police services with another party. The PMOC believes that this issue is significant, and although the currently forecast RSA date is in 2027, MTA should determine its preferred alternative for providing Purple Line security and fare enforcement services without delay and promptly move toward implementation. On February 23, 2023, MTA submitted its prepared draft recommendation for providing security and fare enforcement to several State of Maryland departments. Representatives from MDOT, which is the SSOA, who are monitoring the Purple Line project development provided comments on the draft recommendation before MTA submitted it to MTA's upper management and the several state departments.

As required by the P3 contract, PLTP was responsible for directly implementing many of the safety and security requirements for the project, including those for construction safety and the collection and maintenance of the Occupational Safety and Health Administration (OSHA) safety statistics for the project. PLTC performed this work until its departure from the project, at which time MTA assumed responsibility. MTS is now transitioning into the safety and security role that PLTC held. MTS and MTA are holding regular safety and security coordination meetings.

Safety continues to be acceptable, although with an increase of MTS activities, recordable incidents are increasing. Also, MTS appears to be having difficulties in its communication of incident reporting. MTA determined the methodology for reporting of, and assumed reporting of, OSHA statistics for the project under OSF. For the period from January 1, 2022, through ***January 2023***, the OSHA statistics are:

- TCIR (Total Case Incident Rate) (Recordable Rate):
  - Actual: ***3.40***
  - MTA goal: 0.45
  - National average: 2.8 (for heavy civil construction)
- LTIR (Lost Time Injury Rate) (Recordable Rate):
  - Actual: ***3.40***
  - MTA goal: 0.00
  - National average: 0.9 (Construction – heavy civil)

MTA had assumed responsibility for safety oversight until MTS assumed control of the project. As of December 2022, MTA reports that MTS needs coaching on expectations for the required reporting of safety statistics.

In late October 2022, MTA submitted updated SSMP and SSCP documents in conjunction with the updated PMP. ***On February 13, 2023, and March 8, 2023, FTA provided review comments to MTA on the SSMP and SSCP, respectively***.

See the **Project Management Plan and Sub-plans** section of this report, above, for the status of the sub-plans of the PMP related to safety and security. Attachment B of this report includes additional quarterly safety and security-related information for the Purple Line project.

2.17 Americans with Disabilities Act

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

Accessibility and compliance with the ADA are required as part of the functional requirements for stations and guideway, and as part of the codes and standards for LRVs within the P3 contract (Book 2, Part 2) for the Purple Line project. MTA and its consultants reviewed the design packages prepared by PLTC. Based on project reviews conducted by the PMOC, MTA has confirmed that it included ADA compliance in its QA oversight reviews of PLTC's design packages. A full-time Purple Line project Maintenance of Traffic construction representative also monitors whether temporary pedestrian accommodations during construction continue to comply with ADA requirements. ADA compliance is included in the PMOC's periodic project reviews, during which timely project ADA-related items are discussed. Such discussions during the PMOC's most recent reviews identified no current ADA-related issues.

2.18 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 also to the 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's standard clauses for its procurements, and the P3 contract contains explicit Buy America language in its Appendix 16.

As designs were finalized, PLTC encountered more incidences when as-designed commodities that are compliant with Buy America provisions were not available. However, because PLTC was responsible for the design and had committed to compliance with Buy America provisions, MTA held PLTC responsible for complying with the regulations and the P3 contract in this respect. The Purple Line project team continues to spot check materials being used in ongoing construction, and especially utility relocations, because Buy America compliance of utility-supplied materials has historically been more troublesome and because utility relocation constitutes a significant percentage of the current construction activity. During November and December 2019, MTA QA inspectors issued QOARs related to two potential Buy America non-compliance cases at the

Glenridge OMF. PLTC submitted responses to these QOARs 055 and 056 in January 2020, and MTA replied in disagreement with PLTC's conclusions in its submittal.

PLTC passed the Buy America requirements on to the vehicle supplier, CAF. The Buy America Pre-Award audit was conducted by Virginkar and Associates, Inc., which concluded that there is reasonable certainty that CAF will satisfy the Buy America requirements as stated in 49 Code of Federal Regulations (CFR) 661. MTA's interpretation is that, because the vehicle RFP was advertised before December 4, 2015 (which is the date of passage of the Fixing America's Surface Transportation Act, also known as the FAST Act), the 49 CFR 661 Public Interest Waiver that limits domestic content to a minimum of 60 percent, as opposed to the escalating domestic content requirements of the FAST Act, applies in this case. During the week of October 2, 2017, an intermediate post-award Buy America audit was conducted of CAF's facility in Elmira, New York, for added confidence that the post-delivery audit would not identify issues. There were no significant findings, and, based on the audit, the domestic content of the LRVs is currently estimated at approximately 62 percent, compared to the required 60 percent for these vehicles. CAF is targeting 65 percent domestic content in the completed vehicle. MTA has also been in communication with the U.S. Maritime Administration regarding the use of U.S. Flagship carriers for the transport of carshells from Spain to the United States for final assembly.

In July 2022, the PMOC asked MTA about the status of the Buy America requirements with respect to the LRV supplier. MTA provided an update on August 11, 2022, confirming that the most recent audit was performed in 2017. The project's Buy America compliance audit for the LRVs was conducted on November 14, 2022. In January 2023, CAF provided additional documentation requested to assist with evaluation of Buy America compliance. The draft audit report will be available to FTA sometime after April 1, 2023.

2.19 Start-up, Commissioning, Testing

TBD

2.20 Before-and-After Study Reporting

TBD

2.21 Lessons Learned

The resolicitation of a D-B contractor has given MTA the opportunity to apply several lessons learned to the new D-B contract documents and to amend the P3 agreement. After the May 2022 risk workshop with MTA and the PMOC, MTA provided an update on opportunities for improvement that MTA had identified during the resolicitation and is incorporating into the project.

2.22 Action Items

Action Items are identified at MTA/FTA Quarterly Progress Review Meetings, at MTA/PMOC Monthly Update Meetings, and at MTA/FTA Biweekly New Starts Progress Conference Calls. Action Items from the most recent biweekly conference call on ***March 28, 2023***, are as follows:

1. MTA will provide updates to the OSF schedule, including when management plan drafts are completed. OPEN – This item will remain open until the FRP has been approved.
2. MTA will provide the updated project communications plan when complete. OPEN
3. MTA will provide documentation from the schedule mitigation Tiger Team effort when available. OPEN
4. MTA will provide the results of the police force alternatives study. OPEN – The results of the study are being coordinated within the different State of Maryland departments.
5. MTA will submit a formal request for a revised FFGA schedule and budget after FTA approval of the FRP. OPEN.

ATTACHMENT A – LIST OF ACRONYMS

ADA	Americans with Disabilities Act
ATC	Alternate Technical Concept
BFMP	Bus Fleet Management Plan
BPW	Board of Public Works
CAF	Construcciones y Auxiliar de Ferrocarriles
CEL	Certified Elements List
CFR	Code of Federal Regulations
CIL	Certified Items List
CSCC	Construction Specification Conformance Checklist
CSX	CSX Corporation
D-B	Design-Build
DBE	Disadvantaged Business Enterprise
DCCC	Design Criteria Conformance Checklist
DNR	Maryland Department of Natural Resources
E&S	Erosion and Sedimentation
EAC	Estimate at Completion
FAI	First Article Inspection
FCP	Forest Conservation Plan
FFGA	Full Funding Grant Agreement
FTA	Federal Transit Administration
GEC	General Engineering Consultant
IBS	Initial Baseline Schedule
IRP	Interim Recovery Plan
LOD	Limits of Disturbance
LRT	Light Rail Transit
LRV	Light Rail Vehicle
LTIR	Lost Time Injury Rate
MCC	Management Capacity and Capability
MDE	Maryland Department of the Environment

MDOT	Maryland Department of Transportation
MOU	Memorandum of Understanding
MTA	Maryland Transit Administration
MTS	Maryland Transit Solutions
N/A	Not Applicable
NEPA	National Environmental Policy Act
NTP	Notice to Proceed
OCS	Overhead Contact System
OMF	Operation and Maintenance Facility
OP	Oversight Procedure
OSF	Operation Step Forward
OSHA	Occupational Safety and Health Administration
P3	Public-Private Partnership
PEPCO	Potomac Electric Power Company
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 Management Plan
RCMP	Risk and Contingency Management Plan
RFC	Released for Construction
RFMP	Rail Fleet Management Plan
RFP	Request for Proposals
RFQ	Request for Qualifications
ROD	Record of Decision
ROE	Right of Entry

ROW	Right-of-Way
RSA	Revenue Service Availability
RSD	Revenue Service Date
SCC	Standard Cost Category
SEIS	Supplemental Environmental Impact Statement
SSCC	Safety and Security Certification Committee
SSCP	Safety and Security Certification Plan
SSMP	Safety and Security Management Plan
SSOA	State Safety Oversight Agency
SSP	Safety and Security Plan
SSPP	System Safety Program Plan
SSTC	Silver Spring Transit Center
SWM	Stormwater Management
TBD	To Be Determined
TCE	Temporary Construction Easement
TCIR	Total Case Incident Rate
TIFIA	Transportation Infrastructure Finance and Innovation Act
TOA	Transfer of Ownership Agreement
TPSS	Traction Power Substation
TRO	Temporary Restraining Order
UMD	University of Maryland
USACE	U.S. Army Corps of Engineers
WMATA	Washington Metropolitan Area Transit Authority
WSSC	Washington Suburban Sanitary Commission

ATTACHMENT B – SAFETY AND SECURITY CHECKLIST

Note: References to the System Safety Program Plan (SSPP), Safety and Security Plan (SSP), and 49 Code of Federal Regulations (CFR) Part 659 as they are contained in the FTA standard checklist form have been retained in the following update. However, it is recognized that Maryland Transit Administration is transitioning to the Public Transportation Agency Safety Plan and 49 CFR Parts 673 and 674.

Refer to the July 2020 PMOC Monitoring Report for the most recent update.

ATTACHMENT C – TOP PROJECT RISKS

An internal risk workshop to support the Interim Recovery Plan (IRP) was held on January 26, 2021. Maryland Transit Administration (MTA) and Purple Line Transit Partners (PLTP) used information from the meeting as they solicited a replacement Design-Build (D-B) contractor. At the time of the workshop, the MTA Risk Management was tracking the following risks identified during development of the IRP:

Procurement/Settlement Risks:

- PLTP solicitation of replacement D-B contractor:
  - Market resolicitation in a compressed time frame
  - Delay in finalizing solicitation
  - Weak bidder interest – two or fewer proposals
- D-B contract and other contract negotiations

Schedule Risks:

- Inability of MTA subcontractors to meet the Operation Step Forward (OSF) schedule dates, causing delay to certain activities to be performed by the replacement D-B contractor
- Unanticipated delay to the replacement D-B contractor "ramp up" of activities, resulting in impacts to the critical path anticipated by MTA

Design and Construction Risks:

- Performance risk assumed by MTA by contracting for and performing work during the replacement D-B contractor resolicitation period (subcontracting risk)
- Quality, commercial, coordination, and unforeseen conditions unknown to MTA at the time of assumption of former Purple Line Transit Constructors subcontracts

A risk workshop was held May 3 through May 5, 2022. After the risk workshop, MTA prepared supplementary or updated documents for review, including an updated Risk Register. FTA provided a risk summary to MTA on June 22, 2022, for MTA's consideration when updating risk, contingency, and other project management plans. MTA provided a response to each of the comments on the risk summary to FTA on July 18, 2022, and provided further clarifications on August 25, 2022. MTA incorporated the FTA comments in the revised RCMP that is a part of the draft FRP.

On October 7, 2022, MTA submitted RCMP Version 15 to FTA and the PMOC for review. ***FTA provided review comments to MTA on February 16, 2023.***

In March 2023, MTA presented the following top project risks:

1. ***Construction – Exhibit 24 Utility Adjustments – Significant***
2. ***Construction – RCO1 and RCO7 Utility Delays – Significant***
3. ***Design – Temporary Construction Easement Extensions – High***
4. ***Construction – Exhibit 24 Utility Adjustments Verizon – High***
5. ***Construction – Unknown Existing Construction Defects – High***

6. ***Market – Unknown Unknowns – High***
7. ***Construction – Utility Relocation – High***
8. ***CSX Flaggers – High***

ATTACHMENT D – AWARDED CONTRACTS

A significant update to awarded contracts is forthcoming due to the transition within the original Public-Private Partnership concessionaire and Maryland Transit Administration's assumption of some, but not all, subcontracts.

ATTACHMENT E – ROLLING STOCK VEHICLE STATUS REPORT

Date: ***March 17, 2023***

Vendor: Construcciones y Auxiliar de Ferrocarriles (CAF)

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

Year: The first vehicle was completed in 2021, and currently 26 vehicles are designated as "Ready for Shipment." Completion of the storage and testing facilities at the Glenridge Operation and Maintenance Facility (OMF) has been delayed, so Maryland Transit Administration (MTA) and CAF negotiated terms for storage of vehicles at the CAF facility in Elmira, New York. The storage agreement has now transferred to the replacement Design-Build (D-B) contractor, Maryland Transit Solutions (MTS).

Quantity: 25 vehicles (130 cars) original contract (Full Funding Grant Agreement [FFGA]). One vehicle (5 cars) was added to the original CAF authorization by MTA, outside of the FFGA.

2 vehicles (10 cars) in July 2021 change order (non-FFGA).

Identification: The original light rail vehicles (LRVs) will be numbered from 101 through 126. The numbering of the two additional LRVs is to be determined.

New Technologies: None planned (all major suppliers have service-proven equipment).

Status and Significant Activities:

- In total, 130 cars were assembled in Spain, all of which have been delivered to CAF in Elmira, New York. Assembly of the additional 2 vehicles (10 cars) is in progress in Spain. Ultimately these 10 cars will be shipped to Elmira for final assembly and static testing, following the same process as the original 130 cars.
- Delivery of finished vehicles was expected to begin in spring 2021; however, because the Glenridge OMF is not ready to accept railcars, MTA and CAF have negotiated an agreement for CAF to store the completed cars in Elmira.
- Cost risk for delivery of the finished vehicles has been transferred to MTS. If delays in construction cause a delay, then MTS is responsible to CAF for additional storage cost.
- Twenty-six LRVs have passed static testing, have been designated as Ready for Shipment, and have been placed into storage in Elmira. These include vehicle 110, which was returned to Ready for Shipment status after a second period in static testing.
- Delivery of the first of the original 26 vehicles is currently scheduled for ***fall 2023***. Approximately one vehicle per week will be delivered thereafter. The Glenridge OMF will be able to store three or four vehicles on the yard and in the building, so track must be available for additional storage. The Overhead Contact System and Traction Power

Substation (TPSS) Q7 and TPSS QYG must also be completed and installed before delivery of vehicles.

- MTA added two vehicles by change order to CAF's original contract, outside of the MTA/Federal Transit Administration (FTA) FFGA. The additional LRVs will support better operations at Revenue Service Availability. The replacement D-B contractor, MTS, has incorporated these two additional LRVs into its scope of work (in addition to the cost and terms of LRV storage in Elmira). Fabrication of the two additional LRVs at CAF's facility in Spain has begun.
- SNC-Lavalin (now an MTS subcontractor) prepares a monthly quality report documenting safety, production, and quality items at both the Spain and New York production facilities. Many of the same SNC-Lavalin staff who observed the original vehicle fabrication work are overseeing the fabrication of the two additional vehicles in Spain.
- MTA, the Project Management Consultant, and CAF are holding weekly coordination meetings to review all outstanding testing and factory/shop activities, including onsite testing procedures for when the vehicles are delivered to Maryland.
- MTS, which has assumed the CAF contract, is preparing and submitting to MTA reports on LRV maintenance activities required during the storage period.

ATTACHMENT F – PROJECT MILESTONES/KEY EVENTS

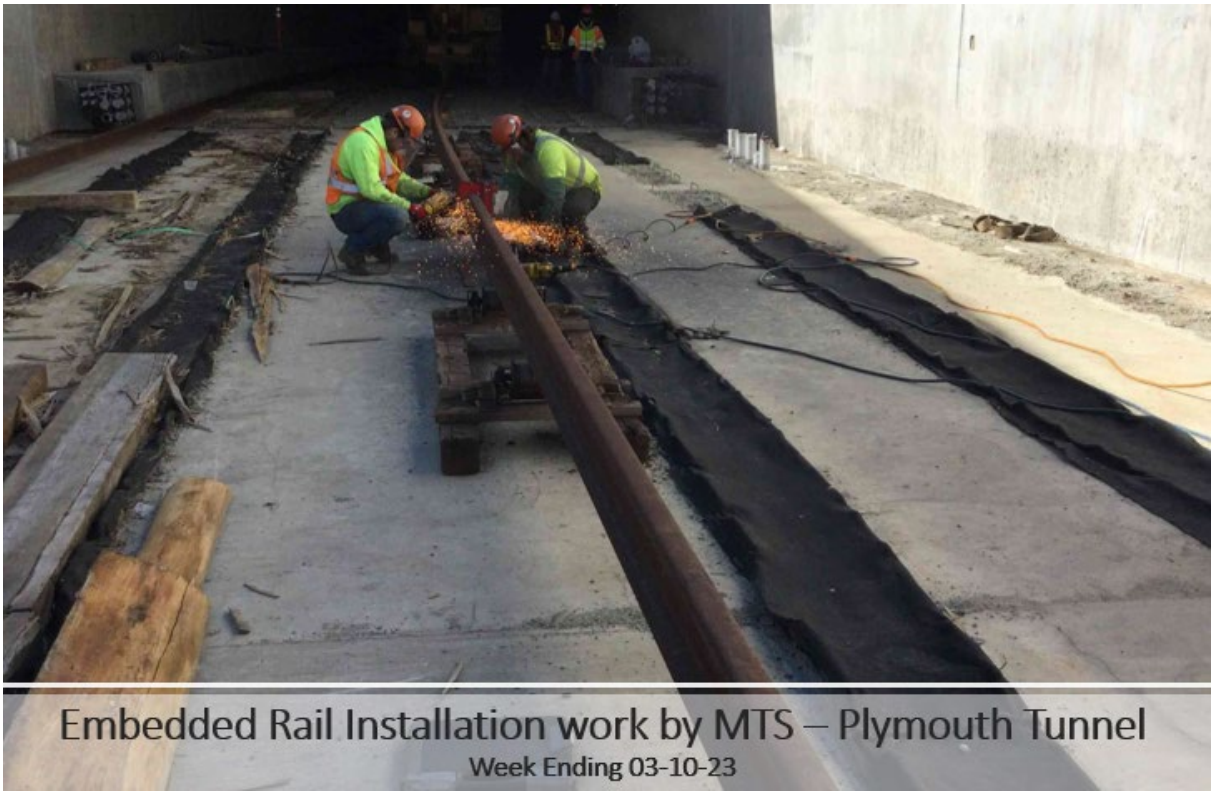
Photos courtesy of Maryland Transit Administration.



MSE Wall 1-019A Panel Installation work by MTS – GBT at East West Hwy
Week Ending 03-03-23



Shed Gantry Installation work by MTS – Bethesda Metro South Entrance
Week Ending 03-03-23



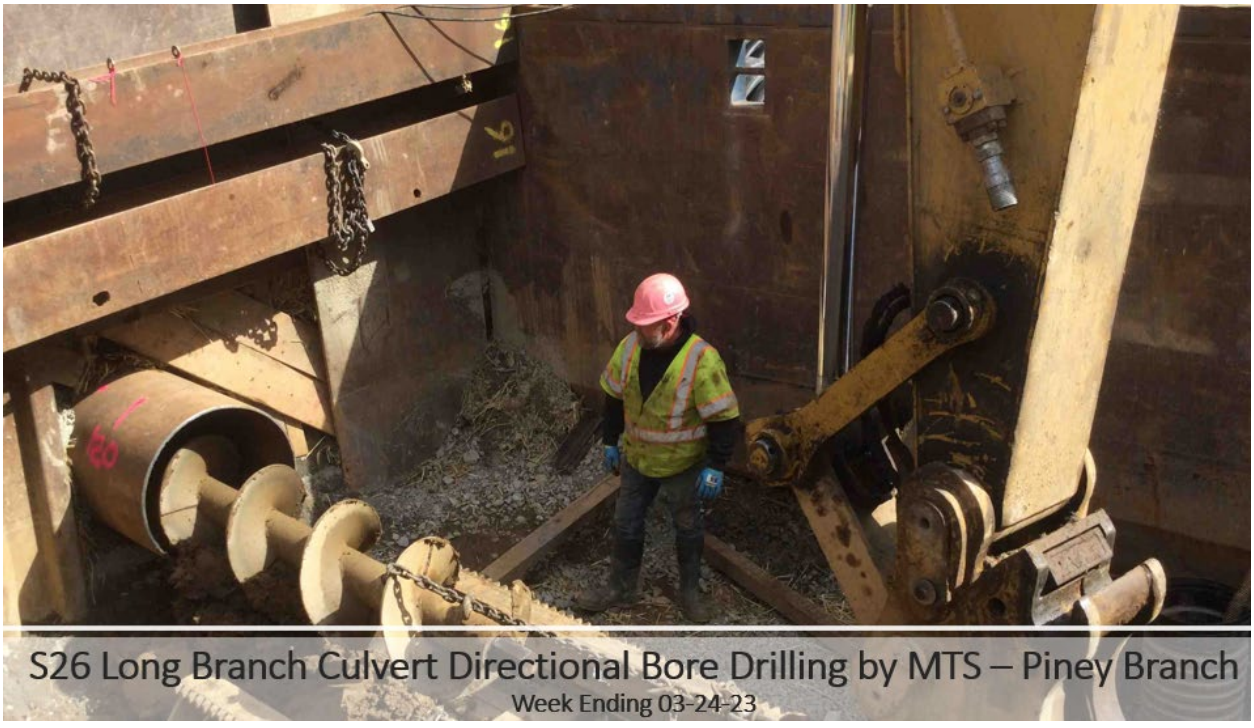
Embedded Rail Installation work by MTS – Plymouth Tunnel
Week Ending 03-10-23



Storm Drain RCP Pipe Installation by MTS – University Blvd.
Week Ending 03-10-23



Sidewalk Concrete Placement – Bradford Place
Week Ending 03-24-23



S26 Long Branch Culvert Directional Bore Drilling by MTS – Piney Branch
Week Ending 03-24-23


Wall Concrete Placement by MTS – Glenridge Station
Week Ending 03-17-23

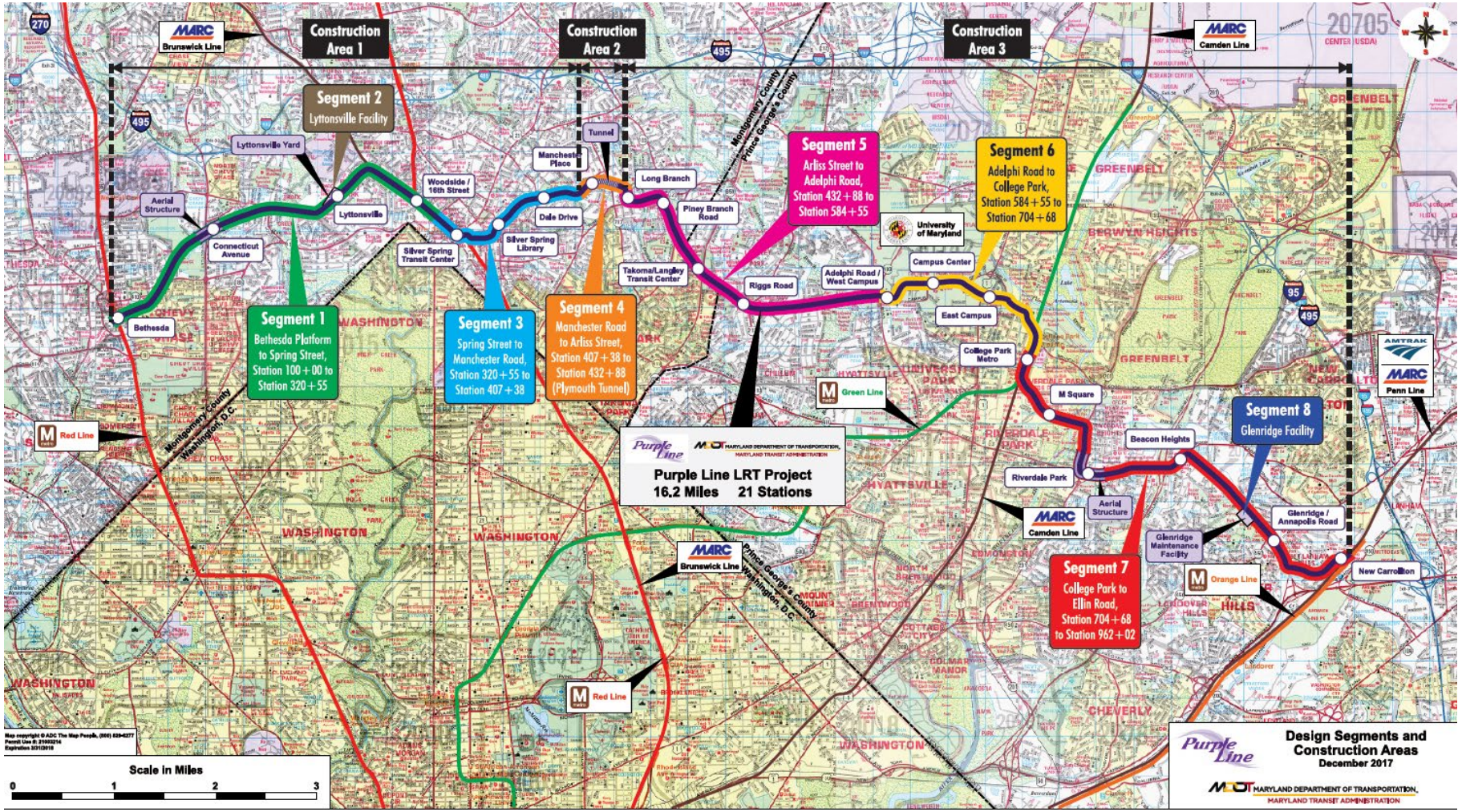

Track Approach Slab Concrete Placement by MTS – OMF Glenridge
Week Ending 03-17-23

ATTACHMENT G – ROADMAP TO REVENUE OPERATIONS

In accordance with Oversight Procedure (OP) 25, the Roadmap to Revenue Operations, prepared from the Project Sponsor's master schedule, is issued quarterly as a separate electronic file. Because the Project Sponsor's master schedule is undergoing a major revision for schedule recovery, the dates currently shown will change.

Per OP 25, this item is issued quarterly "as a separate attachment." Due to the transition to a new Design-Build contractor, quarterly updates will be provided when available. Refer to the July 2020 Project Management Oversight Contractor Monitoring Report for the most recent update.

ATTACHMENT H – PROJECT MAP



PMOC MONITORING REPORT
April 2023

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

Maryland Transit Administration
Baltimore, Maryland
Final

Draft Report Delivered to FTA on ***May 5, 2023***
Final Report Delivered to FTA on ***May 11, 2023***

PMOC Contract No.: 69319519D000016
Task Order No.: 69319520F300095
Project No.: 69319519D000016/69319520F300095
Requisition/Reference No.: FTA-TPM20-20-0106
OPs Referenced: 20, 22, 24, 25, 26
CLINs 0001, 0002, and 0005

David Evans and Associates, Inc.
Pete Hankovszky, Task Order Manager
Voice –720.448.6730; Email – pzh@deainc.com
Time on Project: 05/18/2020 through 05/17/2025

REPORT FORMAT AND FOCUS

This report is submitted in compliance with the terms of the Federal Transit Administration (FTA) Contract #69319519D000016, Task Order #69319520F300095. Its purpose is to provide information and data to assist FTA as it continually monitors the management capacity and capability of the Maryland Transit Administration (MTA) (the Project Sponsor) to execute the project efficiently and effectively, and hence, whether the Project Sponsor continues to be ready to receive federal funds for further project development. This report covers the project management activities on the National Capital Purple Line Light Rail Transit Project managed by MTA as the Project Sponsor and financed by the FTA Full Funding Grant Agreement (FFGA). The cost and schedule information in this report was extracted from MTA's submitted information except where noted. The report is organized to comply with the requirements of updated Oversight Procedure 25 – Recurring Oversight and Related Reports, dated June 2020.

THIRD-PARTY DISCLAIMER

This report and all subsidiary reports are prepared solely for FTA. This report should not be relied upon by any party, except FTA or the Project Sponsor, in accordance with the purposes as described below.

For projects funded through the FTA FFGA program, FTA and its Project Management Oversight Contractor (PMOC) use a risk-based assessment process to review and validate a Project Sponsor's budget and schedule. This risk-based assessment process is a tool for analyzing project development and management. Moreover, the assessment process is iterative in nature; any results of an FTA or PMOC risk-based assessment represent a "snapshot in time" for a particular project under the conditions known at that same point in time. The status of any assessment may be altered at any time by new information, changes in circumstances, or further developments in the project, including any specific measures a Project Sponsor may take to mitigate the risks to project costs, budget, and schedule, or the strategy a Project Sponsor may develop for project execution. Therefore, the information in the monthly reports will change from month to month, based on relevant factors for the month and/or previous months.

TABLE OF CONTENTS

1. EXECUTIVE SUMMARY 1
1.1. Project Description 1
1.2. Project Status 1
1.3. Major Issues and/or Concerns 10
1.4. Status of Key Indicators Dashboard (Post-grant) 11
1.5. Core Accountability Items 12
2. OBSERVATIONS AND FINDINGS 13
2.1. Summary of Monitoring Activities 13
2.2. Oversight Triggers 14
2.3. Project Management Plan and Sub-plans 14
2.4. Management Capacity and Capability 17
2.5. NEPA Process and Environmental Mitigation 18
2.6. Project Delivery Method and Procurement 21
2.7. Design 22
2.8. Real Estate Acquisition and Relocation 24
2.9. Third-party Agreements and Utilities 26
2.10. Construction 27
2.11. Vehicle Technology and Procurement 30
2.12. Project Cost 31
2.13. Project Schedule 32
2.14. Project Risk 37
2.15. Quality Assurance/Quality Control 38
2.16 Safety and Security 39
2.17 Americans with Disabilities Act 41
2.18 Buy America 41
2.19 Start-up, Commissioning, Testing 42
2.20 Before-and-After Study Reporting 42
2.21 Lessons Learned 42
2.22 Action Items 42
ATTACHMENT A – LIST OF ACRONYMS 43
ATTACHMENT B – SAFETY AND SECURITY CHECKLIST 46

ATTACHMENT C – TOP PROJECT RISKS....47
ATTACHMENT D – AWARDED CONTRACTS....49
ATTACHMENT E – ROLLING STOCK VEHICLE STATUS REPORT....50
ATTACHMENT F – PROJECT MILESTONES/KEY EVENTS....52
ATTACHMENT G – ROADMAP TO REVENUE OPERATIONS....56
ATTACHMENT H – PROJECT MAP....57

LIST OF TABLES

Table 1 – MTA Master Schedule Dates....4
Table 2 – Current Major Issues and Concerns....10
Table 3 – Key Indicators Dashboard....11
Table 4 – Core Accountability Items....13
Table 5 – Project Cost Versus Budget....31
Table 6 – Baseline Cost Estimate by Source Funding....32
Table 7 – Key Milestone Dates....35

1. EXECUTIVE SUMMARY

1.1. 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, Maryland, to New Carrollton in Prince George's County, Maryland. The Purple Line will operate largely at street level in a combination of dedicated and semi-exclusive right-of-way (ROW) and 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) service at Bethesda, Silver Spring, College Park, and New Carrollton, Maryland. The project will also connect to all three Maryland Area Regional Commuter rail lines, Amtrak, and local bus routes. The project includes 21 stations, 2 operations control/vehicle storage and maintenance facilities, and 25 light rail vehicles (LRVs). Maryland Transit Administration (MTA) is executing the project using a Public-Private Partnership (P3) method of project delivery. As documented in the Federal Transit Administration (FTA) Full Funding Grant Agreement (FFGA), the original estimated project cost is $2,407,030,289, and the scheduled Revenue Service Availability (RSA) date is December 31, 2022. On January 26, 2022, the Maryland Board of Public Works (BPW) approved significant revisions to the project cost and the RSA date. On April 11, 2022, private activity bonds went to market, and there was sufficient demand to sell all of the bonds. The Transportation Infrastructure Finance and Innovation Act (TIFIA) loan closed on April 14, 2022, allowing financial close and commercial close on that same day. Financing approvals and subsequent financial close allowed Purple Line Transit Partners (PLTP), the P3 concessionaire, to issue Notice to Proceed (NTP) to the replacement Design-Build (D-B) contractor. Maryland Transit Solutions (MTS) is now the D-B contractor for the project. ***MTA has prepared a Final Recovery Plan (FRP), which FTA accepted on April 17, 2023. The revised project cost is $5,116,020,381, and the revised Revenue Service Date (RSD) is February 24, 2028. MTA has submitted multiple management plan updates for FTA and Project Management Oversight Contractor (PMOC) review. Several of these management plans have been reviewed and accepted, while several updates remain in progress.***

1.2. Project Status

The FFGA was executed on August 22, 2017. The Purple Line project is currently in the construction phase. Due to a contractual dispute, PLTP demobilized the assets/staff and subcontractors of the original D-B contractor, Purple Line Transit Constructors (PLTC), from the project in September 2020.

On November 24, 2020, MTA and PLTP reached a settlement agreement to release PLTC from the P3 consortium and continue the project with the remaining parties. The BPW approved the agreement on December 17, 2020. PLTP agreed to procure a replacement D-B contractor to complete the project and to obtain project financing.

Despite changes within the P3 consortium, MTA intends to complete the full scope of the project as envisioned in the original contract documents, with some minor exceptions such as the addition

of three more LRVs. After a procurement process for a replacement D-B contractor, PLTP selected MTS (a joint venture of Dragados USA and OHL USA) on November 5, 2021. The contract with MTS was executed on April 14, 2022.

MTA submitted a draft Interim Recovery Plan (IRP), dated December 15, 2020, to FTA. The IRP provided additional details related to the settlement agreement and MTA management activities. ***MTA subsequently prepared and submitted the FRP to FTA.*** FTA and the PMOC have reviewed the Project Management Plan (PMP) and other MTA management plans, along with the FRP. ***FTA accepted the FRP on April 17, 2023.***

MTA made deliberate choices about how to proceed with the major project elements once PLTC was released from the project. MTA's planning criteria included schedule, budget, and the reduction of risk for the replacement D-B contractor. To address budget constraints, some project activities that were identified for completion in the IRP were deferred. MTA and its Project Management Consultant (PMC) added staff to support subcontractor invoicing, payment processes, and other administrative tasks.

MTA is currently managing a significant number of construction activities that will continue until completion in mid-2023, including some utility relocations, particularly work by Verizon and Comcast. Despite the careful planning during MTA's IRP period, called Operation Step Forward (OSF), several activities fell behind schedule. Delays related to third-party utility relocations and other unforeseen issues caused MTA to miss several milestone dates included in the April 2022 revised agreements with PLTP. Evaluation and recovery of the impacts on schedule and budget from these missed milestones by MTA continues.

Construction work also continues under the management of both MTA and MTS, including activities and elements such as erosion and sediment control maintenance, bridge structures, retaining walls, the Glenridge Operation and Maintenance Facility (OMF), and utility relocations. The Polk Street Maintenance Facility (for Prince George's County), the Paint Branch stream restoration, and the Ken-Gar wetlands mitigation projects are complete with the exception of warranty periods.

Completion of the Glenridge OMF has been on or near the critical path and continues to be a focus. MTA completed the majority of the OMF building and utilities, but construction of track that accommodates LRV storage and testing was deferred for completion by MTS. There are six outstanding OSF items that MTA must complete at the OMF. However, these items require equipment and materials that have long lead times. MTS was scheduled to assume control of the facility in early 2023, but as ***of April 2023, the date of the turnover of the facility from MTA to MTS is still being determined.*** MTS is currently installing rail and other features inside the building.

Delayed completion of the OMF construction upon PLTC's departure required finding an alternative location to store completed LRVs. MTA reached an agreement with Construcciones y Auxiliar de Ferrocarriles (CAF) to store the LRVs at CAF's Elmira, New York facility until track is ready for acceptance of the LRVs. MTS assumed the storage agreement with CAF upon finalization of the replacement D-B contract.

MTA has revised and submitted the PMP, Risk and Contingency Management Plan (RCMP), Quality Assurance Plan (QAP), project schedule, Safety and Security Management Plan (SSMP), and Safety and Security Certification Plan (SSCP). FTA and the PMOC have reviewed these revised plan documents in conjunction with their review of the FRP. In addition to the FRP, FTA accepted the RCMP. FTA is awaiting revisions from MTA on the other plans.

MTA continues to provide FTA and the PMOC with updates on the progress of MTA and MTS construction activities and twice monthly updates that track project milestones.

- Scope: There have been no significant reductions or changes to project scope. Three LRVs were added to the project scope (non-FFGA) to support improved operations once service commences.
- Schedule:
    - PLTC never developed an approved recovery schedule to address the delayed start of construction caused by the environmental lawsuit (please see the **NEPA Process and Environmental Mitigation** section, below, for a discussion of the environmental lawsuit). In fall 2019, the P3 concessionaire submitted a revised, fully cost-loaded schedule reflecting a phased project opening (with the first phase opening at the end of 2022 and the second phase opening in mid-2023). This schedule was never incorporated into the working master project schedule.
    - In accordance with the IRP, MTA developed a schedule for the period during which the D-B contractor was being replaced. PLTP and MTA identified several milestones and the requirement to establish a full project schedule before the end of the D-B contractor replacement period.
    - The IRP project milestones, with dates as provided by MTA, include:
        - January 6, 2021 – PLTP issued a Request for Qualifications (RFQ) for replacement D-B contractors.
        - March 8, 2021 – PLTP issued a Request for Proposals (RFP) to the short list of replacement D-B contractors based on the RFQ.
        - October 15, 2021 – PLTP received RFP responses.
        - November 5, 2021 – PLTP and Maryland Department of Transportation (MDOT)/MTA selected the replacement D-B contractor firm.
        - January 26, 2022 – BPW approved the replacement D-B contractor (MTS), contract amendments, schedule, cost, and financing.
        - April 14, 2022 – The TIFIA loan closed, allowing financial and commercial close on that same day. MDOT/MTA issued NTP to PLTP, allowing for execution of the MTS contract.
        - September 12, 2022 – MTA approved the Initial Baseline Schedule (IBS).

  - October 28, 2022 – MTA submitted the draft FRP to FTA and the PMOC for review.

- A milestone not specifically mentioned in the IRP is the requirement to extend the current RSD). The PMOC therefore added the following milestone to this list:
  - December 31, 2022 – The RSD in the original FFGA is December 31, 2022. MTA requested an extension to the current RSD identified in the original FFGA. ***FTA accepted the FRP that includes a revised RSD of February 24, 2028.***

  See also the **Significant Project Activities and/or Key Milestones** subsection of this Executive Summary, below.

  Table 1 presents MTA's key milestone dates for the project. ***This table has been updated to show the dates included in the FRP. The schedule in the FRP is considered the baseline schedule for the project. Through the Quantitative Risk Analysis and processes described in MTA's RCMP, 16 months of schedule contingency is appropriate for the project at this time.***

  To clarify schedule terminology used by MTA: The RSA date is a contractual date critical to the agreement between MTA and PLTP. The RSD is the contractual date tied to FTA FFGA funding and other project approvals.

  MTA and MTS coordinated efforts to mitigate delays related to incomplete OSF activities that MTS identified in late 2022. The mitigation reduced the delays by modifying construction sequencing in critical areas where third-party utility relocations are incomplete. MTA and MTS are currently reviewing additional potential delays and opportunities for schedule recovery.

Table 1 – MTA Master Schedule Dates

Activity	*Current Approved Master Project Schedule Milestone Date*[1]
Original FFGA	August 22, 2017
Financial Close / NTP / Amendment Agreement Effective Date for Revised PLTP Agreement	***April 14, 2022***
Commencement of Integration Testing	***September 2, 2025***
Commencement of Trial Running	***May 27, 2026***
Construction Complete All Segments	***November 12, 2026***
Revenue Service Availability (includes contingency)	***June 30, 2027***
FFGA RSD (includes contingency)	***February 24, 2028***

[1] Dates based on April 3, 2023 MTA Maryland Purple Line Recovery Plan.

- Cost:
  - The project's documented expenditures are ***$2,725,101,221 through March 31, 2023***. The current Estimate at Completion (EAC) for the project (construction,

management, and LRVs) is approximately ***$5,116,020,381***. ***This budget has been accepted by FTA, and MTA has adopted it as the project cost.***

- ***The accepted project cost includes $307,293,158 of unallocated contingency.***
- Refer to **Table 4 – Core Accountability Items**, below, for additional project cost information.
- MTA prepared a summary of actual versus planned expenditures for high-level OSF activities in Standard Cost Category (SCC) format and is updating this summary each month. Through December 31, 2022, MTA forecasted OSF expenditures of $556.15 million, which exceed the original OSF budget by approximately $136 million. A significant portion of the overrun previously had been incorporated into the project budget, but additional contingency may be needed to address the increase of $35 million to $45 million that has occurred since the final recovery budget was developed. MTA states that these overruns are due to labor and material cost inflation as well as the extended duration of the OSF activities. The PMOC recommends that MTA closely monitor these cost overruns given the early use of a significant portion of the budget contingency proposed in the current draft RCMP.
- The budget to address nonconforming construction by PLTC is a concern. MTA incorporated known defects into the contract with MTS. However, defects unknown at the time of the MTS contract must be paid for by MTA. MTA repeated that it is unsure of the specific budget that will be used to rectify PLTC defects found after the contract with MTS was executed. In February 2023, MTA estimated the total cost of these unknown defects to be approximately $10 million. As with the OMF overruns, the PMOC recommends that MTA closely monitor utilization of contingency to cover these costs.

- Significant Project Activities and/or Key Milestones:
  - The COVID-19 pandemic impacted the project in different ways and at different levels. These impacts were primarily related to availability of resources and labor. MTA, PMC, and other project staff followed recommended COVID-19 protocols. On January 30, 2023, MTA stated that COVID-19 protocols for the project had been suspended. The PMOC recommends that MTA summarize all actual and potential costs related to COVID-19.
  - The third lawsuit filed by the Friends of the Capital Crescent Trail in January 2019 against U.S. Army Corps of Engineers (USACE) was dismissed in April 2020. The plaintiff subsequently filed an appeal on May 11, 2020. The District Court denied the appeal on May 13, 2021. The decision resolved the last active lawsuit related to the project.
  - The original baseline schedule anticipated design completion by late fall 2017. The current progress through ***April 25, 2023***, is that ***212 of the 218*** total planned design packages have been issued as Released for Construction (RFC). Civil and Utility

packages that remain in design or approval include traffic signal pre-emption, grade crossing safety systems, lighting, signage, and stations. Although Systems packages were scheduled to be complete by the end of the first quarter of 2022, those packages remain in progress. The current forecast for completion of all design packages is June 2023.

- WMATA's comments on design plans for the Silver Spring Transit Center (SSTC) mezzanine connector pedestrian bridge (over CSX Corporation [CSX] ROW) will result in what MTA deems are betterments. Resolution of WMATA comments is nearly complete ***as of April 2023.*** MTA reports that the slow resolution of these issues has not impacted critical path activities.
- Storm sewer construction under the CSX railroad is required in several locations. Two jack-and-bore installations of culvert pipes were completed in November 2022. One jack-and-bore installation remains to be completed by MTS ***as of April 2023.***
- MTA and Washington Suburban Sanitary Commission (WSSC) reached agreement on the relocation of the 66-inch water main that was under the Glenridge OMF. Installation of cathodic protection and final site restoration are the only remaining items as of ***April 2023***. Completion of these items will not occur until May 2023, but the activity is not on the critical path, and delays are not expected to incur additional cost.
- PLTC reached resolution on the final remaining Alternate Technical Concept (ATC) identified during the proposal process, which is related to the use of jet fans at the Bethesda Station in lieu of vent shafts. In accordance with the established process, MTA reviewed PLTC's design package for National Environmental Policy Act (NEPA) compliance. Final documentation for the ATC is still ***pending as of April 2023.*** MTA and MTS are coordinating the noise and aesthetic impacts of the fans, and they optimistically predict that the ATC will have no Section 4(f) impacts or other impacts to the project's Record of Decision (ROD).
- MTA has completed most of its non-P3 construction contract activities, as follows:
  - Prince George's County Parks (Parks) Polk Street Maintenance Facility D-B –A substantial completion letter was issued to the contractor on March 30, 2021. Parks has taken possession of the facility, and it is currently in the warranty period.
  - Offsite Wetlands Mitigation (Ken-Gar) – The Design-Bid-Build construction NTP was issued on September 5, 2019. Prince George's County took partial acceptance of the entire project on March 3, 2021. Acceptable growth of vegetation has been achieved, allowing for closure of this project. The one-year warranty review occurred on January 9, 2022, and the project is now in quarterly monitoring and annual reporting by MTA that will continue through 2028.

- Offsite Stream Mitigation (Paint Branch) – The Design-Bid-Build construction NTP was issued on September 5, 2019, and the contractor mobilized in late November 2019. Construction of this project is complete, and revegetation has been accepted. The one-year warranty inspection occurred on August 4, 2022, and 1,700 plants were replaced in November 2022. Quarterly monitoring and annual reporting by MTA will continue through 2028.

- Building construction at the Glenridge OMF is essentially complete; however, construction of many items outside of the building continues, as does final commissioning of systems inside the building. MTS was scheduled to take possession of the Glenridge OMF on December 31, 2022, but that did not occur, because MTA had several remaining items to complete. However, MTS currently is working in the OMF, installing embedded track inside the building and completing other interior features. The turnover letter to transfer possession of the facility from MTA to MTS is in progress ***as of April 2023.***
- Preparation of Traction Power Substations (TPSSs) Q8, QYG, and Q7 continues. As of ***April 2023***, both TPSS Q7 and TPSS QYG have been placed on their foundations, and interior components are being installed and tested. The foundation for TPSS QY8 has been backfilled in preparation for substation installation.
- The following is the status of LRV manufacturing as of ***April 2023:***
  - Assembly of 130 carshell segments in the initial procurement has been completed in Spain, and all have been delivered to CAF's facility in Elmira, New York.
  - All 25 of the vehicles in the FFGA project scope description and one additional vehicle originally ordered are designated as "Ready for Shipment" and are in storage. These vehicles are under a schedule of inspection and maintenance until delivery can occur.
  - MTA has added three vehicles by change order to CAF's contract. The additional LRVs will support better operations at the RSA date. It is important to note that these three additional LRVs are not a part of the FFGA between MTA and FTA. One vehicle is in storage in Elmira along with the 25 FFGA LRVs, and assembly of the additional two vehicles (ten cars) is in progress in Spain. Ultimately, these ten cars will be shipped to Elmira for final assembly and static testing, following the same process as the other 130 cars.
  - The previously identified quality issue related to the M33 bolt on the LRVs is nearly resolved. MTA determined that the issue does not impact safety, and the solution is likely the use of a higher strength bolt. The final report on this issue is expected in ***May 2023***.
  - Delivery of vehicles was expected to begin in spring of 2021; however, the location for their delivery was uncertain because the Glenridge OMF is not ready to accept railcars. MTA and CAF negotiated an agreement for CAF to store the

completed cars in Elmira to await delivery. The terms of the agreement became a part of MTS's agreement. Deliveries of LRVs to the Glenridge OMF are scheduled to commence in late 2023.

- MTA has reviewed the systems testing and commissioning management plan and has provided its comments to PLTP.
- The project's Buy America compliance audit for the LRVs was conducted on November 14, 2022. In January, CAF provided additional documentation requested to assist with evaluation of Buy America compliance. The draft audit report is expected be available in ***May 2023. Preliminary information from the audit indicates that the percentage of U.S. domestic content of the LRVs meets FTA requirements.***

- MTA is responsible for providing offsite stormwater mitigation in Montgomery County. To date, MTA has accumulated a credit for more than 10 acres of designed, Maryland Department of the Environment (MDE)-approved, offsite stormwater management (SWM) capacity in its "bank." MDE indicated that Purple Line construction can proceed provided there is a positive balance of credits compared to construction impact. MTA has determined that there is a need for additional mitigation in Prince George's County, and a project to construct additional mitigation is included in the scope of work for MTS.
- ROW acquisition activities continue for the required 464 private parcels and 137 public parcels (a total of 601 parcels). All of the private parcels related to the original P3 contract Exhibit 9 FFGA scope are in MTA's possession. ***As of April 14, 2023***, ***413*** of the 464 private parcels have completed settlement, and an additional 6 parcels have settlements pending.
- MTA has identified 188 small property acquisitions that are required for utility relocations, of which 134 are private and 54 are public. ***As of April 25, 2023, all*** 188 of the additional properties are in MTA's possession through Right of Entry (ROE), through options, and/or through agreements. ***This achievement marks a significant project milestone and allows the project to retire real estate risks that have been tracked for several years. As of April 14, 2023***, MTA estimated that approximately ***$36.7 million*** of exposure remains in the acquisition process. This amount was included in the risk assessment.
- To date, all 177 required property relocations have been completed. Costs for the completed relocations continue to be processed in accordance with the applicable procedures. As of ***April?) 2023***, there is only one commercial property that potentially may need relocation.
- MTA estimates that approximately $13 million of risk exposure remains due to necessary extensions of Temporary Construction Easements (TCEs). This amount has been included in the risk assessment.

- Preparation for safety certification is an ongoing process for MTA, including the development of the appropriate checklists for both design and construction. Design Criteria Conformance Checklists (DCCCs) are ***97.6 percent*** verified. Construction Specification Conformance Checklists (CSCCs) are ***14.9 percent*** verified.
- Staffing of management personnel has been adjusted to address the varying activities that MTA is managing and to integrate new team members as needed. In March 2023, MTA hired John Donovan in the role of Construction Manager. MTA is forming a commercial project controls team, and Anita Rodgers will assume the role of Contracting Officer. These changes are in response to the near completion of OSF and the need to increase the focus on managing MTS's construction activities.
- MTA carefully considered a request from Montgomery County to single-track the Purple Line through the Bethesda tunnel. MDOT/MTA determined that it would not be able to accommodate the request.
- MTA and PLTP coordinated to obtain a modified version of the existing TIFIA loan for the project. On April 14, 2022, the TIFIA loan closed, and all bonds were marketed. MTA is required to update the Transportation Investment Program and State Transportation Investment Program plans to reflect changes in the project.
- MTA's Equal Employment Opportunity Officer assigned to the project is Marcques Washington. He is supporting MTS in its hiring program and monitoring project adherence to hiring of specific companies and personnel. ***As MTS ramps up construction, it is making significant progress toward achieving the project's hiring, wage, and DBE goals.***
- MTA hired a consultant team that is analyzing alternatives for providing security and fare enforcement services for the Purple Line. MTA does not currently have existing facilities or staff that can adequately provide these services because the distance from their location to the Purple Line light rail facilities is too far. On March 28, 2023, MTA stated that the report that summarizes alternatives for these security and fare enforcement services is in final review by several State of Maryland departments. ***MTA has committed to providing FTA with the date that the alternatives study will be available for review.***
- ***In April 2023, MTA continues to conduct public outreach to interested groups by providing general and specific project updates. Meetings with the University of Maryland (UMD) and the Montgomery County School District have occurred. MTA's public outreach effort has also included coordinating media communication regarding blasting activities at the Bethesda shaft to inform local businesses and residents.*** In March 2023, MTA provided an updated stakeholder communications plan to FTA and the PMOC.

1.3. Major Issues and/or Concerns

Table 2 discusses any major issues or concerns impacting the project's scope, schedule, cost, risks, quality, safety, etc.

Table 2 – Current Major Issues and Concerns

Issue/Concern	Continuation of the project without PLTC has been a significant challenge for the project. MTA's IRP, the permanent replacement of the D-B contractor, and the management of interim design/construction activities have been significant MTA priorities. The replacement D-B contractor, MTS, has now been under contract to PLTP for more than one year.
Date Identified	September 2020.
Status	The IRP was approved in January 2021, and an update was approved in July 2021. Implementation is nearly complete. ***MTA has now completed the FRP, which FTA reviewed and accepted in April 2023.***
Project Sponsor Action	Management of a transition plan and support of PLTP in the replacement of the D-B contractor was the focus of the Project Sponsor. Another focus was the management of MTA's contractors to continue key activities that maintained the integrity of the schedule under OSF. ***MTA now has an accepted FRP.***
PMOC Recommendation	The PMOC recommends that MTA ensure that sufficient staff is dedicated to completing OSF project activities and assessing the remaining potential impacts to the MTS schedule. In addition, now that MTS is under contract, MTA and the PMC should emphasize their oversight of PLTP and MTS.
Issue/Concern	According to the PMP, the master project schedule should be updated monthly.
Date Identified	2022
Status	Ongoing.
Project Sponsor Action	***MTA reports that the May 2023 master project schedule will incorporate schedule recovery efforts that have been coordinated with MTS. The FRP schedule, also considered to be the current baseline schedule, was accepted by FTA in April 2023.***
PMOC Recommendation	***The PMOC recommends that MTA track all schedule elements according to the FRP and report status to FTA and the PMOC each month. MTA should employ additional methods of evaluating schedule progression and performance, including earned-value metrics, to identify issues as soon as possible.***
Issue/Concern	***Changes in the project have significantly impacted the*** project cost, as reflected in the original FFGA. ***The April 2023 FRP includes a revised project cost estimate and a reasonable cost contingency to address remaining project risks.***
Date Identified	September 2020.
Status	Ongoing.
Project Sponsor Action	***MTA should continue to monitor project progress against the total project cost estimate.***
PMOC Recommendation	The PMOC recommends that MTA continuously monitor project cost and utilization of project contingencies. Budget contingencies must reflect potential additional costs required to address potential schedule delays and support a realistic EAC.
Issue/Concern	MTA does not have a police force located in proximity to the Purple Line.
Date Identified	September 2022.

Status	MTA hired a consultant team that analyzed alternatives for providing security and fare enforcement services for the Purple Line. Alternatives include: expanding MTA's enforcement services geographically, engaging a third party to provide these services through a contract, or sharing police services with another party. ***As of April 2023,*** MTA has prepared a draft recommendation for providing security and fare enforcement and has submitted that recommendation ~~has been submitted~~ to several State of Maryland departments for review.
Project Sponsor Action	Although the currently forecasted RSA date is in 2027, the PMOC recommends that MTA determine its preferred security alternative without delay and promptly move toward implementation. The PMOC also recommends that the State Safety Oversight Agency (SSOA) be included in the review and comment process for security and fare enforcement.
PMOC Recommendation	***MTA was requested to, and has agreed to, provide the date on which it will deliver the security and fare enforcement alternatives and recommendation study to FTA for review.***
Issue/Concern	***Lost Time Injury and Total Case Incident Rates have increased significantly in recent months. The current rates are significantly higher than the stated project goals.***
Date Identified	***April 2023.***
Project Sponsor Action	***MTA has increased coordination with MTS through additional biweekly coordination meetings.***
PMOC Recommendation	***The PMOC recommends that MTA and MTS review the safety procedures and the implementation of those procedures to identify opportunities for improvement.***

1.4. Status of Key Indicators Dashboard (Post-grant)

Table 3 shows the project Key Indicators Dashboard after the FFGA was awarded.

Table 3 – Key Indicators Dashboard

Project Sponsor:				Maryland Transit Administration	
Project Name:				MTA National Capital Purple Line Light Rail Transit Project	
Date:				***April 28, 2023***	
Project Detail					
Oversight Frequency:				**Monthly**	
Element	**Status**			**Prior Status**	**Issue or Concern**
	●	●	●		
	G	**Y**	**R**		
Project Management Plan		●		●	An updated PMP that reflects revised project conditions has been developed. In October 2022, MTA submitted a revised PMP to the PMOC and FTA for review. On February 1, 2023, FTA provided its review comments on the PMP, ***and on April 28, 2023, MTA submitted the second revision of the PMP to FTA.***
Management Capacity and Capability		●		●	A revised organizational chart, along with MTA's ability to demonstrate Management Capacity and Capability (MCC), was approved with the IRP. Staffing requirements for both MTA and its PMC support team have been evaluated in conjunction with the revised PMP and the FRP. FTA and the PMOC provided comments on MTA's MCC within the PMP review transmitted to MTA on February 1, 2023. In February 2023, the PMOC requested that MTA provide additional detail on the construction management and oversight organizational chart to allow for the PMOC's review of MTA, PMC, and other staff classifications and headcount.

Cost*		●		●	A revised cost estimate reflecting new project conditions has been developed. Based on PMOC and FTA review comments and a revised MTA quantitative risk analysis, MTA has established a budget contingency that appears appropriate at this stage of the project. MTA should track project status according to the FRP and the updated PMP and management plans.
Schedule		●		●	A revised project schedule that incorporates the current project status is in place. MTA approved MTS's IBS on September 12, 2022, and prepared a master schedule. FTA and the PMOC have reviewed the master schedule and provided comments to MTA on January 12, 2023. MTS's first several schedule updates showed significant depletion of contingency, which is a cause for concern. As of March 2023, MTA had increased the contingency as included in the recovery schedule that it submitted for FTA review; ***however, as of April 2023, MTS has identified additional project delays.***
Quality		●		●	Quality continues to be acceptable, although the reporting to the PMOC requires refinement to meet FTA requirements. MTA's quality lead has retired, and MTA has assigned a replacement quality lead from existing MTA staff. This new lead, who is also the current systems and construction safety lead for the project, requires training in quality management and may need additional consultant support. In October 2022, MTA submitted to FTA and the PMOC an updated QAP for review in conjunction with their review of the FRP and other management plans. FTA and the PMOC provided review comments to MTA in March 2023.
Safety		●		●	Safety continues to be acceptable, although with an increase of MTS activities, recordable incidents are increasing. In October 2022, MTA submitted to FTA and the PMOC Version 13 of the SSMP and Version 5 of the SSCP for review in conjunction with their review of the FRP. FTA and the PMOC have provided their review comments to MTA for incorporation into the safety plans. ***In April 2023, the PMOC noted to MTA that both the Lost Time Injury Rate and the Total Case Incident Rate have significantly increased. MTA recognizes the issue and reports that it has scheduled additional safety coordination efforts.***
Risk		●		●	The RCMP and the Risk Register were updated to reflect the changes related to interim MTA management and construction delivery. In October 2022, MTA submitted to FTA and the PMOC Version 15 of the RCMP for review in conjunction with their review of the FRP and other management plans. FTA and the PMOC provided comments on the revised RCMP to support MTA's development of budget and schedule contingency, ***to which MTA responded with plan revisions in April 2023.***

Legend	
Green	Satisfactory: No Corrective Action necessary.
Yellow	Caution: Risk/Issues exist. Corrective Action may be necessary.
Red	Elevated for immediate Corrective Action: Significant risk to the health of the project.

*Note: With regard to cost, the colors indicate the following status:
Yellow – Forecast cost exceeds the project budget by up to 3%.
Red – Forecast cost exceeds the project budget by more than 5%.

1.5. Core Accountability Items

Table 4 shows the core accountability items for the project, including the current status of the project and the major issues and how they are being addressed.

Table 4 – Core Accountability Items

		Original (Grant)	Current Forecast[1]	PMOC Assessment of Current Forecast
Cost	Capital Cost Estimate	$2,407,030,289	***$5,116,020,380***	***Acceptable***
Contingency	Unallocated Contingency	$90,535,748	***$307,293,174***	***Acceptable***
	Allocated Contingency	$59,500,464	***$0***	***Acceptable***
	Total Contingency	$150,036,212	***$307,293,174***	***Acceptable***
Schedule	Revenue Service Date	12/31/2022	***02/24/2027***	***Acceptable***

Project Progress		**Amount ($)**	**Percent of Total**
Total Expenditures	Actual cost of all eligible expenditures completed to date	***$2,725,101,221***	***53.3%***
Planned Value to Date[2]	Estimated value of work planned to date	Not Applicable (N/A)	N/A
Actual Value to Date[2]	Actual value of work completed to date	N/A	N/A

Contract Status		**Amount ($)**	**Percent of Total**
Total Contracts Awarded	Value of all contracts (design, support, construction, equipment) awarded; % of total value to be awarded	To Be Determined (TBD)	TBD
Construction Contracts Awarded	Value of construction contracts awarded; % of total construction value to be awarded	TBD	TBD
Physical Construction Completed	Value of physical construction (infrastructure) completed; % of total construction value completed	***$819,841,199***	***43.9%***

Rolling Stock Vehicle Status	**Date Awarded**	**No. Ordered**	**No. Delivered**
28 total car sets[3]	First 26 LRVs: 2016 Additional 2 LRVs: January 2022	28 car sets	0

Next Quarterly Progress Review Meeting Date:	May 15, 2023

[1]The original D-B contractor has been replaced. Draft budget figures, including the work under contract, are being incorporated into this report as they are provided by MTA. Not all information is up-to-date as ***of April 2023***. ***FTA accepted the FRP in April 2023. This monthly PMOC monitoring report will incorporate the schedule and budget information from the FRP over the next two months.***
[2]Earned value information is not available.
[3]The approved FFGA includes a total of 25 LRVs.

2. OBSERVATIONS AND FINDINGS

2.1. Summary of Monitoring Activities

The PMOC received an update from the Purple Line project team during ***the April 24, 2023, monthly meeting with MTA, the PMC, and the PMOC. Information from the FTA/MTA/PMOC Biweekly Progress Conference Calls held on April 11 and April 25, 2023, also contributes to this report. In addition, MTA provided supplementary information before the PMOC monthly meeting.*** Monitoring activities include review of MTA-provided scope, schedule, risk, financial, construction, safety and security, and real estate information.

After the U.S. Court of Appeals reversed the vacation of the ROD in July 2017 (refer to the **NEPA Process and Environmental Mitigation** section, below, for details), the FFGA was executed on August 22, 2017, approximately one year later than planned. The construction (D-B) contractor, PLTC, left the project, and a new project delivery plan was developed, including replacement of the D-B contractor. During the period when the replacement D-B contractor was being solicited, MTA managed specific construction and design activities (OSF activities) in order to reduce uncertainty and support the project schedule. On November 5, 2021, MTS was selected as the replacement D-B contractor, and financial and commercial close occurred on April 14, 2022. MTA continues to manage OSF construction and design activities. MTS has mobilized and started work on activities throughout the entire project corridor.

MTA and MTS held initial partnering activities during which they developed relationships, general project priorities for teamwork, and an understanding of key issues for different stakeholders. MTA provided partnering process information to FTA and the PMOC on March 29, 2023.

2.2. Oversight Triggers

The oversight triggers most applicable to the project are the Oversight Procedure (OP) 25 cost and schedule triggers. The project did not have a mutually agreed-upon baseline schedule between March 2017 and September 2022. Significant schedule delays, and a significant increase of project cost, keep the project eligible for rigorous oversight. Project schedule delays typically impact project cost, another significant indicator of project health. A revised project EAC has been developed in conjunction with development of the project's schedule and FRP.

2.3. Project Management Plan and Sub-plans

2.3.1. Project Management Plan

The PMOC reviewed the Purple Line PMP Version 10 in accordance with OP 20 for a PMP at the FFGA execution stage of a project. Subsequently, FTA and the PMOC reviewed PMP Versions 11, 12, and 13. Due to significant project team changes since those versions, another update to the PMP was required. In October 2022, MTA provided an updated PMP (Version 14) to FTA and the PMOC for review, ***and FTA and the PMOC provided comments on PMP Version 14 to MTA. On April 27, 2023, MTA provided PMP Version 15 to FTA.***

2.3.2. Safety and Security Management Plan

In February 2016, the PMOC reviewed the project's SSMP Version 6, dated October 22, 2014, in accordance with OP 22 for a project at the FFGA execution stage. The PMOC review found that the SSMP was compliant with FTA content requirements for execution of the FFGA, but the PMOC requested that MTA resubmit the SSMP after execution of the FFGA and address the comments in the PMOC report with updated information from the P3 concessionaire. Subsequently, FTA and the PMOC reviewed SSMP Versions 7 through 11 over the next four years. MDOT, which is the State Safety Oversight Agency (SSOA) for the project, also reviewed SSMP Versions 8 through 11. On January 13, 2022, FTA provided comments on SSMP Version 12 to MTA. MTA submitted SSMP Version 13 as well as Version 5 of the Purple Line SSCP to

FTA and the PMOC for review in October 2022. FTA and the PMOC reviewed the SSCP and SSMP updates and provided their comments to MTA in February 2023. MTA indicates that it will submit a revised SSMP and a revised SSCP in ***May 2023.***

2.3.3. Quality Assurance Plan

In October 2022, MTA submitted QAP Version 10 to FTA and the PMOC for review, and on March 8, 2023, FTA provided review comments on QAP Version 10 to MTA. ***MTA indicates that it will provide a revised QAP to FTA in May 2023.***

MTA meets with PLTP, the PMC, and the General Engineering Consultant (GEC) monthly to review quality status. ***In April 2023,*** MTA reported the following quality management activities that took place ***in March 2023***:

- Field inspections for OSF
- Meetings to coordinate closure of outstanding PLTC Non-conformance Reports
- Processing of Quality Oversight Assessment Reports (QOARs)
- Field audits of the Quality Assurance (QA) materials laboratory quality control manual and the precast concrete quality plan
- Field inspections of MTS activities
- ***Offsite inspections of structural steel and structural precast concrete***
- Interdisciplinary Design Reviews
- Quality Control Reviews
- Design Submittal Reviews
- Design Services During Construction coordination with Atkins
- Reviews of asphalt, concrete, and earthwork sample and in-situ test results
- Monthly Quality Control (QC) review meeting

One item of note in the March 2023 Quality Management Summary is that MTS did not meet its cleaning incentive metric for March 2023. The monthly report states, "MTS received an 'F' rating for the month of March."

During OSF, MTA provided notes from monthly CAF and SNC-Lavalin LRV manufacturing quality meetings for PMOC review. The information provided a summary of issues and corrective actions, and upcoming quality audits. MTS is now responsible for preparing these notes.

One manufacturing quality issue, the recurring failure of a bolt in multiple vehicles, has not been resolved. MTA determined that the issue does not impact safety, and the solution is likely the use of a higher strength bolt. The final report on this issue is expected in ***May 2023.***

In November 2021, MTA's quality lead for the Purple Line project, Rene Schroeder, retired. Roland Carroll has been assigned to add the quality lead role to his other Purple Line roles (he is also the systems and construction safety lead).

2.3.4. Real Estate Acquisition Management Plan

The PMOC reviewed the project's Real Estate Acquisition Management Plan (RAMP) Versions 10, 11, and 12. The PMOC reviewed the plans with respect to the guidelines in OP 23 for a project in the construction phase. MTA submitted an updated RAMP Version 13 to FTA and the PMOC in October 2022. FTA provided review comments on RAMP Version 13 to MTA on February 27, 2023, and accepted RAMP Version 13 with comments.

2.3.5. Fleet Management Plans

The Purple Line project's Rail Fleet Management Plan (RFMP) Version 7.0, dated February 15, 2016, is the version of the plan reviewed by FTA and the PMOC, and it incorporates information from the P3 concessionaire's proposal. The PMOC completed its review of RFMP Version 7.0 and documented, in its OP 37 RFMP review report issued on May 27, 2016, that RFMP Version 7.0 met the requirements of OP 37 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 RFMP, after a review by MTA confirmed that it met the requirements of the Purple Line project. The P3 contract required PLTP to submit its RFMP for MTA review and approval within 90 days of June 17, 2016 (P3 contract financial close), to then 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 before the scheduled beginning of revenue service, and to update the RFMP annually once the project is in revenue service. MTA received, reviewed, and approved PLTP's Purple Line RFMP Revision 0, dated June 22, 2016, after P3 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 then submitted PLTP's RFMP Revision 0 to FTA and the PMOC. PLTP's RFMP Revision 0 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 OP 37.

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 on March 4, 2016, issued its final OP 37 BFMP review report, concluding that the BFMP met the requirements of OP 37 for the execution of an FFGA for the Purple Line project.

2.3.6. Risk and Contingency Management Plan

On January 3, 2019, MTA submitted RCMP Version 12, dated January 2019, as part of its annual update of the major PMP sub-plans. In early 2020, MTA commenced another update to the RCMP to incorporate the results of the latest quantitative risk assessment that, in turn, incorporated the results of the replacement D-B contractor resolicitation and the revised project implementation details. MTA held a risk management workshop that focused on the interim period on January 26, 2021.

MTA provided a comprehensive Risk Register and risk mitigation activities in conjunction with the draft FRP. In preparation for a risk analysis, MTA held risk assessment interviews with individual risk owners to review existing risk items and identify new risks. In December 2021, MTA prepared an updated Risk Register that includes over 100 risk items, including PLTP and MTS risks.

A risk workshop was held the week of May 2, 2022, at which the PMOC and FTA participated in an OP 40 risk and contingency review that evaluated cost, schedule, and project contingency. MTA confirmed and finalized the Risk Register, and prepared the quantitative risk assessment and an update of the RCMP. The PMOC developed a draft summary of the risk and contingency review results. FTA provided a risk summary to MTA on June 22, 2022, for MTA's consideration while it was updating the RCMP. MTA provided responses to FTA's comments on the risk summary on July 15, 2022, and provided further clarification on August 25, 2022. MTA submitted RCMP Version 15 to FTA and the PMOC for review in October 2022. In February 2023, FTA and the PMOC provided comments on the revised RCMP, which supported MTA's development of the project's budget and schedule contingency. ***MTA's resubmittal of the RCMP Version 16, dated April 21, 2023, is pending acceptance by FTA.***

2.3.7. Safety and Security Certification Plan

Version 3 of the Purple Line SSCP is dated November 4, 2014. The PMOC review found that the SSCP Version 3 met the FTA requirements in support of the FFGA application. MTA submitted SSCP Version 4 on February 3, 2020, in conjunction with the updated SSMP submittal (see the **Safety and Security Management Plan** subsection, above). The SSOA completed its review of SSCP Version 4 and discussed its comments with the PMOC. MTA decided that the new emergency management working group would be a subcommittee to the Fire Life Safety and Security Committee, and this decision would be reflected in the next revisions of the SSMP and the SSCP, which were planned for after the replacement D-B contractor was in place. MTA submitted SSMP Version 13 and SSCP Version 5 to FTA and the PMOC in October 2022. In February 2023, FTA and the PMOC completed their reviews and provided comments on these plan documents to MTA. ***MTA indicates that it will provide a response to these SSMP and SSCP review comments to FTA and the PMOC in May 2023.***

2.4. Management Capacity and Capability

Through the PMOC's observations and discussions with MTA, especially with MTA Transit Development and Delivery and Purple Line project management personnel, the PMOC has noted that MTA has been responsive to finding and assigning sufficient Management Capacity and Capability (MCC), as needed, to complete the project in compliance with applicable FTA requirements. These efforts have included bringing staff, either MTA or MDOT personnel or consultants, onto the project to manage the current needs, such as planning, P3 procurement and contracting, real estate acquisition, and construction.

In November 2021, MTA's quality lead for the Purple Line project, Rene Schroeder, retired. It was proposed that Roland Carroll, the Purple Line systems safety and construction safety lead, add

the quality lead role to his other Purple Line roles. In February 2022, MTA provided a white paper outlining Mr. Carroll's experience, his recent training, and the proposed supporting staff related to the new quality management role. The PMOC has evaluated this change as a part of the PMP review and ***will continue to monitor management capacity for this function and all positions through ongoing oversight activities***.

In February 2023, the PMOC requested additional detail on the construction management and oversight organizational chart to allow for the PMOC's review of MTA, PMC, and other staff classifications and headcount. ***In April 2023, MTA indicated that it would provide this information following acceptance of the revised PMP.***

In March 2023, MTA hired John Donovan in the role of Construction Manager. MTA is also forming a commercial project controls team, and Anita Rodgers will assume the role of Contracting Officer. These changes are in response to: (1) the near completion of OSF and (2) the need to support the management of MTS's increasing amount of work.

2.5. NEPA Process and Environmental Mitigation

2.5.1. NEPA Process

FTA issued a ROD on March 19, 2014. The National Park Service issued its ROD on July 16, 2014.

MTA has continued to submit environmental re-evaluations as required based on design advancement and other causes. To date, PLTC (before it left the project) 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. The most recent status ***(as of April 2023)*** of NEPA items is:

- All formally submitted LOD cases have been approved. MTA currently expects one additional LOD case and is preparing a submittal for review by FTA.
- The ATC for the Bethesda Station jet fan has been vetted, and final documentation is being prepared for submittal to FTA for concurrence that the ATC meets project requirements. Final documentation for the ATC is still pending as of ***April 2023***. MTA and MTS are coordinating to address the noise and aesthetic impacts of the fans, and they optimistically predict that the fans will not have Section 4(f) impacts or other impacts to the ROD**.**

On August 3, 2016, in response to the lawsuit filed by the Friends of the Capital Crescent Trail against FTA, a federal judge filed his Order and accompanying Memorandum Opinion. In those documents, it was ordered that the ROD for the Purple Line project be 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 whether 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 in 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 U.S. Court of Appeals issued its ruling on December 19, 2017, in which the judges ruled in favor of FTA and the project, and ruled that the transit agencies would not have to conduct a new environmental study to examine other potential routes for the Purple Line.

The Friends of the Capital Crescent Trail filed a second lawsuit after the FFGA signing and after the groundbreaking ceremony was held on August 28, 2017. The September 19, 2017, Preliminary Hearing for this suit resulted in no temporary injunctions or restraining orders, and project construction proceeded as the case progressed 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 FTA.

The Friends of the Capital Crescent Trail filed a third lawsuit in January 2019, this time against USACE. The USACE legal staff and the Office of the Attorney General provided the defense. 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 USACE. In October 2019, USACE filed for a Summary Judgment to Dismiss the case, and the plaintiffs filed their response; a hearing date was set for March 23, 2020. However, in late February 2020, the assigned judge recused himself from the case, and the scheduled hearing was canceled. In mid-April 2020, the District Court ruled in favor of the USACE/MTA motion for a Summary Judgement to Dismiss, and the case was dismissed. The plaintiff subsequently filed an appeal on May 11, 2020, and the case continued in the legal process. Oral arguments related to the appeal occurred on March 11, 2021. The District Court denied the appeal on May 13, 2021. The decision resolved the last remaining lawsuit related to the project.

2.5.2. Environmental Mitigation

The project achieved the required mitigation for reforestation through the purchase of 82.5 acres of offsite credits (combined, in both Montgomery County and Prince George's County). This amount of offsite credits is expected to be more than needed, and the P3 concessionaire will monitor that this remains the case. PLTP's Forest Conservation Plan (FCP), which documented a need of 75.73 acres, 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. In Maryland, need is based on land disturbance rather than only forest removal. MTA's tracking of additional disturbance due to the progress of design and construction indicated that the total need is still within the amount of available offsite credits.

The Joint Permit Application for Wetlands and Stream Mitigation was formally submitted to USACE and 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, because time had passed since the permit was drafted, MDE updated and issued the finalized permit the first week of April 2018. USACE completed its NEPA and conditions review as well as its 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 the longer construction periods resulting from construction moratoriums for forests and streams. The project received approval from MDE during the week of December 3, 2018, and received the USACE approval letter in mid-June 2019.

The project team has been addressing the environmental mitigation for wetlands through the development of the offsite Ken-Gar location, which is implemented through 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 the bids underwent MTA Procurement Department review. The BPW approval of the award was received on September 4, 2019. As of June 2021, the Ken-Gar wetlands mitigation project is complete and has completed its one-year warranty period. See the **Construction** section of this report, below, for further discussion of the progress on this Ken-Gar Wetlands Mitigation construction contract.

The project team has been addressing the environmental mitigation for streams through the development of the offsite Paint Branch location, which is implemented through 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 the award was received on September 4, 2019. The Paint Branch stream restoration is complete, and warranty corrections (partial replanting) occurred in December 2022. See the **Construction** section of this report, below, for further discussion of the progress on this contract.

The project has plans to address stormwater mitigation, beyond what can be mitigated on the project site, through retrofitting offsite locations in both Montgomery County and Prince George's County. On November 12, 2021, MTA determined that there is a need for additional stormwater mitigation in Prince George's County. A project to construct additional stormwater mitigation is included in the scope of work for MTS.

The joint MTA and UMD technical board resumed meetings in December 2021 to coordinate efforts related to the mitigation of noise, vibration, and electromagnetic interference at the UMD facilities. Following this meeting, the members of the joint technical board voted to approve the outstanding design packages. This action effectively ended the activities of the technical board until the LRT is in trial running.

The Purple Line project team submits quarterly Environmental Mitigation Monitoring Reports for the project. MTA managed the environmental mitigation and monitoring activities as the project has transitioned to the replacement D-B contractor, MTS. Because MTS is now performing construction, MTA will monitor the environmental activities performed by MTS. ***On April 27, 2023, MTA provided the First Quarter 2023 Environmental Commitment and Mitigation Monitoring Program Report.*** The report conveys the status of progress toward meeting commitments in the ROD that was issued in March 2014 and any pending actions required. ***In the first quarter report, MTA notes that "no problems, gaps, nonconformances, or NEPA issues of any sort were found during this quarterly assessment."***

2.6. Project Delivery Method and Procurement

The majority of the capital cost of the Purple Line project has been packaged into a Design-Build-Finance-Operate-Maintain 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") in which appropriate risks and benefits are allocated in a cost-effective manner between the contractual partners. The P3 concessionaire is intended to perform some functions normally undertaken by the transit agency, but MTA remains ultimately accountable for the Purple Line project 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 PLTP had been selected as the P3 concessionaire. Commercial close of the P3 contract occurred on April 7, 2016, and financial close occurred on June 17, 2016.

In late April 2020, PLTC notified PLTP that due to PLTC's forecasted schedule delays on the project (which did not receive agreement from MTA), PLTC intended to exercise the clause that allowed it to terminate its contract with PLTP for the design and construction services under the P3 contract if delays exceed 365 days. MTA sent a formal request to PLTP for a response that would include a definitive path forward. On the response due date of May 14, 2020, PLTP submitted its response, which stated that PLTP intended to continue to negotiate with PLTC to retain PLTC as part of the P3 concessionaire team. On June 23, 2020, PLTP sent a formal Notice of Unconditional Election to Terminate the P3 Agreement to MTA, although PLTP indicated a willingness to negotiate a settlement. On June 24, 2020, MTA sent a Formal Notice of Concessionaire Default. This notice essentially refuted the validity of the PLTP delay claims and stated that if PLTP fails to perform, MTA has a number of options related to the P3 Agreement. Through July 2020, construction activities continued at the levels previously planned and were not affected by the dispute.

In early August 2020, PLTC and subcontractors demobilized equipment, materials, and personnel. In response, the Maryland Attorney General filed a motion for a Temporary Restraining Order (TRO) that prevented PLTP from abandoning the work or demobilizing. Upon issuance of the TRO, the contractor and subcontractors remobilized some equipment and restarted many construction activities. A hearing to uphold or rescind the TRO occurred before the expiration of the TRO on September 14, 2020, and the court rescinded the TRO, allowing PLTP to leave the

project. If the TRO had been upheld, PLTP would have been required to continue working until the contractual dispute resolution procedures were followed.

When an agreement was not reached, the bond holder firms had the first right to take over the project. However, MTA planned an alternate path forward based on its exercise of step-in rights. To that end, MTA assumed the contracts of over 100 subcontractors, indicating MTA's intent to continue the project. MTA adjusted staffing for construction management, resident engineers, and inspectors to move forward with the project.

On November 24, 2020, MTA and the P3 concessionaire, PLTP, reached a settlement agreement to release the project's D-B contractor from the P3 consortium and continue the project with the remaining parties. The state's BPW approved the settlement agreement on December 17, 2020. Activities set out in the agreement and the IRP have proceeded with multiple modifications to milestone dates as needed.

The agreement included the following key aspects, as MTA has communicated to the PMOC:

- PLTP agreed to procure a replacement D-B contractor to complete the project and to obtain project financing. The selection of the preferred replacement D-B contractor, MTS, occurred on November 5, 2021. The TIFIA loan for the project closed on April 14, 2022, allowing financial close and commercial close on that same day. MTS is now the D-B contractor for the project.
- The settlement agreement provided a mutual release from all disputed and undisputed amounts (incurred before September 28, 2020) for PLTP, PLTC, and subcontractors. The agreement also released outstanding litigation among the parties.

2.7. Design

2.7.1. MTA Design

MTA's GEC completed the project design to approximately the 30 percent design level in fall of 2013 and provided incremental enhancements through late 2015. This design formed the basis of the RFP for the P3 contract. See the **P3 Design** subsection, below, for a discussion of the advancement of this design by PLTC, the former PLTP partner that was responsible for the design and construction of the capital project, and continued design under MTA.

MTA was responsible for the design and construction contracts under a Design-Bid-Build delivery method (separate from the P3 scope) for the following projects:

- Stream mitigation – MTA completed the 100 percent design packages in June 2017 and received approval from MDE in May 2018. Construction of the stream mitigation is now complete. See the **Environmental Mitigation** subsection of this report, above, for additional details.
- Wetlands mitigation – MTA completed the 100 percent design packages in June 2017. Several design adjustments were subsequently made based on MDE and Montgomery County comments. The construction contract was advertised on May 3, 2019.

Construction of the original wetlands mitigation is now complete. See the **Environmental Mitigation** subsection of this report, above, for additional details.

- Offsite SWM sites – MTA completed design and obtained MDE approval of more than the P3 contract-required 5 acres of offsite mitigation in Montgomery County on May 29, 2018. In late October 2019, MTA received MDE approvals for the next 5 acres to be added to the mitigation credit "bank," thus satisfying the contract requirements for 2019. As of November 2022, MTA did not have a need to seek any further additions to the current offsite mitigation credit bank. See the **Environmental Mitigation** subsection of this report, above, for the current requirements.

MTA also completed the design to support a D-B contract for the replacement of the existing Parks Maintenance Facility with a facility on Polk Street. Construction of the facility is now complete. See the **Real Estate Acquisition and Relocation** and the **Construction** (MTA Scope) sections of this report for further details.

2.7.2. P3 Design

PLTC's design progress was forecasted to achieve substantial design completion for Civil packages in August 2020, substantial design completion for Systems packages (except for Fare Collection) in September 2020, and completion of the Fare Collection design package in 2021. The original baseline schedule anticipated design completion by late fall 2017. As of August 2020, the number of planned Civil, Systems, and Utility design packages was 218.

Upon the departure of PLTC, MTA contracted with the engineer-of-record, Atkins, to continue to advance the design of limited aspects of the project.

The current progress through ***April 28, 2023, is that 212 of the 218*** total planned design packages have been issued as RFC. Civil and Utility packages that remain in design or approval include traffic signal pre-emption, grade crossing safety systems, lighting, signage, and stations. Although Systems packages were scheduled to be complete by the end of the first quarter of 2022, those packages remain in progress. The current forecast for completion of all design packages is June 2023.

PLTC reached resolution on the final remaining ATC identified during the proposal process. The ATC is related to the use of jet fans at the Bethesda Station in lieu of vent shafts. In accordance with the established process, MTA is reviewing the design package for NEPA compliance. Final documentation for the ATC is still pending as of ***April 2023***. MTA and MTS are coordinating to address the noise and aesthetic impacts of the fans, and they optimistically report that the ATC will have no Section 4(f) impacts or associated impacts to the ROD.

CSX informed the project team that its updated rail design criteria, which were issued after the "setting date" of the original P3 contract, were applicable to the Purple Line project design. MTA and CSX worked to resolve issues related to the applicable design criteria and which project areas were affected until, in July 2019, a mutually agreeable path forward was defined for all areas. 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 SSTC 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 May 2020, CSX indicated that the final design is acceptable. Revised documents, providing some minor clarifications related to ROW, were submitted to CSX on September 8, 2020, and ultimately CSX approved the design. The revised documents were submitted to WMATA several times in early 2021.
- WMATA's comments on design plans for the SSTC mezzanine connector pedestrian bridge (over CSX ROW) will result in what MTA deems are betterments. Resolution of WMATA comments was nearly complete as of March 2023**.** MTA reports that the slow resolution of these issues has not impacted critical path activities.
- An encroachment into the CSX vertical clearance was discovered upon installation of girders at SSTC. Although the designer believed the loading of the bridge deck might alleviate the issue, shimming was discussed as a potential solution. Shimming was not MTA's preferred solution; therefore, an exception was requested from CSX to allow the ¾-inch encroachment to remain. CSX denied the exception. MTA and the designer prepared for a contractor to jack and shim the structure to create the required clearance. Construction of this work was completed in August 2021.
- CSX provided review comments disallowing revised drainage networks, related to the Capital Crescent Trail work, which would connect to CSX's existing drainage culverts. The work on the Capital Crescent Trail is not part of the FFGA and is separately funded by Montgomery County. As a result of work with Montgomery County, the connections were relocated from CSX property to Montgomery County property and therefore are no longer a CSX issue. To fully accomplish this approach, two connections required resolution. Montgomery County acquired two parcels of land from CSX (not FFGA-funded) and then accepted responsibility for one connection currently under the responsibility of CSX. Storm sewer construction under the CSX railroad was required in several locations. Two jack-and-bore installations of culvert pipes were completed in November 2022. Another 72-inch-diameter culvert installation has been delayed because it is waiting on completion of technical reviews and the design of structural track support during construction.

2.8. Real Estate Acquisition and Relocation

As of ***April 14, 2023,*** the total number of planned property acquisitions is 601, including 464 privately owned properties and 137 public acquisitions. For the private properties, to date, a total of 476 offers were made, including for parcels that were subsequently eliminated, and 234 offers were accepted. All of the original Exhibit 9 FFGA-scope private parcels in the P3 contract are in MTA's possession, some of which are properties that continue in condemnation under the State Highway Administration process. To date, ***414*** of the original 464 private properties have

completed settlement, 6 additional properties (not part of the original 464 private properties) are pending settlement, and ***25*** condemnations remain to be settled.

All required public properties have been available for construction when needed. Several public property rights transfers are currently being coordinated to accommodate sidewalk changes, utility easements, and ROW exchanges.

As the project has progressed and new utility relocation needs have been identified, additional small parcel acquisitions have been added to the total as utility down-guys. In December 2017, PLTC initially submitted a list of approximately 280 such parcels related to utility relocations and subsequently added to that list. MTA resolved that it would acquire these properties, rather than execute amendments to the utility agreement that would 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 has been expediting the process somewhat. ***As of April 14, 2023,*** the list of additional acquisitions totals 188 parcels, and several more acquisitions potentially may be needed for stormwater facilities. Of these parcels, 54 are public property and will be acquired by agreement, and 134 are private acquisitions. MTA is tracking the additional parcels (approximately 98 percent are for utility relocations) separately in its ROW tracking system to best manage changes to parcels already acquired or in the process of acquisition. Sixty-six of the 188 properties are filed for condemnation, excluding those that were subsequently optioned or settled, and ***92*** are settled. MTA estimates that approximately $35 million of exposure remains in the acquisition process. This amount has been included in the risk assessment.

The project required a total of 177 relocations, of which 57 were residential and 120 were businesses. To date, all 177 of those identified relocations have been completed in accordance with the applicable procedures, and no active claims remain to be settled. Also, MTA is monitoring terms of agreement of the property acquisitions discussed above that have not yet completed settlement, because some of them could potentially result in the need for additional relocations. As of October 2022, there were two new relocations related to commercial properties that potentially will be required.

On April 25, 2023, MTA reported that BPW has approved the last of the seven critical project acquisitions. These acquisitions were required to allow MTS access to construction areas that include activities on or near the critical path.

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 MTA shares this information with the PMOC. Based on actual settlement amounts and projected amounts for those not yet closed, settlement/condemnation values are ***54.3 percent higher than the original 2014 SCC budget for ROW.*** Settlements have not yet been reached for a significant number of properties. Currently, with 134 properties that still need to be settled, the total ROW budget is likely to continue to increase. MTA included these ROW cost projections in its development of a FRP project cost estimate (see the **Project Cost** section of this report, below).

Due to the extended project duration, some agreements will expire before the expected RSA date. MTA and MTS have started the process of identifying the end dates now needed for the agreements and will begin the process of obtaining extensions. MTA has evaluated the risks, estimated the cost of the extensions, and included those costs in a budget contingency. MTA estimates that approximately $13 million of risk exposure remains due to necessary TCE extensions. This amount has been included in the risk assessment.

The relocation of the existing Parks Maintenance Facility to make way for the siting of the new Purple Line Glenridge OMF was implemented as a negotiated/functional replacement. MTA's Procurement Department led the D-B contract solicitation for the Prince George's County facility. The replacement facility is complete and has been turned over to Prince George's County Parks.

2.9. Third-party Agreements and Utilities

All major third-party agreements (specifically, those agreements with Washington Gas, Verizon, Potomac Electric Power Company [PEPCO], CSX, UMD, Montgomery County Parks, Prince George's County Parks, WMATA, 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 lines that are currently overhead be placed underground when they cross the light rail alignment. To minimize the total cost impact of this change, MTA and Verizon reduced the number of locations where Verizon lines cross the alignment to 34. MTA is of the opinion that this reduction 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 for placing 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 upon in early March 2019. MTA had planned to negotiate the cost responsibility with PLTC and Verizon after all major Verizon relocations were completed. However, since the departure of PLTC, MTA carries this cost as a betterment outside of the FFGA scope.

In early June 2018, MTA and PLTP completed the negotiation of all remaining third-party agreements with the smaller utility and telecommunications (telecom) 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 to existing executed agreements continues to be evaluated. The significant items include:

- To date, the design differences with CSX, as discussed earlier in this report, have been adequately resolved through design review and concurrences, and have not resulted in the need to amend the CSX agreement.
- WSSC proposed that the project relocate a 66-inch underground water main that runs through the Glenridge OMF site. In March 2020, MTA and WSSC agreed on a water main alignment primarily in the median of Veterans Parkway, as well as a strategy for

completing the relocation. The original Purple Line project GEC performed the design; WSSC is provided the material; and MTA separately contracted for the construction, thus avoiding impact to the P3 concessionaire's scope of work. On May 21, 2021, WSSC authorized work, and mobilization began August 9, 2021. Installation of cathodic protection and final site restoration were the only remaining items of this water main work as of January 2023.

- MTA Administrator Holly Arnold, Matt Pollack, and Vernon Hartsock met in December 2021 with the senior administrator at PEPCO to reinforce the need to process Transfer of Ownership Agreements (TOAs) in a timely matter, because delays were putting the completion of OSF construction at risk. After this meeting occurred, the processing of the TOAs accelerated.
- In late July 2022, MTA and MDOT held a summit with the many utility providers that experience relocations related to transportation projects to discuss best practices and improvements to the utility relocation process.

The project has been addressing its interface with 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 has drafted a separate Memorandum of Understanding (MOU) with the Montgomery County Schools system, which was approved by the School Board and signed by the School Superintendent, Montgomery County, and MTA. A similar MOU was negotiated between MTA and the Rosemary Hills School and was approved at the School Board meeting on February 12, 2019. MTA submitted a draft second MOU to Montgomery County Schools on November 3, 2022, and currently is awaiting a response from Montgomery County Schools. Work will continue under ROE agreements with these parties through 2024.

As MTS commenced construction work, coordination meetings were held to ensure that prior agreements with third parties (utility companies and others) are followed. It is MTA's position that the transfer of third-party agreements from PLTC to MTA and now to MTS should not allow for a change in the terms of the agreements.

2.10. Construction

2.10.1. 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 replacement Parks Maintenance Facility (which is part of the real estate effort and budget), wetlands mitigation, stream mitigation, and possibly some offsite SWM sites. MTA has accomplished forest mitigation without the need for additional construction. The following discussion presents the current status of the MTA construction contracts:

- **Prince George's County Parks Polk Street Replacement Maintenance Facility** – This D-B contract was awarded after the BPW approved the construction contract award on March 20, 2019. NTP for the base scope was issued to the D-B contractor, Forrester

Construction Company (Forrester), on April 5, 2019. Forrester mobilized for construction in January 2020, and construction is complete. Parks has taken possession of the facility, and it is currently in the warranty period.

- **Offsite Wetlands Mitigation (Ken-Gar)** – The Wetlands Mitigation construction contract was awarded after the BPW approved the award on September 4, 2019, and NTP was issued to Environmental Quality Resources, LLC on September 5, 2019. The contractor mobilized in December 2019 and completed site surveys and the installation of Erosion and Sedimentation (E&S) controls. Clearing and grubbing began in February 2020. Prince George's County took partial acceptance of the entire project on March 3, 2021. Acceptable growth of vegetation has been achieved, allowing for closure of this project. The one-year warranty review occurred on January 9, 2022, and now the project requires MTA quarterly monitoring until closeout in 2028.
- **Offsite Stream Mitigation (Paint Branch)** – The Stream Mitigation construction contract was awarded after the BPW approved the award on September 4, 2019, 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. The one-year warranty inspection occurred on August 4, 2022, and 1,700 plants were replaced in November 2022.

2.10.2. P3 Scope

Highlights of construction activities ***through April 2023*** throughout the alignment include*:*

- General: As a result of the dispute with PLTP (see the **Project Delivery Method and Procurement** section, above), all project activities slowed in the fall of 2020. In early August 2020, contractor forces, equipment, and materials were demobilized, and work in some areas ceased. Upon legal action from MTA, partial remobilization occurred. Following the court's rescission of the TRO, demobilization and safe-up activities in the construction area began in earnest in mid-September 2020 and continued into October 2020. Following PLTC's exit, MTA engaged a number of former PLTC subcontractors to continue select project activities. This work has been progressing under MTA management with a goal of advancing critical path activities and reducing risk for the replacement D-B contractor.
- Status of ongoing P3 construction items that MTA manages:
  - Utility installations of all types are underway, including construction by the electric provider, PEPCO, and the communications company, Verizon. Water, storm sewer, sanitary sewer, and gas lines are also being constructed.
  - TPSSs were expected to be delivered at a pace of approximately one every other month, beginning with TPSS QYG in November 2022. Site preparation for the installation of TPSSs Q8, QYG, and QYP continues. As of February 2023, the PEPCO-related issues that delayed delivery of the TPSSs were resolved. Despite TPSS delay issues, MTA expects delivery of LRVs will begin in mid-2023.

- In April and May 2021, 29,000 concrete railroad ties were delivered to an onsite storage location for future use by the replacement D-B contractor. As a part of OSF, MTA ordered rail, ties, special trackwork, and turnouts to mitigate supply chain risks. MTA has received and stockpiled some of this material. As of August 2022, materials were received at the Glenridge OMF, and MTS unloaded and placed them in storage for future installation by MTS.
- Building construction at the Glenridge OMF is essentially complete; however, construction of civil items outside of the building continues, as does final commissioning of systems inside the building. MTS was scheduled to assume control of the facility in early 2023***; however, as of April 2023, the date of the turnover of the facility from MTA to MTS is still being determined.*** MTS currently is working at the OMF, installing embedded track inside the building and correcting nonconforming work related to the interior track. There are six items remaining that MTA cannot yet complete because of long lead times for necessary replacement parts. MTA is still responsible for completing these six items. MTS will assume control of the facility with those items outstanding, and MTA will complete the items when feasible. MTS then will maintain the facility until it is turned over to PLTP. MTS will complete the tracks for storage and testing of LRVs.
- Based on the status of construction, MTA determined which items would be completed before mobilization of the replacement D-B contractor. MTA reports that it is coordinating with MTS to address construction items that have fallen behind the OSF schedule. OSF construction activities were expected to be completed before September 1, 2022, but the most recent schedule provided by MTA indicated completion in ***mid-2023*** of most OSF activities, including Verizon relocations. ***OSF utility relocations that are behind schedule continue to cause impacts to MTS, and delays have occurred as a result.***
- MTS has taken responsibility for traffic control, E&S controls, security, and other housekeeping activities.
- MTA's Equal Employment Opportunity Officer assigned to the project is Marcques Washington, and he is supporting MTS in its hiring program. The former contractor, PLTC, left the project with a shortfall in meeting the requirements of its Disadvantaged Business Enterprise (DBE) program, and MTS is required to address this shortfall of approximately $12 million in contract value. In March 2023, MTA reported that the design portion and the nationally targeted worker program of the P3 contract had exceeded the DBE program goal. The percentage DBE participation for general construction is below the goal; however, ***in April 2023, Mr. Washington reported that the DBE participation statistics are improving as construction continues***. Also, MTA has been performing 20 audits per month in 2023 to monitor the Davis Bacon prevailing wage requirements.

2.11. Vehicle Technology and Procurement

The LRVs are five-car vehicles consisting of 136-foot-long, articulated units. Twenty-five vehicles (22 in operation and 3 spares) will be provided under the FFGA for the opening year. PLTP executed the LRV contract with CAF on June 17, 2016, and issued NTP to CAF on July 5, 2016 for the 25 FFGA vehicles. NTP to CAF also included one LRV outside of the FFGA.

Later, MTA added two additional vehicles (outside of the FFGA) by change order to CAF's contract, for a total of 28 vehicles to be supplied by CAF. The two additional LRVs will support better operations. MTS has incorporated these two additional LRVs into its scope of work (in addition to the cost and terms of LRV storage in Elmira).

Vehicle carshell manufacturing activities, which are coordinated with design progress, occurred until the facility in Spain was shut down in late March 2020 due to supply chain issues and to limit the spread of COVID-19. The final assembly facility in Elmira, New York, was shut down in early April 2020 due to New York State restrictions related to COVID-19 and reopened on May 18, 2020, at 50 percent of its workforce capacity. As of early August 2020, both the Spain facility and the Elmira facility were back to 100 percent staffing levels.

The final assembly of vehicles is being performed in CAF's facility in Elmira. MTA, its PMC, and SNC-Lavalin are meeting weekly with CAF to resolve all open items for design, testing, and manufacturing activities. First Article Inspections (FAIs) for Interior and Cab were completed on March 18, 2021, and FAIs for Exterior, Roof, and Undercar were completed on April 2, 2021.

Shipment of the first vehicle to the project site was expected in late spring of 2021. The lack of available storage at the yet-to-be-completed Glenridge OMF requires use of an offsite storage facility where vehicles can be stored, occasionally powered, and occasionally "exercised" or moved on tracks. MTA and CAF negotiated an agreement for CAF to store the completed LRVs in Elmira. That storage agreement subsequently transferred to MTS, and its terms are part of MTS's agreement. Twenty-six LRVs have been designated as Ready for Shipment and have been placed into storage in Elmira. MTS's proposed construction schedule establishes when the test tracks will be available for acceptance of the railcars at the Glenridge OMF. Currently, the schedule indicates that initial deliveries of LRVs will commence in the fall of 2023.

The status of the LRV manufacturing as of ***April 25, 2023,*** is:

- To date, 130 carshell segments have been assembled in Spain.
- All 130 carshells have been delivered to CAF's facility in Elmira, New York.
- All 25 full LRVs in the FFGA are designated as Ready for Shipment and are in storage at CAF's Elmira facility. One additional LRV (outside of the FFGA) is also Ready for Shipment and in storage.
- Two additional LRVs are under contract. These LRVs are not a part of the FFGA, but rather an addition to the contract by MTA to support rail operations. Assembly of the two additional vehicles is underway in Spain.

2.12. Project Cost

Table 5 summarizes the project's current actual expenditures and EAC, and compares them to the project budget as reported in MTA's SCC Workbook dated June 1, 2016, which is the basis of the project's FFGA. The project's documented expenditures total ***$2,725,101,221 through February 28, 2023.*** Refer also to **Table 4 – FFGA Core Accountability Items** in the **Executive Summary** section of this report for details on the project's planned and actual expenditures. The following table shows project budgets, actual expenditures, and forecast at completion amounts through ***February 28, 2023***, compared with the project budget as reported in MTA's SCC Workbook dated June 1, 2016, and MTA's current working budget.

Table 5 – Project Cost Versus Budget

SCC	Cost Category	Budget (June 1, 2016 Original FFGA)	Working Budget[1] *(April 3, 2023 Final Recovery Plan)*	Expended *(as of March 31, 2023)*	Forecast at Completion[1]
10	Guideway and Track	$280,620,726	***$371,508,682***	***$171,919,835***	***$371,508,682***
20	Stations	$114,857,016	***$161,159,923***	***$12,200,273***	***$161,159,923***
30	Maintenance Facility	$94,155,591	***$93,454,387***	***$84,586,347***	***$93,454,387***
40	Sitework	$521,968,990	***$796,081,289***	***$440,097,807***	***$802,855,552***
50	Systems	$263,887,313	***$517,256,196***	***$111,036,937***	***$517,256,196***
	Subtotal 10–50	$1,275,489,636	***$1,939,460,477***	***$807,444,922***	***$1,939,460,477***
60	Right-of-Way	$229,600,000	***$329,126,214***	***$286,329,237***	***$329,126,214***
70	Vehicles	$212,940,927	***$292,780,600***	***$145,412,063***	***$292,780,600***
80	Professional Services (total)	$571,658,114	***$2,247,359,915***	***$844,892,507***	***$2,318,411,229***
80.01	Project Development	$87,149,878	$85,469,312	$85,469,312	$85,469,312
80.02	Engineering	$139,766,036	***$196,722,013***	***$197,289,727***	***$218,635,713***
80.03	Project Management for Design and Construction	$148,555,323	***$655,185,988***	***$335,643,745***	***$640,202,588***
80.04	Construction Administration and Management	$83,269,280	***$734,209,735***	***$466,490,670***	***$814,557,849***
80.05	Professional Liability; Other Non-construction Insurance	$34,534,796	***$85,701,891***	***$73,749,648***	***$78,280,490***
80.06	Legal; Permits; Review Fees by Other Agencies, Cities, etc.	$5,805,117	***$341,013,320***	***$297,151,889***	***$339,015,520***
80.07	Surveys, Testing, Investigation, Inspection	$15,164,346	***$92,504,023***	***$44,544,425***	***$87,571,523***
80.08	Startup	$57,413,338	***$56,553,635***	***$4,781,535***	***$54,678,235***
	Subtotal 10–80	$2,289,688,678	***$4,808,727,206***	***$2,725,101,221***	***$307,293,174***
90	Unallocated Contingency	$90,535,748	***$307,293,174***	$0	***$307,293,174***
100	Finance Charges	$0	$0	$0	$0
	Total	$2,407,030,288	***$5,116,020,381***	***$2,725,101,221***	***$5,116,020,380***

[1]The Purple Line project Working Budget and Forecast at Completion are based on the accepted Final Recovery Plan dated April 3, 2023.

MTA developed the unallocated contingency of $307,293,174 by utilizing a Quantitative Risk Analysis, and the RCMP dated April 21, 2023, recommended that amount for unallocated contingency.

On July 15, 2021, the PMOC requested that MTA provide revised budget tracking information that accurately reflected the combined IRP and OSF expenditures. MTA prepared a summary of actual versus planned expenditures for high-level OSF activities for review by the PMOC. MTA submitted the latest version of the summary that provides information through December 2022. MTA forecasted OSF expenditures of $556.15 million, which exceed the original OSF budget by approximately $136 million. MTA has incorporated a significant portion of the overrun into the ***FRP budget***, but additional contingency may be needed to address the increase of $35 million to $45 million that has occurred since the FRP budget was developed. MTA states that these overruns are due to labor and material cost inflation as well as the extended duration of OSF. The PMOC recommends that MTA closely monitor these cost overruns and the potential need for contingency.

2.12.1. Project Funding

The funding for the project, as reflected in Attachment 3 of the FFGA, is shown in Table 6.

Table 6 – Baseline Cost Estimate by Source Funding

Initial New Starts Project Cost	Total FFGA Cost in YOE Dollars	Federal 5309 New Starts in YOE Dollars	Federal 5307 in YOE Dollars	Federal American Rescue Plan Act (ARPA) in YOE Dollars	Federal Surface Transportation Program (STP) in YOE Dollars	Local in YOE Dollars
10 Guideway & Track Elements	$280,620,726	$106,464,907	$0	$0	$0	$174,155,819
20 Stations, Stops, Terminals, Intermodal	$114,857,016	$43,747,594	$0	$0	$0	$71,109,422
30 Support Facilities, Yards, Shops, Admin. Bldgs	$94,155,591	$35,721,760	$0	$0	$0	$58,433,831
40 Sitework & Special Conditions	$521,968,989	$197,858,301	$0	$0	$0	$324,110,688
50 Systems	$263,887,313	$100,116,405	$0	$0	$0	$163,770,908
60 ROW, land, Existing Improvements	$229,600,000	$87,108,116	$0	$0	$0	$142,491,884
70 Vehicles	$212,940,927	$80,787,818	$0	$0	$0	$132,153,109
80 Professional Services	$571,658,113	$216,881,800	$36,000,000	$0	$0	$318,776,313
90 Unallocated Contingency	$90,535,748	$31,313,299	$0	$0	$0	$59,222,449
100 Finance Charges	$26,805,863	$0	$0	$0	$0	$26,805,863
Total Project Cost (10-100)	**$2,407,030,286**	**$900,000,000**	**$36,000,000**	**$0**	**$0**	**$1,471,030,286**

Source: Maryland Purple Line Project Recovery Plan dated April 3, 2023.

2.13. Project Schedule

The March 15, 2017 progress update of the master project schedule was approved, as noted, in May 2017 and ***served as the only approved version of the schedule until April 3, 2023***. Numerous submissions of schedule updates from PLTC were not approved for various reasons, but the primary reason was the inability of MTA and the P3 concessionaire to agree on the schedule impacts of the approximately one-year delay in the execution of the FFGA. In response to a letter

that FTA issued to MTA in early August 2018 expressing concerns about the amount of time that the project had advanced without an approved schedule, MTA prepared a working schedule update of the master project schedule. The working schedule update was based on the negotiations of the P3 contract schedule occurring at the time, but the update was not based on a mutually agreed-upon P3 contract schedule.

In late April 2020, PLTC notified PLTP that, based on its forecasting of schedule delays on the project (which were not mutually agreed upon), PLTC intended to exercise the clause in its P3 contract with PLTP that allows it to terminate the contract for design and construction services under the P3 contract if delays exceed 365 days. MTA sent a formal request to PLTP for a response that included a definitive path forward for PLTP's intended management of the P3 contract. On May 14, 2020 (the date the response to the formal request was due), PLTP submitted its response, which stated that PLTP intended to continue to negotiate with PLTC to retain PLTC as part of the P3 concessionaire team. On June 23, 2020, PLTP sent a formal Notice of Unconditional Election to Terminate the P3 Agreement, although PLTP indicated a willingness to negotiate a settlement. On June 24, 2020, MTA sent a Formal Notice of Concessionaire Default. This notice essentially refuted the validity of the PLTP delay claims and stated that if PLTP failed to perform, MTA had a number of options related to the agreement. Through late July 2020, construction activities continued at the level previously planned, and construction progress was not affected.

In early August 2020, PLTC and subcontractors demobilized equipment, materials, and personnel. In response, the Maryland Attorney General filed a motion for a TRO that prevented PLTP from abandoning the work or demobilizing. Upon issuance of the TRO, the contractor and subcontractors remobilized some equipment and restarted many construction activities. A hearing to uphold or rescind the TRO was held on September 14, 2020. The court rescinded the TRO, allowing PLTP to leave the project. Through negotiation, it was determined that PLTP would remain on the project, although PLTC would not.

MTA contracted with numerous subcontractors to continue the project. MTA developed organizational options with respect to construction management, resident engineers, inspectors, and other staff needed to move forward select project activities.

It was certain that the project schedule as reflected in the FFGA would be negatively affected, and a Recovery Plan for the project, including a revised project schedule with adequate schedule contingency to address remaining project risks, would be required. MTA submitted its draft IRP to FTA in December 2020, and FTA approved the IRP on January 12, 2021. A schedule for the period during which the D-B contractor was to be replaced was developed, and MTA monitored project progress against the schedule. On November 5, 2021, PLTP announced the selection of the preferred replacement D-B contractor, MTS.

PLTP and MTA continued to coordinate during the financial process and State of Maryland approvals for the replacement D-B contractor. In addition, MTA successfully coordinated other key issues that needed to be resolved before PLTP could execute the contract with MTS.

The following is a summary of IRP milestones:

- January 6, 2021 – PLTP issued an RFQ for replacement D-B contractors.

- March 8, 2021 – PLTP issued an RFP to the short list of replacement D-B contractors based on the RFQ.
- October 15, 2021 – PLTP received RFP responses.
- November 5, 2021 – PLTP and MDOT/MTA selected the replacement D-B contractor firm (MTS).
- January 26, 2022 – BPW approved the replacement D-B contractor, contract amendments, schedule, cost, and financing.
- April 11, 2022 – Private activity bonds went to market.
- September 12, 2022 – MTA approved the IBS.
- October 14, 2022 – MTS was required to have commenced action on the 11 critical elements that are specified in the D-B contract. At the December 2022 PMOC meeting, MTA confirmed that MTS missed the 180-day window to commence action on 3 of the 11 critical elements. MTA and MTS are coordinating these specific activities and generally agree that a delayed start for each is logical based on construction sequencing. These three elements are not currently on the critical path.
- October 28, 2022 – MTA was required to have submitted a draft FRP to FTA and the PMOC for review and comment. On October 4, 2022, MTA submitted the draft FRP to FTA and the PMOC for review.

A milestone not specifically mentioned in the IRP is the requirement to extend the current RSD. The PMOC therefore adds the following milestone to this list:

- December 31, 2022 – The RSD in the original FFGA is December 31, 2022. MTA requested an extension to the current RSD identified in the original FFGA. ***FTA has now accepted the FRP, which indicates a revised RSD of February 24, 2028.***

Current critical path analysis indicates that the critical path runs through the activities in Segments 7 and 8 of installation of Civil and Systems packages, and then train testing. There are ten other near-critical paths with activities that have less than two weeks of float. MTA reports that MTS's IBS includes a proposed sequence and duration of activities that have zero float and a completion date in October 2026. MTA used MTS's approved IBS to develop a master schedule that incorporates operational readiness activities and schedule contingency (float).

The ***schedule included in the FRP is considered to be the new baseline schedule. The next update to the master schedule will incorporate the schedule recovery developed by MTA and MTS. By implementing Maintenance of Traffic and construction activity resequencing, at a cost of $21,343,588, the schedule delays were reduced from 218 days to 81 days. These schedule delays are a result of OSF utility adjustments that fell behind schedule. MTS has indicated that delays continue and that further schedule recovery may be needed.***

2.13.1 Key Milestones

Table 8 shows the current key milestone dates for the project for the last approved (March 2017) progress update of the master project schedule, the MTA Master Schedule August 2018 (proposed new baseline schedule), and the February 29, 2020, progress update of the MTA master schedule. Issuance of NTP to PLTP on April 14, 2022, triggered the contract requirement for an MTA-approved MTS IBS for the full project to be in place within 120 days of financial close (by August 14, 2022). In January 2022, MTA submitted a draft version of the master schedule for FTA and PMOC review, and FTA and the PMOC transmitted their review comments to MTA in April 2022. MTS submitted its IBS, and on September 12, 2022, MTA approved it. MTS submitted the 120-day mobilization schedule, which MTA also approved.

In August 2022, MTA and the PMOC discussed the current state of the baseline schedule, particularly the inclusion of adequate float to address schedule risk. The P65 date that MTA proposed before the risk workshop held in May 2022 included approximately seven months of float and an RSA date in October 2026. ***After MTA performed the Quantitative Risk Analysis for the updated RCMP, MTA added additional float to address known and unknown schedule risk. The RSD proposed in the FRP is now February 24, 2028, which includes 16 months of float as of April 3, 2023.***

The PMOC recommends that MTA ***closely monitor schedule contingency and the corresponding budget contingency when evaluating*** the RSA date/RSD and the EAC that have been incorporated into the FRP. The information in Table 7 will be updated once the schedule reviews and approvals are complete.

Table 7 – Key Milestone Dates

Activity	Prior Approved Master Project Schedule (March 15, 2017)	MTA Master Schedule FRP April 3, 2023 (working baseline)
Locally Preferred Alternative Approval Date	08/04/2009 (A)[a]	---
FTA Approval to Enter Preliminary Engineering	10/07/2011 (A)	---
FTA ROD	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 through 03/02/2016 (A)	---
BPW Approval of P3	04/06/2016 (A)	---
P3 Commercial Close	04/07/2016 (A)	---
Limited NTP for P3 Engineering	04/07/2016 (A)	---
MTA Submit FFGA Application	05/24/2016 (A)	---
P3 Financial Close	06/17/2016 (A)	---

Activity	Prior Approved Master Project Schedule (March 15, 2017)	MTA Master Schedule FRP April 3, 2023 (working baseline)
FFGA Signed	08/22/2017 (A)	---
Start of First Major Construction Activity	08/28/2017 (A)	---
All Significant ROW Acquisition and Relocation	As needed by construction	---
Commencement of Contract Work for Replacement D-B Contractor (MTS)	---	***04/14/2022 (A)***
Commencement of Integration Testing	---	***09/2025***
All Segments Complete Construction (with Contingency)	---	***10/2026***
Revenue Service Availability per P3 Amendment	---	***10/2026***
FFGA RSA Date (includes contingency)	12/31/2022	***02/2028***

[a] A = Actual.

2.13.2 90-day Look-ahead

The critical 90-day (***May 2023 through July 2023***) look-ahead includes activities planned in general accordance with the IRP. MTA and MTS also are preparing four-week look-ahead schedules to manage interim activities. Key activities that MTA has identified for the short term are:

- Retaining wall, ***Overhead Contact System (OCS) foundation, and bridge structure*** construction in multiple locations.
- Water and sanitary sewer construction in multiple locations, including the completion of the 66-inch WSSC water main.
- Completion of the police force alternatives study.
- Overhead electrical line, communications line, and buried gas line relocations.
- ***TPSS installation and commissioning.***
- MTA's closeout of Glenridge OMF punch lists and turnover of the facility to MTS.
- ***Completion of the*** response to comments and revisions of draft management plans based on FTA and PMOC review.
- Activities related to the replacement D-B contractor, including the continuation of required activities by MTS on the key structures and other elements on the critical path.
- ***Blasting at the Bethesda shaft. Construction of the Bethesda Enclosed Trainway grade beam.***
- ***Preparation for the summer work ramp-up on the UMD campus.***
- ***Track construction at the Glenridge OMF.***

2.13.3 Critical Path Activities

In the MTA master schedule update dated March 12, 2023, for which final agreement with PLTP was never reached, the critical path runs through the activities in Segments 7 and 8 of installation of Civil and Systems packages, and then train testing. During review of the FRP, FTA and the PMOC provided input on the schedule information, including the schedule contingency, to be included in a revised RSD and FFGA.

2.14 Project Risk

MTA has established a risk management organization that is defined in the RCMP and is overseen by MTA's Risk Management Committee. Two major elements of the RCMP are the periodic performance of quantitative risk analysis and the maintenance and use of the Risk Register.

During the approximately one-year period during 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 quantitative risk analysis, or perform formal updates of the Risk Register. However, the Purple Line project management team did assess and respond to the risks associated with the unforeseen chain of events related to the lawsuit.

The project team resumed formal risk management 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 in draft form in January 2018, and was updated further and reissued in March 2018. As an ongoing process, MTA currently is performing updates of the Risk Register periodically, though somewhat less frequently than bimonthly (the frequency established in its RCMP). The current status of the RCMP is discussed in the **Project Management Plan and Sub-plans** section of this report, above.

MTA provides copies of significant updates of the Risk Register to FTA and the 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; the project's top five project risks are included as Attachment C of this report and are updated quarterly. A risk management workshop was held on January 26, 2021, at which the PMOC and FTA participated. The workshop focused on the resolicitation period for the replacement D-B contractor (January through October 2021).

Now that the replacement D-B contractor is under contract, risk updates have been prepared. A risk workshop was held the week of May 2, 2022, at which the PMOC and FTA participated in an OP 40 risk and contingency review that evaluated cost, schedule, and project contingency. Confirmation and finalization of the Risk Register, the quantitative risk analysis, and an update of the RCMP are components of the required FRP. FTA provided a summary of the risk workshop to MTA on June 22, 2022, for MTA's consideration and incorporation into its management plans and contingency evaluation. MTA provided responses to FTA comments on the risk workshop summary on July 15, 2022, and clarification on August 25, 2022. In October 2022, MTA submitted RCMP Version 15 to FTA and the PMOC for review. In February 2023, FTA and the

PMOC provided comments on the revised RCMP to support MTA's development of the project's budget and schedule contingency. ***On April 21, 2023, MTA provided a revised RCMP to FTA and the PMOC for review.***

2.15 Quality Assurance/Quality Control

The project's QA/QC is addressed in Section 10 of the PMP, the Quality Program Plan, and the updated MTA QAP Revision 8.0, which incorporates the quality plans prepared by PLTC. The most current versions of the PMP and the QAP are as discussed in the **Project Management Plan and Sub-plans** section of this report, above. MTA also submitted to FTA the package of inter-related quality plans prepared by the P3 concessionaire after the package was reviewed and approved by MTA.

MTA obtained and used PLTP's quality logs and other applicable documents and procedures for use during the transition to the replacement D-B contractor. Several former subcontractors are now under contract with MTA and conducted QA/QC activities during the replacement D-B contractor solicitation period. The budget to address nonconforming construction by PLTC is a concern. MTA incorporated known defects into the MTS contract; however, MTA has not clarified the specific budget that will be used to rectify defects found since the contract with MTS was executed. MTA estimates that the potential magnitude of this budget impact will be no more than $10 million.

In October 2022, MTA submitted QAP Version 10 to FTA and the PMOC for review, and on March 8, 2023, FTA provided review comments on the QAP to MTA. ***MTA expects to provide a revised QAP to FTA and the PMOC in May 2023.***

The project has continued to conduct its monthly meeting to review the QA/QC activities performed by the Purple Line project team, including those activities performed by the PMC and the GEC. Documentation from this meeting is distributed and maintained. The project's Monthly Progress Report to FTA also contains a summary of the significant current QA/QC activities and events, including quality audits and quality reviews. ***In April 2023,*** quality management topics included quality process improvements, records storage, field inspections to close open issues, equipment testing inspections, design submittal reviews, records spot checks, approval of MTS's quality management plans, MTS offsite inspections at the fabrication location for OCS poles, and planning of the monthly QC meetings.

In November 2021, MTA's quality lead for the Purple Line project, Rene Schroeder, retired. Roland Carroll, the Purple Line systems and construction safety lead, added the quality lead role to his other Purple Line roles. In February 2022, MTA provided a white paper outlining Mr. Carroll's experience, his recent training, and the proposed supporting staff related to the new quality management role. The PMOC has evaluated this change as a part of the PMP review and ***will continue to monitor MTA's management capacity for this function and all positions through ongoing oversight activities***.

2.16 Safety and Security

PLTP has conducted 44 Preliminary Hazards Analysis (PHA) workshop sessions to date. These workshops were held to resolve MTA's comments on the PHAs completed to date.

To support the ultimate Safety and Security Certification of the Purple Line project, the PLTP System Safety team completed development of its first DCCC in May 2017 and submitted it to MTA for approval. MTA (assisted by the PMC) reviews the DCCCs as part of the Final Design package, according to the established submittal review process. According to PLTP, the DCCCs were being verified before the issuance of RFC packages. To date, an estimated 96.6 percent of the DCCCs have been verified. All previous comments on PLTP's Certified Elements List (CEL), which includes operations and maintenance and system integration testing elements, have been resolved, and CEL Revision 2 was accepted in March 2020. The Certified Items List (CIL) Revision 1 has been accepted. The next revision of the CIL is expected after MTS completes the design. MTA will provide the revised CIL to FTA and the PMOC as soon as it is completed. Approximately 10.6 percent of the CSCCs have been verified to date.

MTA chairs a Safety and Security Certification Committee (SSCC) that reviews, comments on, and approves any PLTP hazard management and safety and security certification issues. The first meeting of the MTA SSCC was conducted on March 20, 2018. Since July 11, 2018, the SSCC meeting has been held regularly and will continue as a monthly meeting until the level of activity requires more frequent meetings. ***As of April 2023,*** monthly SSCC meetings continue. Resolution of comments is still needed from Atkins (the designer) for a previous blast analysis review, but as of January 2023, MTA believed that resolution of these comments was nearly complete. MTA stated that the progressive collapse analysis of the Carr Building, although it may lead to remedial actions, will no longer be tracked by the Purple Line project. MTA stated that there would be no use of funds from the Purple Line project for remediation at the Carr Building.

PLTC submitted a Threat and Vulnerability Assessment, and on July 15, 2019, MTA accepted and verified the comment responses and approved PLTC's Threat and Vulnerability Assessment. PLTC then completed its Threat and Vulnerability Assessment process.

MTA continues to conduct bimonthly Fire/Life Safety meetings with Montgomery County and Prince George's County. The meetings provide a basis for the counties' emergency responders to understand the features of the Purple Line systems and to resolve any concerns. Topics of discussion include: Police Department MOUs; Fire Department connection and hydrant locations; access, signage, and station naming conventions; MOUs for training; the PHA at the Glenridge OMF maintenance gate; station names; and addresses/emergency phone numbers for locations along the corridor. Other topics of discussion have included closed circuit television cameras and Mobile Emergency Vehicle Response access. It is the opinion of the PMOC that MTA should emphasize resolving the project's outstanding Fire/Life Safety issues, because progress on the resolution of these issues is not apparent.

MTA police continue coordinating MOUs with local safety agencies and developing MOUs with police jurisdictions (such as the Maryland National Capital Park Police) along the Purple Line. These MOUs are related to training the existing police agencies on how to respond to transit

situations. During the September MTA/PMOC meeting, a larger related issue was discussed at length. The SSOA staff participated in this discussion as well. The crux of the issue is that MTA does not have a police force located in proximity to the Purple Line. MTA hired a consultant team to analyze alternatives for providing security and fare enforcement services for the Purple Line. Alternatives include: expanding MTA's enforcement services geographically, bringing on a third party to provide these services through a contract, or sharing police services with another party. The PMOC believes that this issue is significant, and although the currently forecast RSA date is in 2027, MTA should determine its preferred alternative for providing Purple Line security and fare enforcement services without delay and promptly move toward implementation. On February 23, 2023, MTA submitted its prepared draft recommendation for providing security and fare enforcement to several State of Maryland departments. Representatives from MDOT, which is the SSOA, who are monitoring the Purple Line project development provided comments on the draft recommendation before MTA submitted it to MTA's upper management and the several state departments. ***MTA will notify FTA of the date on which the alternatives study will be provided to FTA for review.***

As required by the P3 contract, PLTP was responsible for directly implementing many of the safety and security requirements for the project, including those for construction safety and the collection and maintenance of the Occupational Safety and Health Administration (OSHA) safety statistics for the project. PLTC performed this work until its departure from the project, at which time MTA assumed responsibility. MTS transitioned into the safety and security role that PLTC held. MTS and MTA are holding regular safety and security coordination meetings.

Safety continues to be acceptable, although with an increase of MTS activities, recordable incidents are increasing. Also, MTS appears to be having difficulties in its communication of incident reporting. MTA determined the methodology for reporting of, and assumed reporting of, OSHA statistics for the project under OSF. For the period from January 1, 2022, through ***February 2023***, the OSHA statistics are:

- TCIR (Total Case Incident Rate) (Recordable Rate) – MTS/OSF:
  - Actual: ***4.29/7.76 (MTS/OSF***
  - MTA goal: 0.45
  - National average: 2.8 (for heavy civil construction)
- LTIR (Lost Time Injury Rate) (Recordable Rate):
  - Actual: ***4.29/7.76 (MTS/OSF)***
  - MTA goal: 0.00
  - National average: 0.9 (Construction – heavy civil)

MTA had assumed responsibility for safety oversight until MTS assumed control of the project. As of December 2022, MTA reports that MTS needs coaching on expectations for the required reporting of safety statistics. ***In April 2023, the PMOC noted to MTA that both the Lost Time***

Injury Rate and the Total Case Incident Rate have significantly increased. MTA recognizes the issue and reports that it has scheduled additional safety coordination efforts.

In late October 2022, MTA submitted updated SSMP and SSCP documents in conjunction with the updated PMP. On February 13, 2023, and March 8, 2023, FTA provided review comments to MTA on the SSMP and SSCP, respectively.

See the **Project Management Plan and Sub-plans** section of this report, above, for the status of the sub-plans of the PMP related to safety and security. Attachment B of this report includes additional quarterly safety- and security-related information for the Purple Line project.

2.17 Americans with Disabilities Act

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

Accessibility and compliance with the ADA are required as part of the functional requirements for stations and guideway, and as part of the codes and standards for LRVs within the P3 contract (Book 2, Part 2) for the Purple Line project. MTA and its consultants reviewed the design packages prepared by PLTC. Based on project reviews conducted by the PMOC, MTA has confirmed that it included ADA compliance in its QA oversight reviews of PLTC's design packages. A full-time Purple Line project Maintenance of Traffic construction representative also monitors whether temporary pedestrian accommodations during construction continue to comply with ADA requirements. ADA compliance is included in the PMOC's periodic project reviews, during which the PMOC discusses timely project ADA-related items with the project team. Such discussions during the PMOC's most recent reviews identified no current ADA-related issues.

2.18 Buy America

MTA understands that Buy America compliance applies not only to the rail vehicles but also to the 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 regulations is contained in MTA's standard clauses for its procurements, and the P3 contract contains explicit Buy America language in its Appendix 16.

The Buy America pre-award audit was conducted by Virginkar and Associates, Inc., which concluded that there is reasonable certainty that CAF will satisfy the Buy America requirements as stated in 49 Code of Federal Regulations (CFR) 661. MTA's interpretation is that, because the vehicle RFP was advertised before December 4, 2015 (which is the date of passage of the Fixing America's Surface Transportation Act, also known as the FAST Act), the 49 CFR 661 Public Interest Waiver that limits domestic content to a minimum of 60 percent, as opposed to the escalating domestic content requirements of the FAST Act, applies in this case. During the week of October 2, 2017, an intermediate post-award Buy America audit was conducted of CAF's facility in Elmira, New York, for added confidence that the post-delivery audit would not identify issues. CAF is targeting 65 percent domestic content in the completed LRVs.

The project's Buy America compliance audit for the LRVs was conducted on November 14, 2022. In January 2023, CAF provided additional documentation requested to assist with evaluation of Buy America compliance. The draft audit report will be available to FTA sometime in ***May 2023***. ***The draft report indicates that the LRVs will have a U.S. domestic content of 66.74 percent, which satisfies FTA's Buy America requirements.***

2.19 Start-up, Commissioning, Testing

TBD

2.20 Before-and-After Study Reporting

TBD

2.21 Lessons Learned

The resolicitation of a D-B contractor has given MTA the opportunity to apply several lessons learned to the new D-B contract documents and to amend the P3 agreement. After the May 2022 risk workshop with MTA and the PMOC, MTA provided an update on opportunities for improvement that MTA had identified during the resolicitation and is incorporating into the project.

2.22 Action Items

Action Items are identified at MTA/FTA Quarterly Progress Review Meetings, at MTA/PMOC Monthly Update Meetings, and at MTA/FTA Biweekly New Starts Progress Conference Calls. Action Items from the most recent biweekly conference call on ***April 25, 2023***, are as follows:

1. MTA will provide updates to the OSF schedule, including when management plan drafts are completed. OPEN
2. MTA will provide the updated project communications plan when complete. ***CLOSED***
3. MTA will provide documentation from the schedule mitigation Tiger Team effort when available. OPEN
4. MTA will provide ***the date on which*** the results of the police force alternatives study will be made available to FTA. OPEN
5. MTA will submit a formal request for a revised FFGA schedule and budget after FTA approval of the FRP. ***CLOSED***

ATTACHMENT A – LIST OF ACRONYMS

ADA	Americans with Disabilities Act
ARPA	American Rescue Plan Act
ATC	Alternate Technical Concept
BFMP	Bus Fleet Management Plan
BPW	Board of Public Works
CAF	Construcciones y Auxiliar de Ferrocarriles
CEL	Certified Elements List
CFR	Code of Federal Regulations
CIL	Certified Items List
CSCC	Construction Specification Conformance Checklist
CSX	CSX Corporation
D-B	Design-Build
DBE	Disadvantaged Business Enterprise
DCCC	Design Criteria Conformance Checklist
DNR	Maryland Department of Natural Resources
E&S	Erosion and Sedimentation
EAC	Estimate at Completion
FAI	First Article Inspection
FCP	Forest Conservation Plan
FFGA	Full Funding Grant Agreement
FRP	Final Recovery Plan
FTA	Federal Transit Administration
GEC	General Engineering Consultant
IBS	Initial Baseline Schedule
IRP	Interim Recovery Plan
LOD	Limits of Disturbance
LRT	Light Rail Transit
LRV	Light Rail Vehicle
LTIR	Lost Time Injury Rate

MCC	Management Capacity and Capability
MDE	Maryland Department of the Environment
MDOT	Maryland Department of Transportation
MOU	Memorandum of Understanding
MTA	Maryland Transit Administration
MTS	Maryland Transit Solutions
N/A	Not Applicable
NEPA	National Environmental Policy Act
NTP	Notice to Proceed
OCS	Overhead Contact System
OMF	Operation and Maintenance Facility
OP	Oversight Procedure
OSF	Operation Step Forward
OSHA	Occupational Safety and Health Administration
P3	Public-Private Partnership
PEPCO	Potomac Electric Power Company
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 Management Plan
RCMP	Risk and Contingency Management Plan
RFC	Released for Construction
RFMP	Rail Fleet Management Plan
RFP	Request for Proposals
RFQ	Request for Qualifications

ROD	Record of Decision
ROE	Right of Entry
ROW	Right-of-Way
RSA	Revenue Service Availability
RSD	Revenue Service Date
SCC	Standard Cost Category
SEIS	Supplemental Environmental Impact Statement
SSCC	Safety and Security Certification Committee
SSCP	Safety and Security Certification Plan
SSMP	Safety and Security Management Plan
SSOA	State Safety Oversight Agency
SSP	Safety and Security Plan
SSPP	System Safety Program Plan
SSTC	Silver Spring Transit Center
STP	Surface Transportation Program
SWM	Stormwater Management
TBD	To Be Determined
TCE	Temporary Construction Easement
TCIR	Total Case Incident Rate
TIFIA	Transportation Infrastructure Finance and Innovation Act
TOA	Transfer of Ownership Agreement
TPSS	Traction Power Substation
TRO	Temporary Restraining Order
UMD	University of Maryland
USACE	U.S. Army Corps of Engineers
WMATA	Washington Metropolitan Area Transit Authority
WSSC	Washington Suburban Sanitary Commission
YOE	Year of Expenditure

ATTACHMENT B – SAFETY AND SECURITY CHECKLIST

Note: References to the System Safety Program Plan (SSPP), Safety and Security Plan (SSP), and 49 Code of Federal Regulations (CFR) Part 659 as they are contained in the FTA standard checklist form have been retained in the following update. However, it is recognized that Maryland Transit Administration is transitioning to the Public Transportation Agency Safety Plan and 49 CFR Parts 673 and 674.

Refer to the July 2020 PMOC Monitoring Report for the most recent update.

ATTACHMENT C – TOP PROJECT RISKS

An internal risk workshop to support the Interim Recovery Plan (IRP) was held on January 26, 2021. Maryland Transit Administration (MTA) and Purple Line Transit Partners (PLTP) used information from the meeting as they solicited a replacement Design-Build (D-B) contractor. At the time of the workshop, the MTA Risk Management was tracking the following risks identified during development of the IRP:

Procurement/Settlement Risks:

- PLTP solicitation of replacement D-B contractor:
  - Market resolicitation in a compressed time frame
  - Delay in finalizing solicitation
  - Weak bidder interest – two or fewer proposals
- D-B contract and other contract negotiations

Schedule Risks:

- Inability of MTA subcontractors to meet the Operation Step Forward (OSF) schedule dates, causing delay to certain activities to be performed by the replacement D-B contractor
- Unanticipated delay to the replacement D-B contractor "ramp up" of activities, resulting in impacts to the critical path anticipated by MTA

Design and Construction Risks:

- Performance risk assumed by MTA by contracting for and performing work during the replacement D-B contractor resolicitation period (subcontracting risk)
- Quality, commercial, coordination, and unforeseen conditions unknown to MTA at the time of assumption of former Purple Line Transit Constructors subcontracts

A risk workshop was held May 3 through May 5, 2022. After the risk workshop, MTA prepared supplementary or updated documents for review, including an updated Risk Register. FTA provided a risk summary to MTA on June 22, 2022, for MTA's consideration when updating risk, contingency, and other project management plans. MTA provided a response to each of the comments on the risk summary to FTA on July 18, 2022, and provided further clarifications on August 25, 2022. MTA incorporated the FTA comments in the revised RCMP that is a part of the FRP.

On October 7, 2022, MTA submitted RCMP Version 15 to FTA and the PMOC for review. FTA provided review comments to MTA on February 16, 2023***, and MTA prepared a revised RCMP and submitted it to FTA on April 21, 2023.***

In April 2023, MTA presented the following top project risks:

1. Construction – Exhibit 24 Utility Adjustments – Significant
2. Construction – RCO1 and RCO7 Utility Delays – Significant
3. Design – Temporary Construction Easement Extensions – High
4. Construction – Exhibit 24 Utility Adjustments Verizon – High

5. Construction – Unknown Existing Construction Defects – High
6. Market – Unknown Unknowns – High
7. Construction – Utility Relocation – High
8. CSX Flaggers – High

ATTACHMENT D – AWARDED CONTRACTS

A significant update to awarded contracts is forthcoming due to the transition within the original Public-Private Partnership concessionaire and Maryland Transit Administration's assumption of some, but not all, subcontracts. ***An update is expected in May 2023 in conjunction with the Quarterly Progress Review Meeting.***

ATTACHMENT E – ROLLING STOCK VEHICLE STATUS REPORT

Date: ***April 28, 2023***

Vendor: Construcciones y Auxiliar de Ferrocarriles (CAF)

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

Year: The first vehicle was completed in 2021, and currently 26 vehicles are designated as "Ready for Shipment." Completion of the storage and testing facilities at the Glenridge Operation and Maintenance Facility (OMF) has been delayed, so Maryland Transit Administration (MTA) and CAF negotiated terms for storage of vehicles at the CAF facility in Elmira, New York. The storage agreement has now transferred to the replacement Design-Build (D-B) contractor, Maryland Transit Solutions (MTS).

Quantity: 25 vehicles (130 cars) original contract (Full Funding Grant Agreement [FFGA]). One vehicle (5 cars) was added to the original CAF authorization by MTA, outside of the FFGA.

2 vehicles (10 cars) in July 2021 change order (non-FFGA).

Identification: The original light rail vehicles (LRVs) will be numbered from 101 through 126. The numbering of the two additional LRVs is to be determined.

New Technologies: None planned (all major suppliers have service-proven equipment).

Status and Significant Activities:

- In total, 130 cars were assembled in Spain, all of which have been delivered to CAF in Elmira, New York. Assembly of the additional 2 vehicles (10 cars) is in progress in Spain. Ultimately these 10 cars will be shipped to Elmira for final assembly and static testing, following the same process as the original 130 cars.
- Delivery of finished vehicles was expected to begin in spring 2021; however, because the Glenridge OMF is not ready to accept railcars, MTA and CAF have negotiated an agreement for CAF to store the completed cars in Elmira.
- Cost risk for delivery of the finished vehicles has been transferred to MTS. If delays in construction cause a delay, then MTS is responsible to CAF for additional storage cost.
- Twenty-six LRVs have passed static testing, have been designated as Ready for Shipment, and have been placed into storage in Elmira. These include vehicle 110, which was returned to Ready for Shipment status after a second period in static testing.
- Delivery of the first of the original 26 vehicles is currently scheduled for fall 2023. Approximately one vehicle per week will be delivered thereafter. The Glenridge OMF will be able to store three or four vehicles on the yard and in the building, so track must be available for additional storage. The Overhead Contact System and Traction Power

Substation (TPSS) Q7 and TPSS QYG must also be completed and installed before delivery of vehicles.

- MTA added two vehicles by change order to CAF's original contract, outside of the MTA/Federal Transit Administration (FTA) FFGA. The additional LRVs will support better operations at Revenue Service Availability. The replacement D-B contractor, MTS, has incorporated these two additional LRVs into its scope of work (in addition to the cost and terms of LRV storage in Elmira). Fabrication of the two additional LRVs at CAF's facility in Spain has begun.
- SNC-Lavalin (now an MTS subcontractor) prepares a monthly quality report documenting safety, production, and quality items at both the Spain and New York production facilities. Many of the same SNC-Lavalin staff who observed the original vehicle fabrication work are overseeing the fabrication of the two additional vehicles in Spain.
- MTA, the Project Management Consultant, and CAF are holding weekly coordination meetings to review all outstanding testing and factory/shop activities, including onsite testing procedures for when the vehicles are delivered to Maryland.
- MTS, which has assumed the CAF contract, is preparing and submitting to MTA reports on LRV maintenance activities required during the storage period.
- The project's Buy America compliance audit for the LRVs was conducted on November 14, 2022. In January 2023, CAF provided additional documentation requested to assist with the evaluation of Buy America compliance. The draft audit report is expected be available in May 2023. Preliminary information from the audit indicates that the percentage of U.S. domestic content meets FTA requirements.
- The resolution of the previously identified quality issue related to the M33 bolt on the LRVs and the associated final report are expected in May 2023. MTA determined that the issue does not impact safety, and the solution is likely the use of a higher strength bolt. The effort included a significant amount of work to determine whether a bolt failure would cause debris to fall on the track.

ATTACHMENT F – PROJECT MILESTONES/KEY EVENTS

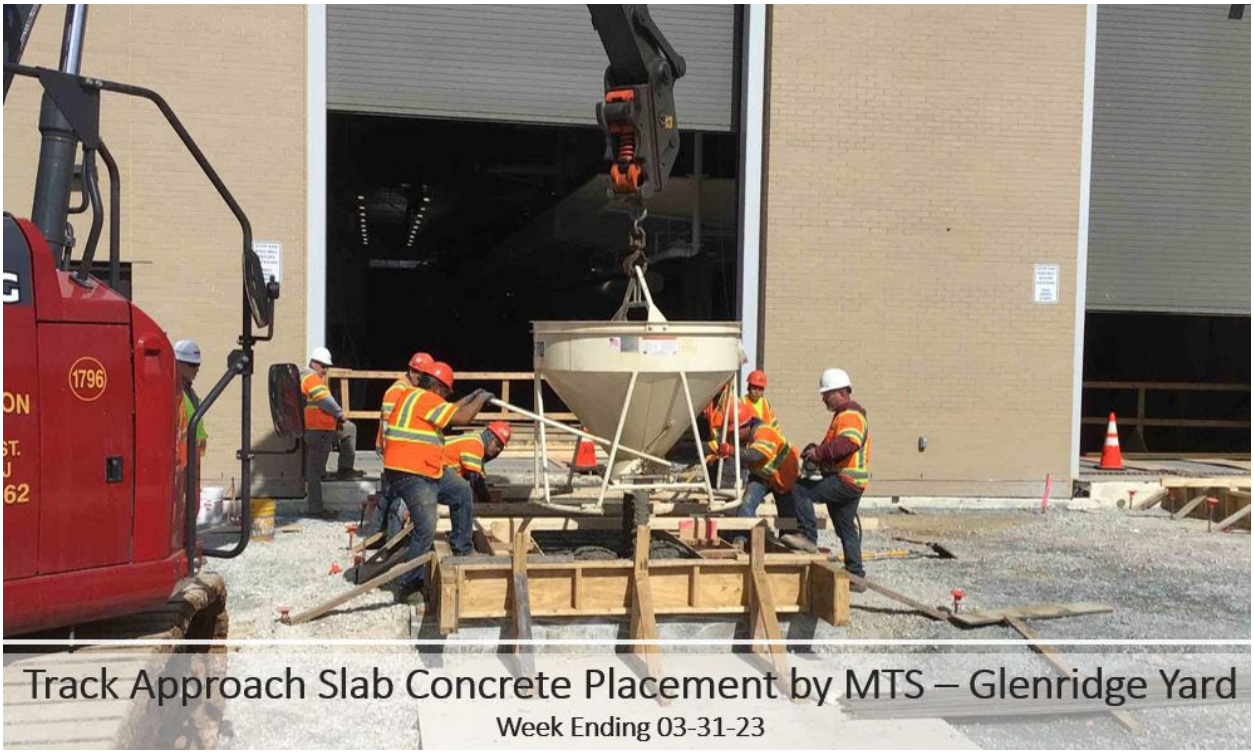
Photos courtesy of Maryland Transit Administration.

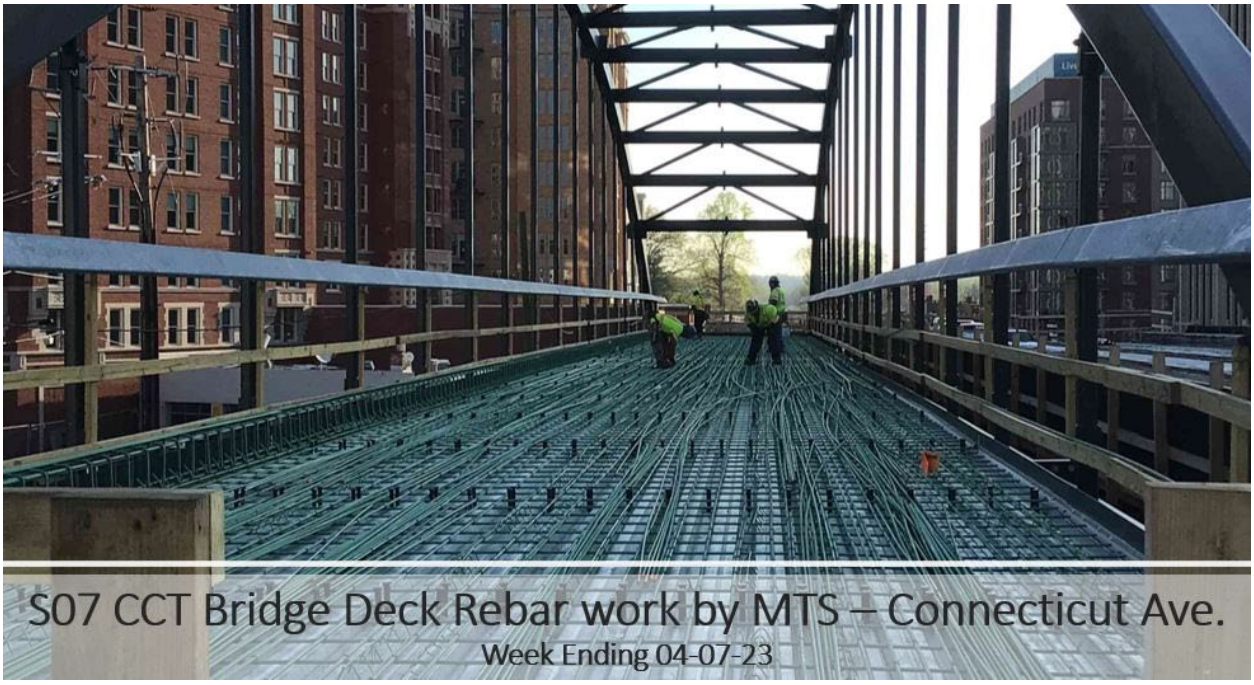


Embedded Track 2 Thermite Welding by MTS – Ellin Road at Veterans Pkwy
Week Ending 03-31-23



CIP Wall 1-002 & 1-003 Soil Nail Work by MTS – Bethesda Enclosed Trainway
Week Ending 04-07-23


Track Approach Slab Concrete Placement by MTS – Glenridge Yard
Week Ending 03-31-23


S07 CCT Bridge Deck Rebar work by MTS – Connecticut Ave.
Week Ending 04-07-23



Temporary Traffic Signal Installation By MTS – Riverdale Rd
Week Ending 04-14-23



Fence Relocation work by MTS – Rosemary Hills Elementary School
Week Ending 04-14-23



Storm Drain at Manhole MH98-04 work by MTS – UMD
Week Ending 04-21-23



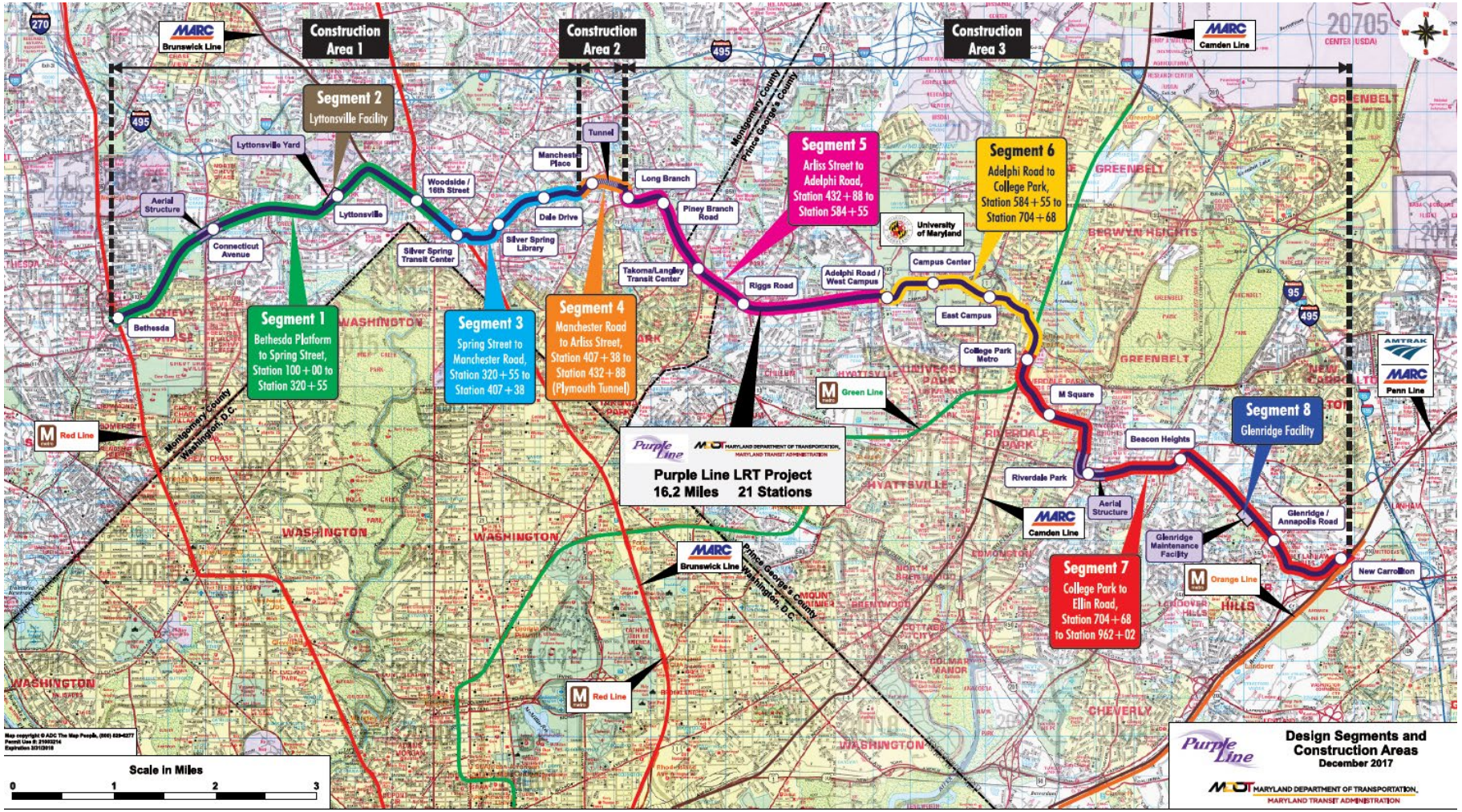
CIP Wall 3-138 Footing Excavation work by MTS – Wayne Ave.
Week Ending 04-21-23

ATTACHMENT G – ROADMAP TO REVENUE OPERATIONS

In accordance with Oversight Procedure (OP) 25, the Roadmap to Revenue Operations, prepared from the Project Sponsor's master schedule, is issued quarterly as a separate electronic file. Because the Project Sponsor's master schedule is undergoing a major revision for schedule recovery, the dates currently shown will change.

Per OP 25, this item is issued quarterly "as a separate attachment." Due to the transition to a new Design-Build contractor, quarterly updates will be provided when available. Refer to the July 2020 Project Management Oversight Contractor Monitoring Report for the most recent update.

ATTACHMENT H – PROJECT MAP



COMPREHENSIVE MONITORING REPORT
February 2023–April 2023

Metro Fleet and Train Control Replacement Project
MTA Non-New Starts Capital Projects

Maryland Transit Administration
Baltimore, Maryland
Final

Draft Report Delivered to FTA on May 1, 2023
Final Report Delivered to FTA on May 10, 2023

PMOC Contract No.: 69319519D000016
Task Order No.: 69319520F300095
Project No.: 69319519D000016/69319520F300095
Requisition/Reference No.: FTA-TPM20-20-0106
OPs Referenced: 20, 22, 24, 25, 26
CLINs 0001, 0002, and 0005

David Evans and Associates, Inc.
John Susino, Task Order Manager
Voice: 610-570-6496; Email: john.susino@deainc.com
Time on Project: 05/18/2020 through 05/17/2025

REPORT FORMAT AND FOCUS

This report is submitted in compliance with the terms of the Federal Transit Administration (FTA) Contract #69319519D000016, Task Order #69319520F300095. Its purpose is to provide information and data to assist FTA as it continually monitors the management capacity and capability of the Maryland Transit Administration (MTA) (the Project Sponsor) to execute the project efficiently and effectively, and hence, whether the Project Sponsor continues to be ready to receive federal funds for further project development. This report covers the project management activities on the Metro Fleet and Train Control Replacement Project and the MTA Non-New Starts Capital Projects managed by MTA as the Project Sponsor. The cost and schedule information in this report was extracted from MTA's April 17, 2023, monthly report, except where noted. This report has been organized to comply with the requirements of updated Oversight Procedure 25 – Recurring Oversight and Related Reports dated June 2020.

THIRD-PARTY DISCLAIMER

This report and all subsidiary reports are prepared solely for FTA. This report should not be relied upon by any party, except FTA or the Project Sponsor, in accordance with the purposes as described below.

Projects funded by FTA and monitored by its Project Management Oversight Contractor (PMOC) can utilize a risk-based assessment process to review and validate a Project Sponsor's budget and schedule. This risk-based assessment process is a tool for analyzing project development and management. Moreover, the assessment process is iterative in nature; any results of an FTA or PMOC risk-based assessment represent a "snapshot in time" for a particular project under the conditions known at that same point in time. The status of any assessment may be altered at any time by new information, changes in circumstances, or further developments in the project, including any specific measures a Project Sponsor may take to mitigate the risks to project costs, budget, and schedule, or the strategy a Project Sponsor may develop for project execution. Therefore, the information in the reports will change from quarter to quarter, based on relevant factors for the period and/or previous periods.

TABLE OF CONTENTS

1. EXECUTIVE SUMMARY 1
1.1. Project Description 1
1.2. Project Status 1
1.3. Major Issues and/or Concerns 5
1.4. Status of Key Indicators Dashboard (Post-Grant) 7
1.5. Core Accountability Items 8
2. OBSERVATIONS AND FINDINGS 9
2.1. Summary of Monitoring Activities 9
2.2. Oversight Triggers 9
2.3. Project Management Plan and Subplans 10
2.4. Management Capacity and Capability 10
2.5. National Environmental Policy Act Process and Environmental Mitigation 10
2.6. Project Delivery Method and Procurement 10
2.7. Design 10
2.8. Value Engineering and Constructability Reviews 15
2.9. Real Estate Acquisition and Relocation 15
2.10. Third-party Agreements and Utilities 15
2.11. Construction 15
2.12. Vehicle Technology and Procurement 25
2.13. Project Cost 25
2.14. Project Schedule 27
2.15. Project Risk 31
2.16. Quality Assurance/Quality Control 31
2.17. Safety and Security 32
2.18. Americans with Disabilities Act 32
2.19. Buy America 32
2.20. Start-Up, Commissioning, Testing 32
2.21. Before-and-After Study Reporting 32
2.22. Lessons Learned 32
2.23. Actions Items Table 33

ATTACHMENT A – LIST OF ACRONYMS 34
ATTACHMENT B – SAFETY AND SECURITY CHECKLIST 36
ATTACHMENT C – TOP 5 PROJECT RISKS 39
ATTACHMENT D – AWARDED CONTRACTS 40
ATTACHMENT E – ROLLING STOCK VEHICLE STATUS REPORT 41
ATTACHMENT F – PROJECT MILESTONES/KEY EVENTS 42
ATTACHMENT G – ROADMAP TO REVENUE OPERATIONS 43
ATTACHMENT H – PROJECT MAP 46

LIST OF TABLES

Table 1 – Major Issues/Concerns and Action Items 5
Table 2 – Key Indicators Dashboard 7
Table 3 – Core Accountability Items 8
Table 4 – Project Federal Grants 26
Table 5 – Project Funding Summary 26
Table 6 – Project Schedule 30

1. EXECUTIVE SUMMARY

1.1. Project Description

The Metro Fleet and Train Control Replacement Project, as part of the Maryland Transit Administration (MTA) (Project Sponsor) Non-New Starts Capital Projects, renovates the MTA Metro System that consists of a double-tracked train-controlled signaling system that is 15 miles long and a Metro railcar fleet consisting of 100 cars that are now more than 30 years old. The MTA Metro System is located in Baltimore, Maryland. The Metro railcars were designed with a 30-year life and are now due for replacement. The Automatic Train Protection system is currently experiencing reliability problems due to its age and parts obsolescence. The Metro Fleet and Train Control Replacement Project, which is using phased construction, consists of installation of a new Communications Based Train Control (CBTC) system, 78 new railcars (based on a needs assessment), phaseout of the old fleet, and decommissioning of the old train control system. The project cost is budgeted at $476,851,000, which is unchanged from the value reported in the 2022 Quarter 3 Project Management Oversight Contractor (PMOC) comprehensive monitoring report.

1.2. Project Status

The contract was awarded to Hitachi Ansaldo Baltimore Rail Partners, LLC (HAB) (now Hitachi Baltimore Rail Partners LLC [HBR]) in July 2017. Notice to Proceed (NTP) was issued on September 1, 2017. HBR is making contract submittals and conducting project training. Submissions of Train Control and Railcar Conceptual Design Reviews (CDRs) and Preliminary Design Reviews (PDRs) and review meetings have been completed. The PDR phase for the Train Control system was completed in February 2019, and the Railcar PDR phase was completed in March 2019 (with the exception of Lighting, which was completed in early May 2019).

Work by HBR to complete the Reliability, Availability, Maintainability, and System Safety (RAMS) documentation for the vehicles continues, and the impacts of COVID-19 have delayed completion of the Final Design Review (FDR) phase from the original September 2020 due date. As first reported in April 2021, the RAMS documentation and the FDR remain under review and revision. **As of January 18, 2023, the RAMS documentation was nearing completion. MTA warns that the *First Vehicle Delivery* cannot progress without completing the related Factory Acceptance Test (FAI) and construction conformance checklist. MTA now anticipates that HBR will complete the construction conformance checklist by the end of May 2023.** Based on the proposed baseline schedule, this slow delivery of vehicles is no longer expected to further delay project completion. HBR is actively managing this process to mitigate additional delays.

- Scope: No significant changes to the scope have been initiated since MTA added axle counters in the existing Metro vehicle yard as part of the Train Control portion of the project.
- Summary of COVID-19-related Items:
    - Most COVID-19 staffing-related delays to the Train Control system ended by September 2021.

- The final first-round training session for the Solid-state Interlocking (SSI)/Data Communication System (DCS)/Local Automatic Train Supervision (LATS) was postponed and rescheduled to be completed just before startup of the first interlocking.
- HBR's Italian carshell manufacturer (OMEP) reopened to approximately 95 percent to 100 percent of its normal capacity in June 2020; carshell production work continues.
- Railcar FAIs did not occur on schedule because of travel restrictions and closed facilities. Railcar FAIs began in late June 2020 and are continuing. Accommodations were made for remote FAIs where needed.
- Maryland on-site construction and Train Control testing and commissioning were initially shut down in April 2020 and restarted in May 2020; however, these activities experienced another two-week shutdown in December 2020.
- Factory Acceptance Tests (FATs) for SSI were postponed due to travel restrictions but are now complete.
- SSI manufacturing was shut down but has resumed.
- The structural qualification testing required for carshell acceptance that was to be performed on Carshell X, which has a reworked roof, was moved from Italy to Germany as a result of new COVID-19 restrictions that were imposed in October 2020. The beginning of structural qualification testing was delayed from April 2021 to September 2021 due to backlogs and employee COVID-19 exposures at the testing vendor.
- **MTA has not reported new issues or impacts from COVID-19 since June 2021, with the exception of the global supply chain disruptions that delayed the delivery of vehicle subsystems and materials. MTA indicated that it is able to segregate COVID-19-related impacts (i.e., labor, material supply, superchips) from other project costs. In regard to HBR's claim for a second no-cost time extension of 20 months due to COVID-19, MTA reported that HBR has provided evidence for only 7 months of delay related to COVID-19. MTA specified that if HBR continues to stall on providing further information, MTA may close out the claim by granting an 8-month, no-cost time extension, and if HBR cannot recover the remaining 12 to 13 months, MTA will assess liquidated damages. This second request for a no-cost time extension is for issues above and beyond the previously granted extension.** ***The PMOC recommends that MTA maintain records related to these disruptions in case a claim on this subject should arise in the future.***

- Schedule:
  - MTA approved HBR's February 28, 2018, project baseline schedule (Rev. 3), which showed a project completion date of May 2024, with warranty completion

and project closeout scheduled to occur in May 2026. HBR submitted its Project Schedule Update V11, with a data date of March 1, 2019, to address some of MTA's prior comments. In its April 2019 and May 2019 schedule submissions, HBR presented schedule recovery plans to MTA that attempted to recover the Full Revenue Service date (although these recovery plans did not recover the interim milestones, including the Phased Revenue Service Start date).

- In May 2020, MTA decided to proceed with the addition of axle counters in the yard. Because of uncertainty related to testing requirements for these axle counters, HBR's Project Schedule Update V25 showed a delay of the Full Revenue Service date to February 6, 2024. MTA rejected HBR's Project Schedule Update V25.
- After multiple submittals, rejections, and comments, MTA accepted Project Schedule Update V28 from HBR in September 2020 as the new baseline schedule. Project Schedule Update V28 showed the completion of the "Train Control" construction milestone on May 5, 2025; the "Last Vehicle Final Acceptance" milestone on March 1, 2024; and the "Revenue Service Full Project" milestone on September 15, 2024.
- Starting in April 2021 and continuing through January 2022, MTA reported that the project was delayed compared to the previously accepted September 2020 baseline schedule. As of January 12, 2022, HBR projected that the "Last Vehicle Final Acceptance" milestone was delayed by 257 days from the baseline schedule to November 13, 2024, and that the "Revenue Service Full Project" milestone was delayed by 258 days from the baseline schedule to November 12, 2024.
- In January 2022, HBR proposed a new baseline schedule to MTA, referred to as Schedule Update 41. Since January 2022, MTA and HBR have been negotiating the details of the proposed baseline schedule (Schedule Update 41). HBR requested that MTA accept Schedule Update 41 as the new baseline schedule. In the interim, HBR has submitted **12 schedule revisions after receiving comments from MTA. HBR submitted the latest revision (Schedule Update 41R12) in March 2023. MTA indicated that it is now awaiting a proposed update to the baseline schedule and has established a May 10, 2023, deadline for its receipt. MTA remains in negotiations with HBR as it works through the commercial aspects of a change order to officially replace the contract's baseline schedule.** MTA is working under the expectation that the milestones in the current revision will be accepted as the new baseline schedule. In the most recent schedule update presented on April 17, 2023, MTA is reporting that the "First Vehicle Delivery" (aka the "First Married Pair") milestone is delayed until May 2023, which is 20 months later than the current baseline schedule. Schedule Update 41R12 also shows that the "First Vehicle Final Acceptance" milestone will be delayed until February 2025, and the "Last Vehicle Final Acceptance" milestone will be delayed until July 2026. Both of these dates are more than 25

months later than those shown in the current baseline schedule. Schedule Update 41R12 shows that the "Project Closeout" milestone will be delayed until March 2029, which is 22 months later than shown in the current baseline schedule.

- Cost: On **April 17, 2023,** MTA reported that **$213,784,000** of the $476,851,000 project budget had been expended through **February 28, 2023**. **Forty-six** change requests were in various stages of development, negotiation, and authorization; many were credits or no-cost changes, and the scope of two were funded by other sources. The total cost of the change requests is within the $20,000,000 contract contingency included in MTA's $440,517,000 contract with HBR. The change requests include the executed change order adding axle counters in the yard and a no-cost change order to align the period of performance with the current September 2020 baseline schedule.
- Significant Project Activities and/or Key Milestones:
    - Monthly meetings between Hitachi Rail executives and MTA leadership began in January 2021 to address issues related to vehicle quality and the project schedule. **The most recent meeting occurred on March 6, 2023. The executive meeting planned for April 14, 2023, did not occur and is being rescheduled to occur on or before May 11, 2023. Higher-ranking Hitachi Rail executives from both Japan and North American Corporate Offices were to attend the executive meeting, and the rescheduling was a result of those higher-ranking executives being unable to meet on April 14, 2023. MTA expects to discuss all the critical project issues at the rescheduled executive meeting.**
    - **MTA will implement a full weekend yard outage from May 5 to May 8, 2023. The expectation is that this will allow HBR to complete Automatic Train Supervision (ATS) and Light Detection and Ranging (LiDAR) testing, and also to perform interlocking testing. It is expected that backlog testing will also be completed during the weekend outage, so that CBTC can begin. ATS test reporting has begun for Supervisory Control and Data Acquisition (SCADA) for end-of-year revenue service; once that ATS test reporting is complete, focus will then shift to CBTC for early 2024.**
    - **The Train Control design conformance checklist is complete. MTA expects that HBR will submit the ATS and CBTC design conformance checklists by the end of April 2023 and the ATC design conformance checklist in May 2023. HBR has brought on two safety consultants to assist in improving and advancing safety certifications, and MTA has begun witnessing improvements in the safety certification process.**
    - **As first reported in December 2022, small holes in the floor of carshells were discovered where calcium chloride desiccant packs had been placed for shipping. These small holes occurred in carshells including those used in the fully or partially assembled Cars 200 through 214. HBR has halted the use of**

this desiccant for future shipments from Italy, and railcar assembly in Miami, Florida, was stopped. MTA also formally rejected 11 carshells.

- **At the HBR progress meeting during the week of April 11, 2023, HBR discussed an unofficial plan to possibly scrap 33 carshells because they do not meet Hitachi's Quality Standards. HBR now has provided a process for cleaning the corrosion dust from the 7 carshells that were shipped without the desiccant packs.**
- **A new issue regarding corrosion has appeared on some of the carshells that did not ship with desiccant packs. MTA provided as an example Carshell #034, which has corrosion dust but also displays flash rust in some areas, similar to the 33 carshells with corrosion from the desiccant.**
- **HBR has also identified noncompliance issues with the seven completed carshells that have shipped. MTA reminded HBR that it cannot continue forward with the seven completed carshells until the noncompliance issues are resolved. HBR continues to reuse components from corroded carshells.**
- **The Hagerstown, Maryland facility will be open to receive carshells by the end of 2023, and HBR continues to plan to move railcar production from Miami to Hagerstown in the first quarter of 2024. In a meeting between MTA and HBR's facility relocation project manager, MTA learned that HBR will offer all the staff at the Miami facility a chance to relocate to Hagerstown, but the offer will end on June 1, 2023, to allow HBR time to hire new staff at Hagerstown as necessary. HBR continues to plan to move a core group from Miami to help train new staff. MTA stated that HBR still has not submitted the risks related to the move.**

1.3. Major Issues and/or Concerns

Table 1 discusses the major issues or concerns impacting the project's scope, schedule, cost, risks, quality, safety, etc., as well as the Project Sponsor actions and the Federal Transit Administration (FTA) and PMOC recommendations.

Table 1 – Major Issues/Concerns and Action Items

Issue/Concern	HBR's schedule updates continue to show slippage of the project baseline schedule interim milestones and the project completion dates. Project Schedule Update V28 has been accepted as the new baseline schedule and reflects initial COVID-19-related impacts, but the pandemic has caused **additional impacts not covered by the new baseline schedule**. **This September 2020 baseline schedule does not include contingency time or "float."** HBR has now proposed a new baseline schedule (Schedule Update **41R12**) that delays most vehicle delivery and acceptance milestones by approximately **22 to 25+ months** from the current baseline schedule.
Date Identified	June 2020
Status	In progress
Project Sponsor Action	MTA is conducting monthly executive meetings throughout calendar year **2023**. **MTA has requested that higher-ranking Hitachi executives from Japan be at these meetings. The meeting in April 2023 was to be the first with Japanese corporate executives in attendance. This meeting did not occur and is being rescheduled to**

	occur on or before May 11, 2023. Meetings are focusing on HBR's plans to meet the schedule, proposed mitigations for any items that are forecast to be late, and ways to improve and resolve quality and safety issues.
PMOC Recommendation	MTA should continue to perform its **own** schedule analysis to forecast realistic key milestones. This analysis should include a reasonable amount of schedule contingency based on MTA's experience with HBR's performance to date and MTA's professional experience. It should be used as the basis to report schedule status to FTA and the PMOC. MTA should track delays closely and continue to provide monthly updates to assess how delays are being mitigated. MTA should continue to provide FTA and the PMOC with summaries of the executive meetings held with Hitachi Rail.
Issue/Concern	**Since the incident when** MTA rejected Roof #1 due to significant quality issues, **HBR continues to experience significant quality issues. Corrosion of carshells due to desiccant, corrosive dust, the need to rework axle counters, and a cracked structural bolster beam are a few of the more recent quality concerns and issues affecting the project.**
Date Identified	July 2020
Status	Ongoing
Project Sponsor Action	**MTA has been attempting, through the executive meetings, to get HBR more involved in addressing the quality issues. HBR recently hired consulting firms to assist with security certification issues. MTA has suggested to HBR that it do the same for the quality issues.**
PMOC Recommendation	MTA should continue **to work with HBR and its executives** to fully evaluate the root causes of the quality issues and revise the associated quality processes accordingly.
Issue/Concern	COVID-19-related challenges have the potential to impact the project budget and schedule.
Date Identified	June 2020
Status	Ongoing
Project Sponsor Action	MTA reports that **there are no further COVID-19-related impacts aside from those that are the basis for HBR's latest request for a no-cost time extension. MTA states that HBR has evidence for only 7 months of COVID-19-related delay out of the 20 months requested.**
PMOC Recommendation	In the opinion of the PMOC, **MTA should finalize any outstanding time extension requests, continue to monitor and quantify the impact of these delays that could be related to COVID-19.** MTA should incorporate a realistic project schedule that is mutually agreed to by MTA and HBR.

1.4. Status of Key Indicators Dashboard (Post-Grant)

Table 2 shows the key indicators dashboard for the project.

Table 2 – Key Indicators Dashboard

Project Sponsor:				Maryland Transit Administration	
Project Name:				Metro Fleet and Train Control Replacement Project/MTA Non-New Starts Capital Projects	
Date:				**April 17, 2023**	
Project Detail					
Oversight Frequency:				**Monthly**	
Element	**Status**			**Prior Status**	**Issue or Concern**
	●	●	●		
	G	**Y**	**R**		
Project Management Plan (PMP)		●		●	PMP updates are prudent based on recent cost and schedule impacts.
Management Capacity and Capability		●		●	Management capacity and capability reviews are not being performed on this Non-New Starts Project. However, The PMOC is evaluating MTA's project management capacity as a result of the change in staff: **Michael Ollinger was promoted, and Wane-Jang Lin has assumed his role until the vacancy can be filled.**
Cost*		●		●	Realistic added costs that will result from schedule delays currently may not be reflected in the project budget.
Schedule			●	●	The currently proposed baseline schedule extends the project by up to **28** more months without float.
Quality			●	●	Quality issues related to the improper storage of carshells and corrosion of floor beams during shipping have been discovered. Quality issues also remain in the area of **safety certification checklist documentation and testing, and have not improved. However, now that HBR has hired consultants to assist with security certification, MTA is starting to notice an improvement in that issue.**
Safety	●			●	No issues.
Risk			●	●	Schedule, cost, and quality risks remain high.
Legend					
Green	*Satisfactory: No corrective action necessary.*				
Yellow	*Caution: Risk/issues exist. Corrective action may be necessary.*				
Red	*Elevated for immediate corrective action: Significant risk to the health of the project.*				

*Note: With regard to cost:
Yellow – Forecast cost exceeds the project budget by up to 3%.
Red – Forecast cost exceeds the project budget by more than 5%.

1.5. Core Accountability Items

Table 3 shows the core accountability items for the project, including the current status of the project and the major issues and how they are being addressed.

Table 3 – Core Accountability Items

		Original (Grant)	Current Forecast	PMOC Assessment of Current Forecast
Cost	Capital Cost Estimate	$465,851,000	$476,851,000	This estimate includes $10 million of additional budget from state funds for construction management and administration due to delays through June 2022.
Contingency	Unallocated Contingency		$53,960,840	This contingency level appears adequate at this point in the project; however, schedule delays are likely to exhaust this amount before project completion.
	Allocated Contingency		$3,762,160	This amount will be exhausted before project completion.
	Total Contingency	$20,000,000	$57,723,000	Values include local and federal funds in the baseline budget.
Schedule	Revenue Service Date	11/29/2022	07/22/2026	This forecasted date is more than **25** months later than shown in the baseline schedule agreed to by the contractor in January 2021.

Project Progress		**Amount ($)**	**Percent of Total**
Total Expenditures	Actual cost of all eligible expenditures completed to date	**213,784,000**	**44.8%**
Planned Value to Date	Estimated value of work planned to date	Not Available	Not Applicable
Actual Value to Date	Actual value of work completed to date	Not Available	Not Applicable

Contract Status		**Amount ($)**	**Percent of Total**
Total Contracts Awarded	Value of all contracts (design, support, construction, equipment) awarded; % of total value to be awarded	466,767,000*	97.9%
Construction Contracts Awarded	Value of construction contracts awarded; % of total construction value to be awarded	408,459,000*	86.0%
Physical Construction Completed	Value of physical construction (infrastructure) completed; % of total construction value completed	195,091,000	43.6%

Rolling Stock Vehicle Status	**Date Awarded**	**No. Ordered**	**No. Delivered**
200 through 277	11/12/2016	78	0

Next Quarterly Progress Review Meeting:	**May 15, 2023**

*** Includes change orders issued through March 15, 2023.**

2. OBSERVATIONS AND FINDINGS

2.1. Summary of Monitoring Activities

The PMOC attended monthly virtual meetings on **February 14, 2023, March 15, 2023, and April 17, 2023,** with MTA project staff and MTA's Project Management Consultant. The PMOC prepared a trip report for each meeting to document the discussions.

2.2. Oversight Triggers

The oversight triggers most applicable to the project are the Oversight Procedure (OP) 25 schedule, cost, and quality triggers. The project schedule has been in one form of update or another throughout the current quarter. MTA and HBR agreed upon a no-cost change order in January 2021 that extended the Project Closeout date by 12 months to May 2027. Since the September 2020 revised baseline schedule was agreed upon with the contractor in December 2020, nearly every key milestone has been delayed by more than 12 months. The "Revenue Service Full Project" milestone is projected to be delayed an additional **22 months.** Project schedule delays typically impact project cost, another significant indicator of project health.

Quality issues in the carshell manufacturing, first noted in July 2020, reportedly have been addressed. A second issue resulted in a roof buckling after it was assembled on Carshell #002 in November 2020. MTA reported additional minor quality issues with the carshells in March, April, June, and July 2021, which HBR has addressed. HBR completed root cause analysis of the nonconforming paint inclusions on frame subassemblies on three carshells and of paint on the F-end mask assemblies. HBR determined that the causes were related to shipping and handling, and painting errors. HBR has not confirmed the corrective actions but was inspecting for paint errors, so that they can be repaired before the mask assemblies arrive at the Miami facility. HBR is addressing a minor quality issue related to seat brackets, as reported by MTA in October 2021. In November 2022, MTA reported that calcium chloride from desiccant packs had caused corrosion on the floor beams of the carshells, including small holes less than 1/4 inch in diameter in some floor beams where desiccant packs had been placed before shipment from Italy. MTA then reported in December 2022 that, upon closer inspection of the first 16 cars, HBR has found the same corrosion on the floor beams on cars that were in production and FAI. As of January 18, 2023, HBR was assessing whether each car could be repaired or would need to be scrapped. **In April 2023, MTA reported that HBR was strongly considering scrapping all the carshells that had been exposed to desiccant. HBR tried to mitigate the schedule impacts related to the corrosion issue by shipping seven carshells from storage in Italy so that it can restart production. Recently, HBR identified noncompliance issues with the seven completed carshells that had been shipped from Italy. At the end of March 2023, MTA was made aware that additional corrosion was being uncovered on other carshells that were not shipped with desiccant packs inside. MTA provided as an example Carshell #34, which has corrosion dust but also displays flash rust in some areas that is similar to carshells with the desiccant-related corrosion. MTA has reminded HBR that it cannot continue forward with the seven completed carshells until the noncompliance issue is resolved. HBR continues to reuse components from corroded carshells.**

2.3. Project Management Plan and Subplans

Project Management Plan (PMP) Rev. 3, dated August 2019, is the latest formal version issued for this project. MTA continues to update selected sections of the PMP. As first reported by the PMOC in October 2020, due to significant schedule and budget revisions and the quality issues, MTA should consider updating the PMP. Incorporating lessons learned into MTA's daily management practices could benefit project performance moving forward.

2.4. Management Capacity and Capability

The PMOC is not performing comprehensive Management Capacity and Capability Reviews for these Non-New Starts Capital Projects.

2.5. National Environmental Policy Act Process and Environmental Mitigation

The National Environmental Policy Act process and environmental mitigation are not applicable to this task order assignment.

2.6. Project Delivery Method and Procurement

Project delivery method and procurement reviews are not being performed on this task order assignment.

2.7. Design

MTA awarded the contract to HBR in July 2017 and issued NTP on September 1, 2017. HBR provided a preliminary schedule to MTA in September 2017 and subsequently completed the formal project baseline schedule submittal in accordance with contract requirements. MTA is tracking and implementing design changes.

2.7.1. Train Control

MTA conducted a design review of the technical specifications of Train Control with Ansaldo Signaling and Transportation Systems (Ansaldo STS) on October 3 and October 4, 2017. MTA conducted the CDR for Train Control with Hitachi Rail on November 28 and November 29, 2017.

All Train Control CDRs were completed in early May 2018. The first PDR meetings were held June 25 through June 28, 2018, and the next meetings were held in mid-July 2018. Additional Train Control system PDR submittals were made in October 2018 through December 2018. Completion of the Train Control PDR phase occurred in February 2019, and the remaining review comments were later resolved. A data warehouse Contract Deliverables Requirements List workshop was held to determine what documents were needed and the status of their development, and to reach agreement on the documents needed for FDR. Initially, COVID-19-related impacts delayed completion of the Train Control FDR. As of January 2022, the work to complete the RAMS documentation had delayed completion of the Train Control FDR phase from the date shown in the baseline schedule and had delayed the "Design Completion" milestone. MTA reported in June 2022 that the RAMS documentation, FDR, Fire Hazard Analysis (FHA), and construction conformance checklist for the Owings Mills and Old Court SSIs were complete,

allowing these two SSIs to enter revenue service on June 25, 2022. The remaining seven SSIs entered service between September 2022 and December 2022.

On April 17, 2023, MTA reported that HBR is continuing to verify the evidence for closure of the design conformance checklist. MTA now anticipates that HBR will complete the checklist by the end of May 2023. The "First Vehicle Delivery" cannot progress without completion of the FAI and the construction conformance checklist. This completion date of May 2023 is five months later than the date for this milestone completion reported in the PMOC Comprehensive Monitoring Report for Quarter 4 of 2022.

ATS software development remains a critical item for Train Control. HBR encountered difficulty related to the interface of the ATS with the existing SCADA system and recently received MTA's approval to use HBR's own SCADA solution. The CBTC software General Application was released in April 2020, and it now allows HBR to work on the site-specific CBTC software for MTA.

As of October 14, 2020, all Train Control engineering FDR documents had been submitted and reviewed. As of January 13, 2021, HBR had not yet provided the completed engineering documents in order to complete safety certification of the Owings Mills SSI to achieve revenue service in March 2021, as planned. Although approximately 20 of the 40 initial FDR and construction conformance items had been closed, the remainder were due back to MTA for final review by January 15, 2021. As of July 14, 2021, HBR had not completed the three remaining RAMS documents, which included analyses for the Fire, Smoke, and Toxic Inhalation (FST) matrix and the FHA. The FST matrix must be approved before the FHA can be performed, in accordance with FHA requirements. MTA rejected the FST matrix in March 2021, requiring HBR to revise and resubmit it. In May 2021, MTA and HBR began meeting weekly to address issues and gain clarification on the documents in the FST matrix as efficiently as possible, in an attempt to expedite the approval process for the FST matrix. MTA reported that verification of the design and construction conformance checklists continued and needed to be completed in order to put the Owings Mills SSI into revenue service. MTA estimated in July 2021 that the FST matrix would be approved in August 2021 and that all the RAMS documentation would be approved in October 2021. In October 2021, MTA reported that MTA had accepted the FST matrix and that HBR expected to submit the FHA later in October 2021. MTA also reported that MTA Safety had agreed to remove some documents from the RAMS FDR, because they are dependent on the checklists for the ATS and CBTC software. However, in January 2022, MTA staff reported that HBR was still assembling the design conformance checklist for the RAMS FDR and was again revising the FST matrix for the FHA. MTA also noted that the construction conformance checklist and testing reports and documentation remained incomplete.

As a result of the delay in completing the RAMS documentation, there was another delay in the Owings Mills SSI revenue service date. MTA reported that it was unclear when HBR would put the Owings Mills SSI into revenue service, but it was not expected to occur before March 2022. On April 14, 2022, MTA reported that it did not expect HBR to put Owings Mills SSI into revenue service until after May 2022. MTA then reported on July 20, 2022, that Owings Mills and Old Court SSIs had entered revenue service on June 25, 2022. MTA reported on October 20, 2022, that

Milford Mill and Reisterstown Plaza SSIs had entered revenue service the weekend of September 24, 2022. MTA reported that Portal and Rogers Avenue SSIs entered revenue service during the weekend of November 4, 2022, and State Center, Charles Center, and Johns Hopkins SSIs entered revenue service during the weekend of December 17, 2022. These were the last of the nine SSIs.

The SCADA-ATS systems remain in development. HBR held two prototyping sessions in Baltimore, one each in November and December 2020, to fully demonstrate the interface of the full ATS functionality. Final demonstration of the graphical user interface of the ATS functionality occurred in March 2021. The customer-witnessed FAT occurred in July 2021 in Pittsburgh, Pennsylvania. On April 14, 2022, MTA reported that the SSI commissioning tests conducted during the overnight hours were complete at all SSIs as well as on the main line, except for the dynamic testing between Johns Hopkins and Charles Center. On June 13, 2022, MTA reported that the dynamic testing between Johns Hopkins and Charles Center SSIs had been completed.

The first release of the full CBTC software package occurred in April 2021. MTA reported in October 2021 that the software was on track to be delivered in time for the April 2022 FAT; however, in December 2021, MTA reported that the full CBTC software package would be delayed until July 2022. On April 14, 2022, MTA reported that the ATS software update was nearing completion and remained in testing by HBR. The testing revealed some interface issues that were then resolved. After the second FAT on September 12, 2022, during which HBR successfully demonstrated many of the ATS functions, MTA reportedly asked HBR for a complete list of the open items remaining to be addressed. MTA continues to receive the required monthly Key Performance Indicator report that it uses to assess progress. The CBTC is being prepared in four phases, and the first three are complete. MTA reported on October 19, 2022, that both the initial FAT and the lab testing for the CBTC software are complete, thus allowing the customer-witnessed FAT for the CBTC to proceed. **MTA reported on April 17, 2023, that it will implement a full weekend outage of the yard from May 5 to May 8, 2023. The expectation is that this outage will allow HBR to complete ATS and LiDAR testing, as well as to perform interlocking testing. It is expected that backlog testing will be completed during the weekend outage, so that CBTC can begin. MTA announced that ATS test reporting has begun for SCADA for end-of-year revenue service; once that ATS test reporting is complete, the focus will then shift to CBTC for early 2024.**

On April 14, 2022, MTA reported that HBR's integration manager position remained vacant, although HBR had assigned three internal resources from other projects to fill in on an interim basis until the position could be filled. HBR's commissioning manager position was also vacant, and HBR had also divided this work among other HBR personnel. On May 11, 2022, MTA reported that HBR had filled both the integration manager and commissioning manager positions with staff outside of the project, but that the train control integration manager position was vacant. On June 13, 2022, MTA reported that HBR had filled the train control integration manager position at the end of May 2022. MTA stated that it was stressing to Hitachi Rail executives that they must not allow staffing levels to lapse in these critical documentation areas. As of January 18, 2023, MTA had not reported any new key HBR vacancies. ***Considering the potential negative impacts***

on the schedule and the potential safety issues related to any of these positions remaining vacant for an extended period of time, the PMOC recommends that MTA regularly monitor the status of these positions.

In June 2022, the PMOC requested and received HBR's System Test Plan that also serves as the commissioning plan.

Initial FAT procedure submissions and reviews were completed in early February 2019 to support the first FAT, which occurred at the end of February 2019. MTA completed the customer-witnessed FATs of the Owings Mills equipment racks and the first DCS ring at the end of February 2019. Testing results were satisfactory, and HBR subsequently addressed the remaining open items, completed the reports, and packed and shipped the hardware to Baltimore.

MTA began conducting biweekly workshops in spring 2019 to focus on the completion of outstanding documentation by HBR, including but not limited to, RAMS documentation for both the PDRs and the FDRs, hazard analyses, and safety certification checklists. MTA Safety commenced biweekly workshops with HBR in Pittsburgh, Pennsylvania, to push safety certification documentation forward and develop a clear path for phased safety certification. This strategy was reflected in what was the current schedule update at that time.

2.7.2. Metro Fleet

MTA held technical review meetings for Railcar with HBR from October 18 through October 20, 2017. MTA held the November 2017 monthly Railcar progress meeting with HBR in Miami, Florida, which included a tour of Hitachi Rail's manufacturing facility as well as the Miami railcars. MTA conducted a tour of the Hitachi Rail car body and truck manufacturing facility in Pistoia, Italy, in April 2018.

HBR completed Railcar CDRs in May 2018 for all elements except Lighting, and HBR commenced PDR work for these items in June 2018. HBR selected a new Lighting supplier and completed the Lighting CDR at the end of June 2018. HBR completed the remaining Railcar PDR submissions in January 2019. HBR held PDRs for Operator Cab, Event Recorder System, and Video Management System (VMS) Trainline in December 2018, and for Communications, Interiors/Operator's Cab/Renderings, and Heating, Ventilation, and Air Conditioning (HVAC) in January 2019. HBR subsequently completed the Train Control PDRs in February 2019, except for Lighting. The PDR session for Lighting occurred on May 13, 2019. HBR held the Railcar FDR for trucks on April 5, 2019, and for car bodies on May 9, 2019. HBR held FDRs for Railcar HVAC and Doors in December 2019, and for Trainline Network and VMS in January 2020. As of June 10, 2020, HBR had completed Railcar FDR meetings for all subsystems except for the Event Recorder System and Interiors. HBR worked with suppliers to schedule the Event Recorder System and Interiors FDR meetings before the end of July 2020 and continued to work on FDR documentation. However, work on completion of RAMS documentation and COVID-19-related impacts delayed completion of the FDR phase until October 2020.

MTA reported on June 10, 2020, that HBR had submitted the Preliminary Hazard Analysis (PHA) for Train Control. MTA had several comments, which were addressed. HBR submitted the revised

Train Control PHA to MTA, and it has been approved. HBR also submitted the Railcar PHA to MTA. MTA did not expect significant comments on the Railcar PHA, because MTA had held an in-process workshop with HBR to proactively address issues.

As of October 14, 2020, MTA reported that MTA Safety personnel continued to work with HBR on design conformance checklist verification. The Railcar PHA, which would allow finalization of the RAMS documentation, was not yet approved. As of January 13, 2021, the Railcar PHA had one remaining open item in order to close out the PHA. This remaining item was related to cybersecurity of CBTC software and was expected to be completed before March 2021. At that time, this effort was expected to support the overall safety certification process. In March 2021, MTA reported that the Railcar PHA had been completed and approved. As of April 2021, the milestone for completing the vehicle design, titled "Mfg. Design Complete," was projected to be complete approximately four months later than indicated in the baseline schedule. As of July 2021, the milestone for completing the vehicle design was projected to be complete in August 2021, approximately six months later than indicated in the baseline schedule. As of October 13, 2021, completion of the vehicle design milestone was delayed further, and vehicle design was projected to be complete on October 26, 2021, approximately eight months later than indicated in the baseline schedule. As of July 20, 2022, the vehicle design milestone had not been reached and was projected by MTA staff to be delayed until after August 2022. As of **April 17, 2023**, the vehicle design milestone was projected to be complete on **June 30, 2023.** This date is **four** months later than reported in the PMOC's Comprehensive Monitoring Report for Quarter **4** of 2022, and more than 24 months later than shown in the current baseline schedule. ***The PMOC recommends that MTA continue to analyze the schedule and require the contractor to develop and implement recovery activities, as well as incorporate float and report realistic milestone dates to FTA.***

HBR held a review of the Railcar Requirements Traceability Matrix in November 2019 and subsequently has made progress in assigning nearly all requirements. MTA also held a seating review meeting with Kustom Seating, which was later put under contract with HBR. Kustom Seating delivered a seat sample at the end of December 2019.

In addition, HBR completed the Traction Power Study in summer 2018, and HBR preliminarily identified no Traction Power issues as part of the study. HBR prepared a plan to address the Traction Power Substation (TPSS) Simulations Study that was required by contract and began testing and simulations in June 2019. HBR completed the TPSS Simulation Study, and the report underwent several months of internal HBR review. HBR reported no issues based on a preliminary review of the study. HBR submitted the TPSS Simulation Study to MTA, discussed the findings, and addressed the review comments in September 2019. MTA found no major issues; however, HBR did not fully evaluate the touch potential as a potential hazard. MTA added extra work for HBR's subconsultant, Burns Engineering, to provide a hazard analysis with respect to the results of the touch potential evaluation. MTA advised at the time that, although it does not expect any issues related to completeness and documentation, a hazard analysis was needed.

HBR performed dynamic load testing and Railcar baseline electromagnetic testing with the existing railcars in July 2018. HBR completed track geometry testing in August 2018. HBR performed exterior-mounted disc brake clearance testing the week of September 17, 2018, and

several obstructions were identified. HBR completed a review of the test data and test safety margins (length of test rods) in November 2018 and found them to be overly cautious. Retesting was performed, and no clearance issues were identified.

The new vehicles do not have barriers to guide sight-impaired passengers from mistaking the gap between the vehicles as an entry door. After about six months of planning, MTA installed a sample platform-mounted barrier at Charles Center and held a demonstration for Federation for the Blind representatives on September 16, 2021, to get their feedback. The demonstration went well, and MTA received only minor comments. MTA has since prepared a change request for HBR, with the intent to procure the materials for the barriers. MTA procured a separate contractor to install barriers on station platforms during the summer of 2022. This activity is not on the critical path.

2.8. Value Engineering and Constructability Reviews

Value Engineering and constructability reviews are not applicable to this task order assignment.

2.9. Real Estate Acquisition and Relocation

Real estate acquisition and relocation reviews are not applicable to this task order assignment.

2.10. Third-party Agreements and Utilities

Third-party agreements and utilities are not applicable to this task order assignment.

2.11. Construction

2.11.1. Control System Construction

HBR started construction field work to identify available existing conduits and installation of pull strings in April 2018. HBR began inner duct and fiber backbone material deliveries in July 2018. In addition, HBR began demolition work for removal of equipment and unused cable to support the new Train Control system in early September 2018 at the Owings Mills Train Control Center. Construction proceeded generally toward the east, starting from the western terminus at Owings Mills. HBR started cable tray installation in October 2018 and completed this installation at Owings Mills and Milford Mill in November 2018. HBR began installation of the inner duct in December 2018, and continued installation of inner duct, power cable, and fiber each weekend through October 2019.

The project team had been holding monthly status meetings for Owings Mills' entry into revenue service. HBR had been providing a detailed schedule showing only Owings Mills activities. HBR completed static testing of Owings Mills SSI in July 2019. HBR also completed fiber installation for DCS Ring 1 and DCS Ring 2 in December 2019. HBR completed terminations for DCS Ring 2 in the first quarter of 2020. HBR successfully completed the FAT for Rogers Avenue SSI at the end of December 2019. HBR started DCS Ring 1 testing in August 2019 and Owings Mills SSI functional testing in September 2019. The target for Owings Mills commissioning of the SSI/DCS/LATS equipment was the end of December 2019, but commissioning was significantly delayed, also delaying safety certification.

HBR scheduled pilot training for SSI/DCS/LATS to start in October 2019, with regular student training to follow starting in January 2020. However, HBR has since delayed this training to align with the revised Owings Mills SSI/DCS/LATS revenue service date.

HBR provided the DCS pilot training in November 2019, but the training did not meet the needs of MTA. MTA and HBR held a workshop, and HBR subsequently updated the DCS pilot training. HBR was able to address all concerns about the training and provide a rack of hardware identical to that to be used by MTA for a successful dry run of the DCS pilot training, which was held on December 18, 2019. On January 6, 2020, HBR began actual student training, which included DCS, SSI, and LATS, and the second five-day training session was completed on February 7, 2020.

During March 2020, HBR continued commissioning activities at Owings Mills, McDonogh Road, Old Court, and Milford Mill. However, in early April 2020, HBR shut down all commissioning work due to COVID-19. HBR subsequently resumed commissioning work in May 2020 and continued finalizing tests at Owings Mills, Old Court, and Milford Mill. MTA Metro approved weekend outages throughout 2020 to facilitate testing and commissioning activities.

In June 2020, HBR completed wiring at Reisterstown Plaza and continued wiring at the Rogers Avenue location. HBR completed fiber installation for DCS Ring 2 and continued to progress fiber terminations at Ring 2 locations. HBR was also working to finalize power distribution designs for all of the Train Communication and Control Rooms.

In July 2020, HBR completed wiring at Rogers Avenue and continued wiring at Portal. HBR continued fiber terminations at the DCS Ring 2 locations. Testing and commissioning staff were finalizing tests at Owings Mills, Old Court, and Milford Mill. The SSI manufacturer was working on the equipment for Johns Hopkins. HBR continued Train Control work in July 2020, working on verification of the construction conformance checklist for SSI/DCS/LATS.

In August through September 2020 and into October 2020, HBR continued work on SSI/DCS/LATS design conformance verification, as well as work on an agreement to proceed with construction conformance verification where approved documents were cited as evidence. HBR completed fiber terminations with DCS Ring 2 and tested at Owings Mills, Reisterstown Plaza, Old Court, Milford Mills, Rogers Avenue, and Portal. HBR performed dynamic testing in October 2020 between Old Court and Milford Mill during nighttime non-revenue hours.

Also, in October 2020, using the TPSS Simulation Study and related touch potential hazard analysis, MTA determined that the Shot Tower TPSS and the Johns Hopkins TPSS are the higher touch risks due to the voltages found. However, the time of the exposure was a critical factor that the simulation did not address. Rather than spend approximately $100,000 for further simulation, MTA elected to purchase a logging Protective Circuit Device (PCD) that can log the actual duration of the high voltage. If the first location was found to require a permanent voltage protective circuit, then the logging PCD would be replaced with a permanent PCD. The logging PCD would then be moved to the next location. If the exposure was short enough that a permanent PCD was not required, MTA would remove it, and no further action at either location would be required. Both the Johns Hopkins TPSS and the Shot Tower TPSS were being considered for the PCD installation, and the first location was to be selected from those two locations based on ease

of installation of the logging PCD. In October 2021, MTA advertised for and selected a logging PCD vendor that had submitted a bid of less than $30,000. MTA expected up to eight months of lead time to obtain the logging PCD and to have the unit installed at the Shot Tower TPSS in summer of 2022. However, as of January 2022, MTA and the PCD vendor were continuing to negotiate terms and conditions. As of April 14, 2022, MTA and the PCD vendor had reached agreement on the terms and conditions for this PCD installation. At that time, MTA expected the logging PCD to be installed at the Shot Tower TPSS by the end of January 2023. After first planning to have MTA staff install the device, in July 2022 MTA reported that it had concluded that an outside service provider would be needed to perform this installation. MTA also concluded that the logging PCD would be installed at the Shot Tower TPSS. MTA reportedly approved the purchase order in September 2022 and advertised the installation work in January 2023. **As of March 15, 2023, MTA's outside service provider was to begin installing the previously purchased logging PCD at the Johns Hopkins TPSS during the first week in April 2023, and the installation will take up to three weeks. The outside service provider will then install the logging PCD at other locations. This activity remains off the schedule's critical path.**

In December 2020, HBR had installed all Train Control wiring racks throughout the project and was wiring the Johns Hopkins racks. HBR continued testing for all control points from Milford Mill through Charles Center. HBR was coordinating the construction and testing with the track replacement efforts at the State Center interlocking. The track replacement work required temporary track circuits and various other temporary Train Control elements, which interfered with new circuits being installed.

As of April 2021, HBR construction crews had turned over the main line locations to the commissioning crews and were using single-tracking during weekends to install wireless access point fiber and power. HBR's construction team was focusing on the axle counters in the yard. Completing the work in the yard was critical to getting the test track ready for the first vehicle in January 2022. MTA reported that the controller hut FAT was completed in June 2021, and the controller hut was installed in July 2021.

MTA reported on June 13, 2022, that all the construction conformance testing was complete at both Owings Mills and Old Court SSIs with the exception of the hardware and software Independent Safety Assessment (ISA) certifications. HBR had not completed these ISA certifications for the later models and versions, which was preventing HBR from completing the hazard tracking log. HBR was working quickly to replace the outdated hardware and software in order to align with the ISA documentation.

MTA reported on July 20, 2022, that it and HBR had put Owings Mills and Old Court SSIs into service on June 25, 2022. At the time, HBR and MTA planned to bring Milford Mill and Reisterstown Plaza SSIs into revenue service by the end of August 2022, followed by Portal and Rogers Avenue SSIs in September, and State Center, Charles Center, and Johns Hopkins SSIs near the beginning of November 2022. MTA noted that HBR would once again need to provide the hardware and software ISA certifications for the models and versions installed, which could delay the cutover of Milford Mill and Reisterstown Plaza SSIs to the second weekend in September 2022, but MTA was optimistic that this would not delay the entry into service of the other SSIs.

MTA reported on October 20, 2022, that the Milford Mill and Reisterstown Plaza SSIs had entered revenue service the weekend of September 24, 2022, four weeks later than previously reported. MTA reported on December 21, 2022, that the Portal and Rogers Avenue SSIs had entered revenue service during the weekend of November 4, 2022, and reported on January 18, 2023, that State Center, Charles Center, and Johns Hopkins SSIs had entered revenue service during the weekend of December 17, 2022. These were the last of the nine SSIs.

In April 2021, HBR began mobilizing into the yard and began the design review process. In addition, MTA and HBR began holding project meetings specific to the axle counter work. In July 2021, MTA and HBR completed negotiations for the change order for the "Yard Axle Counters" (CN-034) at a final value of $4,999,930. HBR made good progress in July 2021, completing asphalt demolition where cabling conduits would be trenched into place, and had begun installing the conduits after using ground-penetrating radar to avoid inadvertently damaging other underground items. HBR continued raceway and cabling installation into October 2021 because the equipment hut had passed its FAT, and the manufacturer was preparing to ship it from New York. HBR planned to install the hut in October 2021 and to continue installing cabling through November 2021. At the time, MTA reported that the axle counter construction remained roughly on schedule and was expected to be completed in December 2021. Commissioning was planned to begin in January 2022, in time for the test track to receive the first vehicles in May 2022.

As of January 2022, MTA had reported delays in both the yard axle counter construction and vehicle manufacturing. HBR was continuing the axle counter work in the yard, including raceway and cabling. MTA was expecting the work to be complete and for static testing to begin in June 2022. This testing was planned to be completed in small blocks totaling 80 hours per week, as negotiated between the MTA Operations staff and HBR. The equipment hut was in place, and the FHA analysis for the hut was complete. HBR began installing the train control interlocking for the yard, and MTA expected that installation to continue through August 2022. Fortuitously, MTA's December 2021 schedule submittal, Schedule Update 41, showed more delays to the vehicle production and testing milestones, thus removing the completion of the testing track in the yard from the critical path.

As of April 14, 2022, HBR was continuing the axle counter work in the yard under an approved change order. MTA expected the installation work to be complete and static testing to begin later in April 2022 and to continue to be completed in small blocks totaling 80 hours per week through August 2022. However, MTA reported on July 20, 2022, that the testing had revealed that as many as 45 of the 71 counter units may have been installed at incorrect locations relative to the yard signals. HBR was working to confirm this with its supplier, Frasier. In September 2022, MTA reported that only 17 of the 71 counter units were installed at incorrect locations. The reworking of the installations at these locations will require modification of the conduits and cabling in many of these locations. MTA reported in October 2022 that these modifications will not delay the completion of the test track. In January 2023, HBR issued a Purchase Order to the subcontractor, but the modification work has not yet begun, and MTA has not received the detailed rework design. MTA noted that HBR has proposed extending cable runs by adding a junction box and adding a splice—a proposal that MTA must still review and may not approve. However, MTA did not

expect this work to be significant enough to further delay achieving the "First Vehicle Delivery" milestone, because the actual construction work is expected to take only two weeks. **MTA reported on April 17, 2023, that negotiations between HBR and its subcontractor continue to delay the start of this work. The subcontractor has filed a claim against HBR. If this claim is not resolved and the required axle counters are not moved by June 2023, the dynamic testing will be affected. MTA mentioned that the subcontractor is ready to move forward, and axle relocation will take two weeks, but the subcontractor will not move forward until the issue with HBR is resolved.**

2.11.2. Metro Fleet Fabrication and Assembly

HBR completed the Railcar front-end mock-up work in April 2019. HBR modified the mock-up from an oval door to the rectangular door requested by MTA. MTA reviewed the mock-up in Naples, Italy, and toured the car body manufacturing facility the first week of May 2019. MTA had several comments on the mock-up that HBR continued to address.

HBR delayed stainless steel sheet shipments for the car bodies but received an initial shipment, sufficient for the first several cars, in January 2019. Additional shipments arrived in customs in Italy in early May 2019. The later shipments of stainless-steel sheets reached the HBR facility to continue uninterrupted car body fabrication. HBR and OMEP (the carshell manufacturer) commenced manufacturing of some of the vehicle underframe assemblies in January 2019 and continued this work through March 2020. However, in early April 2020, HBR and OMEP shut down all manufacturing work in their Italian facilities due to COVID-19 restrictions. OMEP subsequently reopened its facility in Italy, and the facility was back to approximately 95 percent of its normal capacity by early May 2020.

Following car body structural/crash testing, HBR expected to complete the manufacture of the first vehicle carshell for a planned delivery to Miami, Florida, in May 2020. However, HBR extended the delivery date to August 2020 as a result of the shutdown of manufacturing work in Italy due to COVID-19 restrictions.

After completing the FAIs for traction motor and carshell subcomponents, HBR canceled FAIs scheduled for March 2020 due to travel restrictions imposed in response to the COVID-19 pandemic. In addition, HBR postponed the full carshell FAI due to COVID-19 restrictions in Italy. HBR and MTA then developed an FAI protocol that allows both in-person and virtual participation. By January 2021, HBR had completed 21 of 48 FAIs and by April 2021 had completed 37 of 55 FAIs. By July 2021, HBR had completed 44 of 55 FAIs, which was unchanged from HBR's June 2021 report. As of October 13, 2021, HBR had completed 49 of 55 FAIs, and planned to schedule and complete the six remaining FAIs in October and November 2021. As of January 2022, HBR had completed one additional FAI, for a total of 50 FAIs, and as of April 2022, it had completed all 55 FAIs on Carshell #002 (aka Car 200). On July 20, 2022, MTA reported that the FAIs on the assembled car for propulsion, auxiliary power, undercar, and the "pre-finishes" interior elements had approximately 60 comments that required closing in order to begin type testing. On September 19, 2022, MTA reported that HBR had begun type testing of the first married pair after completing the FAIs for the propulsion, auxiliary power, undercar, and the pre-

finishes interior elements. HBR had previously closed all of the 60 comments required to begin type testing, and 100 minor comments remain that can be resolved while the type testing is underway. MTA also reported that it and HBR are continuing to hold regular meetings to address open FAI items in order to expedite FAI completion and substantially close items before the first married pair is shipped from Miami to Baltimore. In January 2023, MTA reported that after discovering small holes in the floor beams of improperly stored carshells, HBR inspected the cars in production and found floor beam corrosion on all the cars from calcium chloride desiccant packs. These cars included the cars in Married Pair 1 that is the subject of the FAIs. After it passes FAIs, HBR intends to ship Married Pair 1 to MTA for operational testing. **On April 17, 2023, MTA reported that the "First Vehicle Delivery" (a.k.a. "First Married Pair") milestone is delayed until June 30, 2023, 21 months later than the current baseline schedule and three months later than previously reported. HBR is still completing the necessary safety certification documents before the first married pair is shipped to Baltimore, Maryland. This milestone remains on the critical path, but MTA noted that certification of the test track in the yard is not far off the critical path and is expected to be completed by the end of May 2023.**

In January 2023, MTA reported that, as a result of the corrosion found in cars both properly and improperly stored in the United States, railcar assembly in Miami has stopped. HBR had shipped three completed carshells that were not impacted by the corrosion from Italy to Miami so that production could restart in February 2023, and HBR was planning to ship another four carshells by January 20, 2023.

On April 17, 2023, MTA reported that at the HBR progress meeting during the week of April 11, 2023, HBR discussed an unofficial plan to possibly scrap 33 carshells because they do not meet Hitachi's Quality Standards. MTA indicated that HBR has provided a process to clean the corrosion dust from the other carshells not affected by the desiccant-related corrosion. In addition, a new issue regarding corrosion has appeared on some of the carshells. MTA provided as an example Carshell #034, which is exhibiting corrosion dust but also displaying flash rust in some areas, similar to carshells with corrosion from the desiccant. HBR has also identified similar noncompliance issues with the seven shipped completed carshells. MTA has reminded HBR that it cannot continue forward with the seven completed carshells until the noncompliance issue is resolved. HBR continues to reuse components from corroded carshells.

MTA reported on September 21, 2022, that equalization testing, which tests how the car sits on the bolster and how the car operates with excess superelevation, could not be completed in Miami. MTA reported on October 19, 2022, that MTA and HBR had agreed to have one car of Married Pair 3 (Car 204 or Car 205) shipped to Italy, where Hitachi Rail has a testing facility, before sending it to Austria for the climate chamber testing as planned. After looking for a suitable equalization testing facility in the United States as an alternative, HBR assured MTA that the risk of missing the climate testing window at the Austrian facility is minimal and that there is little chance that shipping one car to Italy for equalization testing will delay delivery of railcars to Baltimore.

HBR completed the carshell roof FAI on June 8, 2020, but open nonconformance reports remained. After a workshop with HBR, MTA rejected Roof #1 because of significant quality issues. In August 2020, MTA agreed to allow HBR to repair the roof and install it on a carshell (Carshell X) to be sent for structural qualification testing in Italy. However, because of COVID-19 restrictions in Italy, Carshell X was shipped to Germany for structural qualification testing. After delays due to backlogs and employee COVID-19 exposures at the testing vendor, the structural qualification testing was completed in September 2021. Following the completion of structural qualification tests, the carshell (now Carshell #001) was shipped back to HBR's facility in Italy. MTA reported in January 2022 that the carshell was being evaluated for acceptance using lasers, and MTA's representatives were present to witness the evaluation for acceptance.

In July 2020, MTA also rejected corrugated sheets for Roofs #2 through #8 due to quality, storage, and other issues. However, HBR presented a repair solution for Roofs #2 through #8 that was accepted by MTA. In September and October 2020, MTA's review of the FAI of the roof on Carshell #002 resulted in minor comments.

HBR assembled Carshell #002 and made it ready for the Carshell FAI. However, in November 2020, MTA rejected the carshell when the roof was improperly positioned during final assembly of the carshell, causing the roof panels to buckle. HBR then terminated the FAI.

MTA executives and Hitachi Rail executives met on November 19, 2020, and the cause of and solutions to the roof panel buckling were presented. Hitachi Rail submitted solutions to MTA, including the addition of reinforcing ties (or gusset plates) to the frame joints, as well as the addition of HBR staff inspectors at the fabrication shop. HBR has added the reinforcing ties to the joints on Carshells #002 and #004. HBR intended to submit Carshell #004 for FAI if MTA accepted the mitigating measures.

After the November 2020 meeting, HBR made changes to address railcar quality. Following staffing changes at OMEP (the carshell manufacturer) and the meeting with Hitachi Rail executives in December 2020, MTA reported that the quality of the carshells had improved.

In January 2021, after repairing Carshell #002 and strengthening the roof/wall connections that occurred due to the roof buckling, the carshell was in transit to Miami, Florida. HBR and OMEP reworked Carshells #003 and #004, after having the roof-to-wall connections strengthened. All future carshells include this change.

MTA and Hitachi Rail leadership met in January 2021 to review the structural testing results and to decide whether Carshell #003 could be sent to Miami before the FAI on Carshell #004 or whether shipment of Carshell #003 should wait until the FAI on Carshell #004 was complete.

In addition, MTA requested monthly executive meetings throughout calendar year 2021 that would be led by Hitachi Rail's Head of Delivery for North America and include MTA's Administrator and Chief Executive Officer. Meetings were intended to focus on HBR's plans to meet the schedule and propose mitigations for any items that are trending late. The first of these meetings occurred on February 12, 2021, and subsequent meetings occurred on March 12, 2021, April 9, 2021, June 11, 2021, July 9, 2021, August 18, 2021, September 24, 2021, December 10, 2021, February 22, 2022, April 8, 2022, May 13, 2022, June 10, 2022, July 7, 2022, August 12, 2022,

September 9, 2022, and October 26, 2022, but no meeting was planned for November 2022. Meetings planned for December 2022 and January 2023 were canceled to allow the parties to meet specifically to negotiate the baseline schedule change order. **MTA and HBR subsequently held an executive meeting on March 6, 2023.**

MTA had initially reported in January 2022 that Hitachi Rail executives had agreed to continue to meet through the end of 2022. One early outcome of these meetings was the initiation of an internal HBR weekly meeting that focuses on schedule recovery, specifically to address delays of critical path items that are scheduled to begin within 30 days and to organize staff around those activities. In July 2021, HBR reassigned someone from the commissioning group to act as an overall site manager in an effort to free up the Project Director from day-to-day activities and drive progress on critical items, including improving the quality of RAMS and other documentation, which continued to be an issue.

In June 2021, MTA expressed frustration with the results of the first three monthly executive meetings. None of the expectations set forth in the first meeting in February 2021 had actually been met. MTA noted that the quality of RAMS and other documentation was still an issue, and observed that HBR's organization was understaffed, with workers assigned to multiple projects. MTA also noted that, in areas where HBR staff members had been added, such as in the train control field quality area, they appeared to be disorganized.

Since June 2021, as an outcome of the executive meetings, HBR has initiated a number of staff changes aimed at avoiding future delays, including replacing and reassigning the prior Project Director to an advisory role, adding a train control commissioning leader, and adding a verification and validation manager to address the quality issues related to safety certifications. HBR contracted a third party to track and prepare as-built installation drawings for the yard in order to address issues encountered in completing the design conformance for the train control construction. Further, HBR added staff to assist with railcar safety certifications and documentation. MTA continues to note that HBR has high staff turnover in the verification and validation roles.

MTA shared the presentation and notes from the March 6, 2023 meeting, and it demonstrated that HBR is not putting in enough effort to address the issues and that HBR has little regard for project management practices. Given these conditions, MTA was forced to require Hitachi top executive leadership from Japan to attend the April 2023 executive meeting. However, the planned April 2023 executive meeting had to be rescheduled to May 11, 2023, in order for the requested leadership to align their calendars for the meeting. MTA has issued an ultimatum to HBR regarding attendance at this May 11, 2023 meeting.

In 2021, as another outcome of the executive meetings and to mitigate continued delays in the vehicle assembly, HBR was planning to ship missing subassemblies by air to Miami, Florida, to expedite the "First Vehicle Delivery" milestone. With MTA's concurrence, HBR moved the Interiors FAIs for Cars 200 and 201 to the Miami facility rather than conducting them remotely over disparate time zones. The plan was to address nonconformities in Miami or through air shipment of replacement parts from China.

In January 2021, HBR began assembly of Carshell #002 in Miami, Florida, installing windows, doors, and other appliances and making necessary window gasket adjustments. HBR held qualification tests for side doors, end doors, and door watertightness in February 2021. MTA's inspector remained on-site in Miami to monitor vehicle assembly activities. HBR's assembly team in Miami, MTA's inspector in Miami, and MTA Quality Assurance staff in Maryland held biweekly quality meetings as the work progressed.

MTA staff visited the vehicle production facility in Miami the week of August 30, 2021, and performed quality audits that resulted in no findings and only a few recommendations.

As of October 13, 2021, Carshells #002 through #009 were in Miami, and Carshells #010 through #013 were in transit from Italy. Carshell production was under way in Italy on Carshells #014 through #019. HBR was assembling only Cars 200 through 204 (Carshells #002 through #006), because most of the subassemblies for these vehicles had arrived and were on-hand in Miami. At that time, floors were completed on Cars 200, 201, and 202.

As of January 12, 2022, Carshells #002 through #013 were in Miami, and Carshells #014 through #019 were in transit from Italy. Also as of January 12, 2022, HBR was in production on Carshells #020 through #024 in Italy, and in Miami, HBR was assembling Carshells #002 through #008, designated as Cars 200 through 208. The delays to the assembly process had forced HBR to look for additional weathertight storage options for the carshells arriving from Italy because the Miami facility can store only 16 carshells indoors.

As of April 14, 2022, Carshells #002 through #016 were in Miami, and Carshells #017 through #022 were in transit from Italy. Also as of April 14, 2022, HBR was in production on Carshells #023 through #029 in Italy. HBR was assembling Carshells #002 through #010, designated as Cars 200 through 209, in Miami. Also as of April 14, 2022, floors had been completed on Cars 200 through 207, and undercar work and some interior work continued, though the delayed delivery of subassemblies and interior materials and some materials shortages, such as adhesive for the flooring, continued to hamper the vehicle assembly process. HBR was continuing to look for additional weathertight storage options for the carshells arriving from Italy as it approached the 16-carshell capacity at the Miami facility.

As of July 20, 2022, Carshells #002 through #016 remained in Miami, and Carshells #017 through #027 were at ports in Brunswick, Georgia, and Jacksonville, Florida, depending on which ship transported them. After being unable to find additional weathertight storage in the Miami area, HBR was holding Carshells #028 through #032 in Italy until assembly of vehicles in the Miami facility progressed. Carshells #033 through #037 were also in production in Italy. HBR was assembling Carshells #002 through #016, designated as Cars 200 through 214, in Miami. Cars 200 and 201, as the first married pair, were fully assembled, and Car 200 was undergoing the FAI process. In addition, floors had been completed on Cars 200 through 214, and undercar and interior work was continuing on Cars 202 through 209.

On July 20, 2022, MTA staff reported that inspections of Carshell #017 in Brunswick and Carshell #018 in Jacksonville revealed noncompliance issues. The inspections found that the protective covers were damaged, either from heavy weather or from breaking down due to sun exposure, and

they had some surface rust. Carshell #018 had interior paint scratches and trash inside, suggesting squatters had been using it. While MTA believed that the damage could be repaired, storage of the carshells in this manner does not comply with the contract or the quality plan. As of July 20, 2022, HBR was making room for and making provisions to move all ten carshells stored at these two ports to the Miami facility, but a date for this was unknown.

As of October 19, 2022, Carshells #002 through #016, now designated as Cars 200 through 214, were being assembled in Miami, Florida. Carshells #017 through #020 had been moved to Miami from the ports in Brunswick, Georgia, and Jacksonville, Florida, to be stored until assembly. Carshells #021 through #027 were still at the ports in Brunswick and Jacksonville. HBR was holding Carshells #028 through #035 in Italy until assembly of other vehicles in Miami progresses. Carshells #036 through #042 were in production in Italy. Cars 200 and 201, as the first married pair, had been fully assembled and were undergoing the FAI process. One car from Married Pair 3 (Car 204 or Car 205) was designated to be shipped to Italy for equalization testing, before being shipped to Austria for climate chamber testing.

On October 19, 2022, MTA reported that Carshells #019 and #020 were moved to Miami from the ports in Brunswick and Jacksonville. As was the case when Carshells #017 and #018 were moved from these two ports, minor surface rust from improper storage was discovered. MTA also reported that closer inspection of the carshells revealed that small holes less than 1/4 inch in diameter had formed in some floor beams where desiccant packs, which had been placed in the carshells before shipment from Italy, had ruptured. These desiccant packs had been absorbing moisture from the air, causing the ruptures. HBR had begun designing repairs and examining the carshells that remained at these two ports and was planning to possibly remove the remaining desiccant packs.

As noted above, in January 2023, MTA reported that railcar assembly in Miami had stopped as a result of the corrosion found in cars both properly and improperly stored in the United States. Before stopping production, HBR had been assembling Carshells #002 through #016, now designated as Cars 200 through 214, in Miami, and all carshells stored at the ports in Brunswick and Jacksonville had been moved into storage in Miami. HBR had also been holding Carshells #028 through #035 in Italy. Three of those carshells were shipped to Miami, and another four were being readied for shipment. Carshells #036 through #042 remained in production in Italy.

MTA first reported in November 2022 that HBR would be moving the railcar production from Miami to Hagerstown, Maryland, in the first quarter of 2024. HBR plans to keep the existing warehousing facility in Miami for at least six months after the opening of the Hagerstown facility, so that the warehousing facility in Hagerstown can be brought to full operation to avoid adding schedule delays. This planned timeline for the transition between the two facilities will result in at least the first seven married pairs (14 railcars) being assembled in Miami. The issues with corrosion will not change this planned transition.

Based on MTA's monthly report dated April 17, 2023, the Hagerstown facility will be open to receive carshells by the end of 2023, and HBR continues to plan to move railcar production from Miami to Hagerstown in the first quarter of 2024. In a meeting between MTA and HBR's facility relocation project manager, MTA learned that HBR will offer all the staff at

the Miami facility a chance to relocate to Hagerstown, but the offer will end on June 1, 2023, to allow HBR time to hire new staff at Hagerstown. HBR continues to plan to move a core group from Miami to help train new staff. MTA stated that HBR still has not submitted the risks related to the move.

MTA reported that the next schedule revision will likely be the version that will be accepted as the new baseline schedule. This new baseline schedule will account for the planned move of railcar manufacturing facilities to Hagerstown. Based on the consistent slippage and the lack of float in the project schedule, the current project schedule and budget are not achievable. *The PMOC recommends that MTA continue to require HBR to develop a mitigation plan that includes a realistic schedule along with an Estimate at Completion cost that includes sufficient contingency based on that mitigation plan.*

2.12. Vehicle Technology and Procurement

Vendor: Hitachi Ansaldo Baltimore Rail Partners, LLC

Model: Hitachi Rail Italy (HRI)-MTA

Year: 2023 (first vehicle delivery)

Quantity: 78

Identification: 200 through 277

New Technologies: Not applicable

Upcoming Significant Events:

Time Frame	Event
June 2023	**Manufacturer's Design Complete**
May 2023	**First Vehicle Delivery (Married Pair)**

Bus Vehicle Testing: Not applicable

2.13. Project Cost

2.13.1. Project Budget

MTA reported the latest project cost data to the PMOC on January 18, 2023. Based on this data, which is through **February 28, 2023,** the project has total expenditures of **$213.8 million.** Table 4 shows the federal grants used for the project, and Table 5 shows the total project funding and the drawdowns on that funding through **February 2023**, as reported by MTA on **April 17, 2023**. ***The PMOC recommends that MTA continue to analyze the overall project budget, including administrative and oversight costs, in light of the ongoing schedule delays.***

Table 4 – Project Federal Grants

Federal Grants	Federal Amount	Drawdown
MD-2016-006 (Open)	$34,054,000	$34,054,000
MD-2016-007 (Open)	$3,645,000	$3,645,000
MD-2019-014 (Open)	$19,621,000	$17,824,000
MD-2019-017 (Open)	$5,002,000	$5,002,000
MD-2019-018 (Open)	$5,785,000	$5,785,000
MD-2020-003 (Open)	$16,847,000	$16,847,000
MD-2021-004 (Open)	$13,730,000	$13,730,000
MD-2021-013 (Open)	$27,946,000	$27,490,000
MD-2022-010 (Open)	$7,578,000	**$2,286,000**
1401-2021-30 (Pending)	$9,745,000	
1401-2021-30 18 (Under Development)	$38,032,000	
5307-22 (Under Development)	$45,178,000	
5307-23 (Future)	$26,098,000	
5307-24 (Future)	$24,010,000	
5307-25 (Future)	$15,043,000	
5307-26 (Future)	$3,331,000	
1401-2021-1 (Open)	$7,578,000	
ZG08XX (Under Development)	$10,301,000	
CMAQ-23 (Future)	$29,072,000	
5337-25 (Future)	$12,163,000	
5337-26 (Future)	$2,469,000	
Total	$349,650,000	**$122,229,000**

Note: Rounding in grant values is not reflected in the total.

Table 5 – Project Funding Summary

Funding Source	Amount	Drawdown
Federal	$349,650,000	**$122,229,000**
State/County	$127,201,000	$91,555,000
Total	$476,851,000	**$213,784,000**

MTA continues to manage change orders and change requests. The following is the status of contract changes as reported by MTA on **April 17, 2023:**

- **Forty-six** change requests have been initiated to date.
- Three of the change requests were cancelled.

- MTA and HBR have negotiated **38** change orders (with a related net increase to the contract value of **$7,988,560.89**), which include two change orders funded by separate MTA projects and the "Yard Axle Counters" (CN-034).
- Negotiations for a change request for the ground-penetrating radar work for the yard axle counters (CN-42) began in July 2022. The two parties have reached an agreement on the contract value, but the change order is not yet executed.
- Negotiations for a change request for the addition of exterior vehicle wraps with an overlaminate (CN-35) are complete, but the change order is not yet executed. While the change order value is significantly higher than MTA had anticipated, the two parties have reached an agreement on it. **Changes for the replacement or repair of additional signals above ground (CN-23R) and for a "clean agent" fire suppression system at the "Pit Hut" (CN-044) are tied to the axle counter rework subcontractor's claim and related issue (see the last paragraph of Section 2.11.1).**
- HBR is in the process of preparing cost proposals for the six remaining change requests, which are estimated by MTA to total approximately $0.5 million. These change requests have the approval of MTA's Change Control Board.
- **MTA reported on April 17, 2023, that additional changes have been requested. CN-045 is the second COVID-19-related no-cost time extension request, and CN-046 is to add the replacement of conduits in five locations. MTA did not report the monetary value of the commercial contract terms of the pending change requests; therefore, it is not reflected in this discussion.**

In addition, a major change to reduce the complexity of the Information Technology architecture system was identified during PDRs. As a result, a more standardized Cisco system will now be used. HBR initially advised that, pending a time impact analysis, this system change was expected to result in a three-month delay to Milestone 18 ("Completion and Acceptance of the Train Control System"). The change does not affect wayside equipment.

2.13.2. Disadvantaged Business Enterprise Performance

The project has the following Disadvantaged Business Enterprise (DBE) goals:

- HRI DBE goal: 8.00 percent (2019)
- Ansaldo STS DBE goal: 9.72 percent

Actual performance relative to these goals is reported separately to FTA by HRI and by Ansaldo STS (as a transit vehicle manufacturer) in accordance with the U.S. Department of Transportation DBE regulations.

2.14. Project Schedule

HBR submitted a preliminary project schedule that was revised to address comments that MTA provided in November 2017. MTA approved the February 28, 2018, Project Schedule (Rev. 3) as the project baseline schedule in March 2018.

After initial delays, HBR submitted the integrated Train Control and Railcar schedule recovery plan (HBR's Project Schedule Update V12) in May 2019. MTA reviewed Project Schedule Update V12 and accepted it as the schedule recovery plan. HBR's Project Schedule Updates through March 2020 continued to show delays to interim milestones and the Full Revenue Service date. Delays due to COVID-19 then began to occur.

In May 2020, MTA decided to proceed with the addition of axle counters in the yard, which MTA understood would result in delays that would be experienced concurrently with delays already resulting from design delays and COVID-19 restrictions.

HBR submitted Project Schedule Update V28 on September 10, 2020. MTA and its consultant reviewed it and returned it to HBR for revision and resubmission. MTA and HBR then met twice to resolve the comments and concerns, and HBR resubmitted Project Schedule Update V28 in October 2020. MTA's comments on Project Schedule Update V28 related to changes to the schedule since the previous update that were not fully documented and to other scheduling practices. HBR's proposed update V28 also included the past delays related to COVID-19, but the documentation to back up the COVID-19-related delays (starts and stops) of each activity was not provided.

In December 2020, MTA accepted Project Schedule Update V28 from HBR as the new baseline schedule. Comparison of the prior baseline schedule to the new baseline schedule indicated that the completion of the Train Control construction was delayed by 343 days (just over 11 months), and the "Revenue Service Full Project" milestone was delayed by 456 days (just under 15 months). MTA reported that this baseline schedule did not include contingency time, or float.

MTA reported in January 2021 that Project Schedule Update V29 showed 71 days of additional delay in the Train Control construction and 101 days of delay to the start of initial revenue service (also known as the "Revenue Service Start, if Phased" milestone). MTA had anticipated these delays, partially because of the amount of time that had elapsed between the date the schedule update was accepted as the new baseline schedule and its original "data date." HBR worked to mitigate these delays, which were not related to COVID-19. MTA issued a no-cost change order (CN-037) that extended the project duration to align with the new baseline schedule. **In regard to HBR's claim for a second 20-month no-cost time extension due to COVID-19, MTA reported that HBR has provided evidence for only 7 months' worth of delay due to COVID-19. MTA indicated that if HBR continues to stall on providing further information, it may close out the claim by granting an eight-month no-cost time extension. If HBR cannot recover the remaining 12 to 13 months, MTA will assess liquidated damages. This second no-cost time extension is for issues above and beyond the previously granted extension.**

Starting in April 2021 and continuing through January 2022, MTA reported that the project was delayed compared to the previously accepted baseline schedule. MTA reported that, as of January 12, 2022, HBR's most recent schedule update (Schedule Update 41) showed that the milestone titled "First Vehicle Delivery" (aka the "First Married Pair" milestone) was delayed by 302 days from the baseline schedule to June 21, 2022, and that the "Last Vehicle Final Acceptance" milestone was delayed by 257 days from the baseline schedule to November 13, 2024. The

"Revenue Service Full Project" milestone was delayed by 258 days from the baseline schedule to November 12, 2024. These milestone dates were one to four months later than reported in the PMOC's Comprehensive Monitoring Report for Quarter 3 of 2021. Further, MTA stated that Schedule Update 41 showed that the "Project Closeout" milestone would be delayed until December 2028, which was 11 months later than the date in Schedule Update 40 and 16 months later than the date in the current baseline schedule at that time.

In January 2022, MTA reported that HBR had proposed that MTA accept Schedule Update 41 as the new baseline schedule, replacing the September 2019 update that MTA had accepted as the new baseline in December 2020. As of April 14, 2022, HBR and MTA had met several times, and HBR had subsequently submitted a revised schedule (Schedule Update 41R) as the proposed new baseline schedule. On July 20, 2022, MTA reported that its negotiations with HBR were continuing, but that they had reached agreement on all the milestone dates. In the interim, HBR has submitted **12 schedule revisions after receiving comments from MTA. HBR submitted the latest revision (Schedule Update 41R12) in March 2023.** Schedule Update **41R12** shows that the First Vehicle Delivery (aka the "First Married Pair") milestone is delayed until **May 2023**, **20 months** later than the current September 2020 baseline schedule. Schedule Update **41R12** also shows that the "First Vehicle Final Acceptance" milestone is delayed until **February 2025**, and the "Last Vehicle Final Acceptance" milestone is delayed until **July 2026**. These are both more than 25 months later than the dates in the current baseline schedule. Schedule Update **41R12** also shows that the "Project Closeout" milestone is delayed until **March 2029**, which is **20 months** later than in the current baseline schedule. These projected milestones dates remained unchanged as of MTA's **April 2023** monthly report to the PMOC; however, on **April 17, 2023,** MTA reported that the "First Vehicle Delivery" (aka the "First Married Pair") milestone will likely not be met until **May 2023, two months** later than in the current version of Schedule Update **41R12.** Table 6 reflects information from Schedule Update 41R.

MTA reported on July 20, 2022, that a major milestone in the Train Control construction—putting Owings Mills SSI into service—which the current baseline schedule showed as occurring at the end of March 2021, was achieved on June 25, 2022. Old Court SSI also entered service at that time. On October 19, 2022, MTA reported that Milford Mill and Reisterstown Plaza SSIs had entered revenue service the weekend of September 24, 2022, four weeks behind the previously reported date. MTA reported on December 21, 2022, that Portal and Rogers Avenue SSIs had entered revenue service during the weekend of November 4, 2022, and reported on January 18, 2023, that State Center, Charles Center, and Johns Hopkins SSIs had entered revenue service during the weekend of December 17, 2022. These were the last of the nine SSIs.

Since March 2021, HBR and Hitachi Rail have held weekly meetings that focus on schedule recovery in order to address delays of critical path items that are to begin within 30 days and to organize staff around those activities. These efforts are in addition to the outcomes of the previously discussed executive meetings between MTA and Hitachi Rail.

In October 2021, MTA personnel verbally shared an initial assessment of the overall schedule, stating that, compared to the accepted baseline schedule, the "Revenue Service Full Project" milestone would occur up to 12 months later, in November 2025, in their most conservative view,

and as little as three months later, in January 2025, in their most optimistic view. These assessments are based on critical path items.

In December 2021, MTA personnel shared their updated assessment of the overall schedule in more detail. MTA outlined the approach used to assess each HBR schedule update. MTA's assessment focused on safety certification and commissioning activities because those activities have been most problematic. MTA's more conservative assessment of Schedule Update 39 (the most recent schedule update at the time) estimated that the "Revenue Service Full Project" milestone would occur in November 2025, 12 months later than shown in Schedule Update 38. MTA noted that HBR had begun changing activity durations in HBR's Schedule Update 40 without adjusting the logic to allow more overlapping activities. Because MTA's assessment was focused on the projected durations of activities, the unchanged logic made MTA's assessment of Schedule Update 40 overly conservative.

In January 2022, MTA reported that because HBR had proposed using Schedule Update 41 as the new baseline schedule, MTA was focused on analyzing Schedule Update 41R and discussing changes with HBR, rather than on updating its own independent analysis. Analyzing the revisions to the most recent schedule update, Schedule Update **41R12**, continued to be MTA's focus as of **April 17, 2023.**

Table 6 – Project Schedule

Activity	Original Contract or Grant Date	Current Approved Baseline Completion Schedule (Update 28, 9/1/2020)	Last Quarter Completion Dates	Current Completion Date (Update 41R12, 3/1/2023)	Change Since Last Quarter*	Actual
MTA Design Complete	3/1/2015	3/1/2015	3/1/2015	3/1/2015	-	3/1/2015
Right-of-Way Complete	Not Applicable (N/A)	N/A	N/A	N/A	N/A	N/A
Advertisement	9/30/2015	9/30/2015	9/30/2015	9/30/2015	-	9/30/2015
Bids/Proposal Due	3/31/2016	3/31/2016	8/12/2016	8/12/2016	-	8/12/2016
Award/BPW Date	11/30/2016	11/30/2016	7/26/2017	7/26/2017	-	7/26/2017
Notice to Proceed	12/15/2016	12/15/2016	9/1/2017	9/1/2017	-	9/1/2017
Construction:						
Contractor Design Complete	2/7/2019	12/15/2020	2/28/2023	3/31/2023	-31 Days	
Construction Start	5/14/2018	5/14/2018	4/2/2018	4/2/2018	-	4/2/2018
Construction Complete	5/26/2024	5/4/2025	9/19/2025	9/19/2025	-	
Vehicles:						
Mfgr Design Complete	5/29/2019	2/23/2021	2/28/2023	6/30/2023	-122 Days	
First Vehicle Delivery	5/29/2020	8/23/2021	3/7/2023	5/16/2023	-70 Days	
First Vehicle Cond. Accept	6/26/2021	11/3/2022	12/26/2024	2/23/2025	-59 Days	

Activity	Original Contract or Grant Date	Current Approved Baseline Completion Schedule (Update 28, 9/1/2020)	Last Quarter Completion Dates	Current Completion Date (Update 41R12, 3/1/2023)	Change Since Last Quarter*	Actual
First Vehicle Final Accept	6/26/2021	11/4/2022	12/27/2024	2/24/2025	-59 Days	
Last Vehicle Delivery	10/25/2022	1/23/2024	10/25/2024	6/19/2026	-602 Days	
Last Vehicle Cond. Accept	11/28/2022	2/28/2024	3/3/2026	7/22/2026	-141 Days	
Last Vehicle Final Accept	11/29/2022	3/1/2024	3/4/2026	7/23/2026	-141 Days	
Integrated Test Start	6/26/2021	6/21/2022	5/23/2023	7/31/2023	-69 Days	
Revenue Service Start, if Phased	6/26/2021	11/3/2022	12/26/2024	2/24/2025	-60 Days	
Revenue Service Full Project	11/29/2022	2/28/2024	4/27/2026	7/22/2026	-86 Days	
Last Car Delivery	11/29/2022	10/25/2022	3/26/2025	6/19/2026	-450 Days	
Project Closeout	5/26/2026	5/4/2027	12/19/2028	3/17/2029	-88 Days	

***Reason for Change:** Hitachi updated the schedule as the new proposed baseline. The schedule includes delays due to late delivery of the first married pair from testing in Miami, expected delays related to the move to Hagerstown, and delays associated with repair/replacement of corroded carshells.

2.15. Project Risk

It is recognized that the Train Control work has been very challenging, because both the new system and the existing system need to operate simultaneously during the transition period, when both new railcars and existing railcars are in operation.

The impacts of COVID-19 restrictions and the addition of axle counters in the yard both present risks to the project schedule. In addition, delivery of the vehicles has been delayed as HBR and the subassembly manufacturer worked to resolve roof quality issues, and quality issues with the carshells could resurface. The "First Vehicle Delivery" milestone remains a high-risk item because of delays in HBR's completion of the design documents and the slow completion of the FAIs; MTA is now expecting it to slip by two month to **May 2023.** The "Last Vehicle Delivery" milestone and the milestones that depend on it are also at a high risk of delay due to the recent discovery of corrosion on the floor beams of the 26 cars or car shells in the United States. The impacts of ongoing schedule delays are significantly increasing the risk of project cost overruns.

2.16. Quality Assurance/Quality Control

MTA's contract with HBR establishes the quality assurance/quality control requirements for the project in accordance with FTA Quality Management System Guidelines.

Quality problems related to carshell manufacturing, which were first noted in July 2020, reportedly have been addressed. See the discussion in Section 2.11.2, above.

2.17. Safety and Security

MTA's contract with HBR establishes the requirements for safety and security, including those for safety certification of the work performed on this project. Railway Worker Protection safety training is ongoing. **MTA announced that HBR hired well-known industry consultants to assist with addressing the security certification issues that have been plaguing HBR. MTA has since noticed the beginning of positive movement toward resolution of these issues. MTA would like HBR to take the same action (hiring consultants) to address the quality issues.**

2.18. Americans with Disabilities Act

The contract for this project requires compliance with the Americans with Disabilities Act regulations. The new vehicles do not have barriers to guide sight-impaired passengers from mistaking the gap between the vehicles as an entry door. See the discussion in Section 2.7, above, for more information.

2.19. Buy America

The contract for this project requires compliance with FTA's Buy America requirements. MTA reported in January 2022 that it had completed the interim Buy America audit and found that both the train control and the railcar materials exceeded the requirements. MTA plans to conduct another audit after the first railcars are delivered and the train control materials have all been installed.

2.20. Start-Up, Commissioning, Testing

MTA reported on October 19, 2022, that that HBR provided network management training for control point operations and maintenance on October 17 and October 18, 2022. Additional control point operations and maintenance training will be conducted in early 2023 now that Owings Mills SSI has entered service.

The "First Vehicle Delivery" (aka the "First Married Pair") milestone is scheduled fo**r May 2023 (according to Schedule Update 41R12)** in order to begin conditional acceptance. MTA and HBR must finalize the vehicle commissioning plan before that time. In addition, the integration testing of the vehicles and control system is scheduled for **July 2023 (according to Project Schedule Update 41R12**), and MTA and HBR must finalize the integration testing plan for the integrated operation.

2.21. Before-and-After Study Reporting

Before-and-after study reporting is not applicable to this task order.

2.22. Lessons Learned

At the PMOC's request, MTA provided four Lessons Learned documents on September 25, 2020, to illustrate the project processes that are using lessons learned from past events during the control system construction and railcar manufacturing. At the time, MTA and the PMOC reviewed and briefly discussed these documents during their monthly meeting.

The process of incorporating lessons learned involves review of those events from the last major work activity (either positive or negative) that should be agenda items for the next major work activity being prepared. There are generally one or two meetings before a major activity, including those activities that require a power outage.

After a major activity, a new Lessons Learned document is prepared. MTA staff, consultant staff, and HBR each provide a list of lessons learned and recommend future actions separately, and then these are consolidated into post-activity debriefing meeting minutes. However, the meeting minutes document does not build upon items from previous major activities; thus, the lessons learned are not cumulatively documented.

As first stated in the October 2020 PMOC Comprehensive Monitoring Report, in the opinion of the PMOC, MTA should record and track lessons learned in a cumulative fashion. MTA should then refer to this more complete document in order to integrate lessons learned into the construction process and adjust them as project conditions dictate.

2.23. Actions Items Table

All action items identified at the previous quarterly meetings and monthly meetings related to this project have been closed.

ATTACHMENT A – LIST OF ACRONYMS

ATS	Automatic Train Supervision
BRT	Bus Rapid Transit
CBTC	Communications Based Train Control
CDR	Conceptual Design Review
CMGC	Construction Manager General Contractor
CFR	Code of Federal Regulations
CSSP	Construction Safety and Security Plan
DBE	Disadvantaged Business Enterprise
DBOM	Design, Build, Operate, and Maintain
DCS	Data Communication System
DF	Designated Function
FAI	First Article Inspection
FAT	Factory Acceptance Test
FDR	Final Design Review
FHA	Fire Hazard Analysis
FRA	Federal Railroad Administration
FST	Fire, Smoke, and Toxic Inhalation
FTA	Federal Transit Administration
HAB	Hitachi Ansaldo Baltimore Rail Partners, LLC
HBR	Hitachi Baltimore Rail Partners LLC
HRI	Hitachi Rail Italy
HVAC	Heating, Ventilation, and Air Conditioning
ISA	Independent Safety Assessment
LATS	Local Automatic Train Supervision
LiDAR	Light Detection and Ranging
MTA	Maryland Transit Administration
N/A	Not Applicable
NTP	Notice to Proceed
O&M	Operations and Maintenance

OHA	Operational Hazard Analysis
OP	Oversight Procedure
OSHA	Occupational Safety and Health Administration
PCD	Protective Circuit Device
PDR	Preliminary Design Review
PHA	Preliminary Hazard Analysis
PMOC	Project Management Oversight Contractor
PMP	Project Management Plan
RAMS	Reliability, Availability, Maintainability, and System Safety
RAP	Rail Activation Plan
SCADA	Supervisory Control and Data Acquisition
SCIL	Safety Certifiable Item List
SEPP	Security and Emergency Preparedness Plan
SIT	Systems Integration Test
SOP	Standard Operating Procedure
SSCP	Safety and Security Certification Plan
SSCVR	Safety & Security Certification Verification Report
SSI	Solid-state Interlocking
SSMP	Safety and Security Management Plan
SSO	State Safety Oversight
SSPP	System Safety Program Plan
STS	Signaling and Transportation Systems
TPSS	Traction Power Substation
TVA	Threat and Vulnerability Assessment
VMS	Video Management System

ATTACHMENT B – SAFETY AND SECURITY CHECKLIST

To be revised and populated in future reports.

Project Overview			
Project Mode (Rail, Bus, BRT, Multimode)			
Project Phase (Project Development, Engineering, Construction, Start-Up)			
Project Delivery Method (Design/Build, DBOM, CMGC, etc.)			
Project Plans	**Version**	**Review by FTA**	**Status**
Safety and Security Management Plan (SSMP)			
Safety and Security Certification Plan (SSCP)			
System Safety Program Plan (SSPP)			
System Security Plan or Security and Emergency Preparedness Plan (SEPP)			
Construction Safety and Security Plan (CSSP)			

Area of Focus	**Y/N**	**Notes/Status**
Safety and Security Authority		
Is the project sponsor subject to 49 CFR Part 659 state safety oversight requirements?		
Has the state designated an oversight agency as per Part 659.9?		
Has the oversight agency reviewed and approved the project sponsor's Security Plan or SSPP as per 49 CFR Part 659.17?		
Did the oversight agency participate in the last Quarterly Program Review Meeting?		
Has the project sponsor submitted its safety certification plan to the oversight agency?		
Has the project sponsor implemented security directives issues by the Department Homeland Security and/or Transportation Security Administration?		
SSMP Monitoring		
Is the SSMP project-specific, clearly demonstrating the scope of safety and security activities for this project?		
Does the project sponsor review the SSMP and related project plans to determine if updates are necessary?		
Does the project sponsor implement a process through which the Designated Function (DF) for Safety and DF for Security are integrated into the overall project management team? Please specify.		
Does the project sponsor maintain a regularly scheduled report on the status of safety and security activities?		
Has the project sponsor established staffing requirements, procedures, and authority for safety and security activities throughout all project phases?		
Does the project sponsor update the safety and security responsibility matrix/organizational chart as necessary?		
Has the project sponsor allocated sufficient resources to oversee or carry out safety and security activities?		
Has the project sponsor developed hazard and vulnerability analysis techniques, including specific types of analysis to be performed during different project phases?		

Does the project sponsor implement regularly scheduled meetings to track to resolution any identified hazards and/or vulnerabilities?		
Does the project sponsor monitor the progress of safety and security activities throughout all project phases? Please describe briefly.		
Does the project sponsor ensure the conduct of preliminary hazard and vulnerability analyses? Please specify analyses conducted.		
Has the project sponsor ensured the development of safety design criteria?		
Has the project sponsor ensured the development of security design criteria?		
Has the project sponsor ensured conformance with safety and security requirements in design?		
Has the project sponsor verified construction specifications conformance?		
Has the project sponsor identified safety and security critical tests to be performed prior to passenger operations?		
Has the project sponsor verified conformance with safety and security requirements during testing, inspection, and start-up phases?		
Does the project sponsor evaluate change orders, design waivers, or test variances for potential hazards and/or vulnerabilities?		
Has the project sponsor ensured the performance of safety and security analyses for proposed workarounds?		
Has the project sponsor demonstrated through meetings or other methods, the integration of safety and security in the following? • Activation Plan and Procedures • Integrated Test Plan and Procedures • Operations and Maintenance Plan • Emergency Operations Plan		
Has the project sponsor issued final safety and security certification?		
Has the project sponsor issued the final safety and security verification report?		
Construction Safety		
Does the project sponsor have a documented/implemented Contractor Safety Program with which it expects to comply?		
Does the project sponsor's contractor(s) have a documented companywide safety and security program plan?		
Does the project sponsor's contractor(s) have a site-specific safety and security program plan?		
How do the project sponsor's OSHA statistics compare to the national average for the same type of work?		
If the comparison is not favorable, what actions are being taken by the project sponsor to improve its safety record?		

Federal Railroad Administration		
If shared track, has the project sponsor submitted its waiver request application to FRA? (Please identify specific regulations for which waivers are being requested.)		
If shared corridor: has the project sponsor specified specific measures to address shared corridor safety concerns?	N/A	This is not a shared corridor.
Is the Collision Hazard Analysis underway?		
Other FRA required Hazard Analysis – Fencing, etc.?		
Does the project have Quiet Zones?		
Does FRA attend the Quarterly Review Meetings?	N	

ATTACHMENT C – TOP 5 PROJECT RISKS

Please see Table 1 – Major Issues/Concerns and Section 2.15, Project Risk, in this report for top risks.

ATTACHMENT D – AWARDED CONTRACTS

As reported by MTA on **April 17, 2023**.

Company	Vendor Type	Contract Number	Baseline Amount (in thousands)	Current Amount (in thousands)	Projected Amount (in thousands)	Percent of Projected Total
RKK	Design	1354A	$800	$163	$252	0.05%
JMT	Design	1354B	$487	$452	$698	0.15%
PB	Design	1265A	$2,030	$97	$150	0.03%
HAB Rail Partners	Contractor	T-8000-1415	$400,517	$400,517	$400,517	84.01%
AECOM	Construction Services	1445A	$16,396	$16,093	$24,834	5.21%
CH2M Hill	Construction Services	1345A/ AGY-16A	$6,191	$7,025	$10,842	2.27%
HNTB	Construction Services	1445A/ AGY-16A	$7,785	$8,598	$13,269	2.78%
STV	Construction Services	1345B/ AGY-16D	$5,030	$6,118	$9,442	1.98%
OMNI	Construction Services	AGY-16B	$1,907	$1,728	$2,667	0.56%
WSP	Construction Services	1345C/ AGY-16E	$247	$1,921	$2,965	0.62%
Urban	Construction Services	15-01C	$505	$846	$1,306	0.27%
GF	Construction Services	1445C	$3,044	$73	$113	0.02%
MTA	Construction Services	Misc.	$15,973	$438	$676	0.14%
ADS	Construction Services	AE-19-04D/1399C	$5,855	$5,855	$9,036	1.90%
Contracted Total			$466,767	$449,924	$476,767	100.00%

ATTACHMENT E – ROLLING STOCK VEHICLE STATUS REPORT

Vendor: Hitachi Ansaldo Baltimore Rail Partners, LLC

Model: Hitachi Rail Italy (HRI)-MTA

Year: 2023 (first vehicle delivery)

Quantity Ordered: 78

Quantity Delivered to Date: 0

Identification: 200 through 277

New Technologies: Not applicable

Upcoming Significant Events:

Time Frame	Event
June 2023	**Manufacturer's Design Complete**
May 2023	**First Vehicle Delivery (Married Pair)**

ATTACHMENT F – PROJECT MILESTONES/KEY EVENTS

Milestones	Actual or Currently Planned Dates
MTA Design Complete	March 2015
Notice to Proceed	September 2017
Control System	
Contractor Design Complete	**March 2023**
Construction Start	April 2018
Construction Complete	September 2025
Fleet	
Manufacturer's Design Complete	**June 2023**
First Vehicle Delivery	**May 2023**
First Vehicle Final Acceptance	**February 2025**
Last Vehicle Delivery	**June 2026**
Last Vehicle Final Acceptance	**July 2026**
Integrated Project	
Integrated Test Start	**July 2023**
Revenue Service, if Phased	**February 2025**
Revenue Service Full Project	**July 2026**
Work Complete	December 2026
Project Closeout	**March 2029**

Note: Dates shown are based on Project Schedule Update 41R12.

ATTACHMENT G – ROADMAP TO REVENUE OPERATIONS

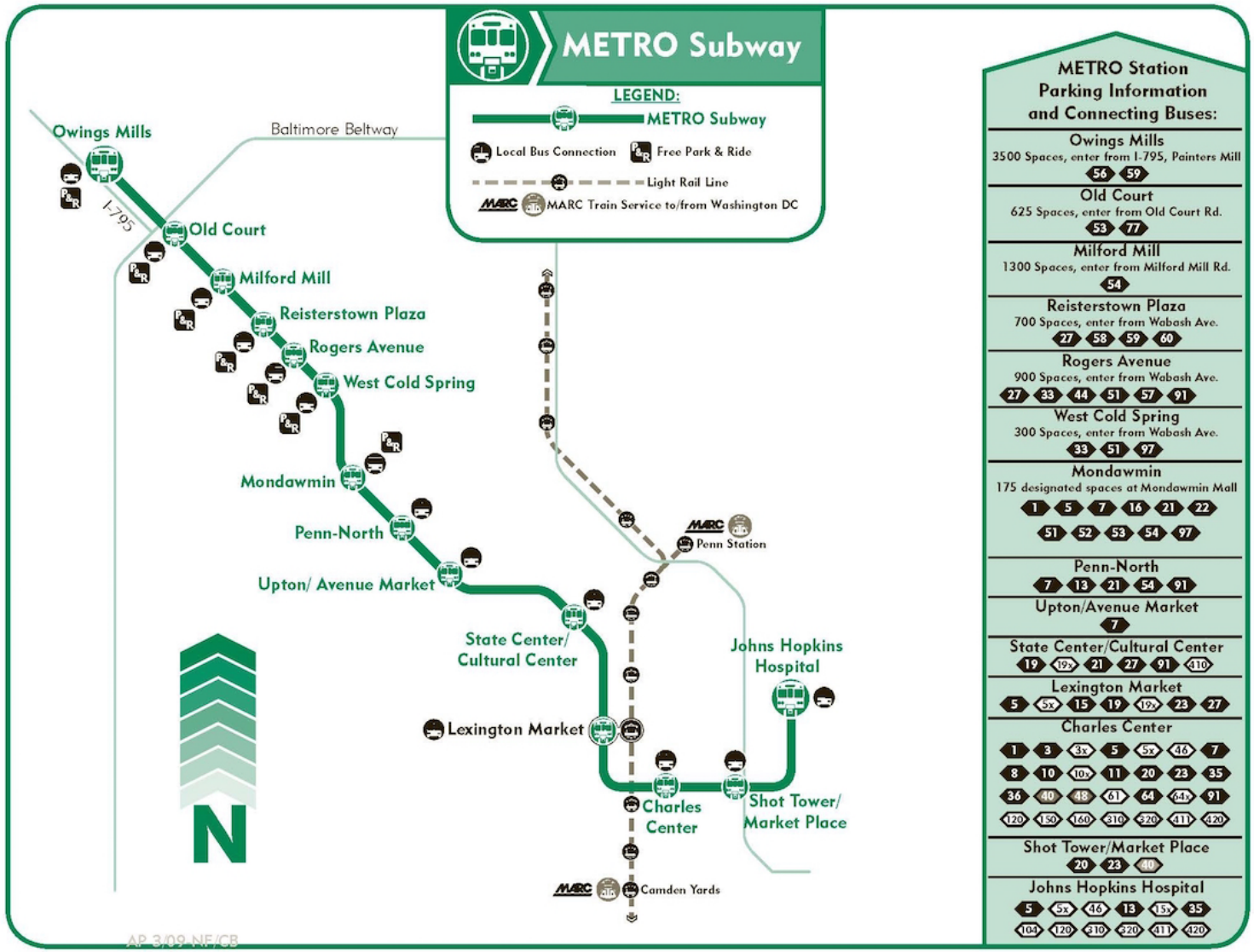
In accordance with Oversight Procedure 25, the Roadmap to Revenue Operations, prepared from the Project Sponsor's Master Schedule, is issued quarterly as a separate electronic file. It will be revised and populated in future reports.

Description	Responsible Party	Status	Estimated Start Date	Estimated Completion Date	Actual Completion Date	Notes
Testing						
Finalize Comprehensive Test Plan						
Finalize/update Systems Integration Test (SIT) Plan						
Develop Testing Schedule and Monitoring Tools						
Develop Operating Rules for Testing						
Conduct System Integrated Testing - Building Systems						
Conduct System Integrated Testing - Train Systems						
Conduct Testing and Commissioning - Train Systems						
Certificates of Occupancy/Substantial Completion						
Operating Plan, Rules						
Finalize Operating Plan						
Finalize/revise SOPs, manuals, and rulebook as applicable						
Complete Staffing Plan						
Obtain Required Staff						
Training of O&M personnel						
Emergency response plan, training, and drills						

Description	Responsible Party	Status	Estimated Start Date	Estimated Completion Date	Actual Completion Date	Notes
Maintenance and Asset Management						
Pre-Revenue Operations						
Finalize and/or update Rail Activation Plan (RAP) and/or Pre-Revenue Operations Plan						
Implement Rail Activation Committee						
Develop/revise SSPP and Security Plan (approved by State Safety Oversight (SSO))						
FTA Office of Safety and Security Readiness Review						
PMOC OP-54 Readiness for Revenue Operations Review Report, Phase I						
PMOC OP-54 Readiness for Revenue Operations Review Report, Phase II						
Conduct Operational Hazard Analysis (OHA) and resolve other hazards/ vulnerabilities						
Pre-Revenue Operations						
Public Outreach						
Develop Safety Outreach Plan						
Provide Community Outreach						
Public Timetables/Maps/Website Updates, etc.						
Grand Opening Plan						
Safety, Security, and Fire-Life Safety Certifications						
Update/Finalize SSMP						

Description	Responsible Party	Status	Estimated Start Date	Estimated Completion Date	Actual Completion Date	Notes
Finalize and/or update SCIL and SSCP						
Implement Safety and Security Certification Committee						
Implement Fire Life Safety Committee						
Verify design criteria, PHA, TVA, change orders are implemented within the project						
Review status of quality nonconformances						
Close-out of non-safety critical items/ non-conformances						
Close-out of safety critical items/ nonconformances						
Complete Safety & Security Certification Verification Report (SSCVR)						
Document Workarounds/Open Items List						
Verify emergency drills, tabletops, training, etc. are completed						
SSO final certification/signature						
FRA?						
Revenue Service						
Target Revenue Service Date						
Public Revenue Service Date						
Revenue Service Date						

ATTACHMENT H – PROJECT MAP



PMOC MONITORING REPORT
May 2023

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

Maryland Transit Administration
Baltimore, Maryland
Final

Draft Report Delivered to FTA on ***June 9, 2023***
Final Report Delivered to FTA on ***July 11, 2023***

PMOC Contract No.: 69319519D000016
Task Order No.: 69319520F300095
Project No.: 69319519D000016/69319520F300095
Requisition/Reference No.: FTA-TPM20-20-0106
OPs Referenced: 20, 22, 24, 25, 26
CLINs 0001, 0002, and 0005

David Evans and Associates, Inc.
Pete Hankovszky, Task Order Manager
Voice –720.448.6730; Email – pzh@deainc.com
Time on Project: 05/18/2020 through 05/17/2025

REPORT FORMAT AND FOCUS

This report is submitted in compliance with the terms of the Federal Transit Administration (FTA) Contract #69319519D000016, Task Order #69319520F300095. Its purpose is to provide information and data to assist FTA as it continually monitors the management capacity and capability of the Maryland Transit Administration (MTA) (the Project Sponsor) to execute the project efficiently and effectively, and hence, whether the Project Sponsor continues to be ready to receive federal funds for further project development. This report covers the project management activities on the National Capital Purple Line Light Rail Transit Project managed by MTA as the Project Sponsor and financed by the FTA Full Funding Grant Agreement (FFGA). The cost and schedule information in this report was extracted from MTA's submitted information except where noted. The report is organized to comply with the requirements of updated Oversight Procedure 25 – Recurring Oversight and Related Reports, dated June 2020.

THIRD-PARTY DISCLAIMER

This report and all subsidiary reports are prepared solely for FTA. This report should not be relied upon by any party, except FTA or the Project Sponsor, in accordance with the purposes as described below.

For projects funded through the FTA FFGA program, FTA and its Project Management Oversight Contractor (PMOC) use a risk-based assessment process to review and validate a Project Sponsor's budget and schedule. This risk-based assessment process is a tool for analyzing project development and management. Moreover, the assessment process is iterative in nature; any results of an FTA or PMOC risk-based assessment represent a "snapshot in time" for a particular project under the conditions known at that same point in time. The status of any assessment may be altered at any time by new information, changes in circumstances, or further developments in the project, including any specific measures a Project Sponsor may take to mitigate the risks to project costs, budget, and schedule, or the strategy a Project Sponsor may develop for project execution. Therefore, the information in the monthly reports will change from month to month, based on relevant factors for the month and/or previous months.

TABLE OF CONTENTS

1. EXECUTIVE SUMMARY 1
1.1. Project Description 1
1.2. Project Status 1
1.3. Major Issues and/or Concerns 9
1.4. Status of Key Indicators Dashboard (Post-grant) 11
1.5. Core Accountability Items 12
2. OBSERVATIONS AND FINDINGS 13
2.1. Summary of Monitoring Activities 13
2.2. Oversight Triggers 14
2.3. Project Management Plan and Sub-plans 14
2.4. Management Capacity and Capability 17
2.5. NEPA Process and Environmental Mitigation 17
2.6. Project Delivery Method and Procurement 20
2.7. Design 22
2.8. Real Estate Acquisition and Relocation 24
2.9. Third-party Agreements and Utilities 25
2.10. Construction 27
2.11. Vehicle Technology and Procurement 29
2.12. Project Cost 30
2.13. Project Schedule 32
2.14 Project Risk 36
2.15 Quality Assurance/Quality Control 37
2.16 Safety and Security 38
2.17 Americans with Disabilities Act 40
2.18 Buy America 41
2.19 Start-up, Commissioning, Testing 41
2.20 Before-and-After Study Reporting 41
2.21 Lessons Learned 41
2.22 Action Items 41
ATTACHMENT A – LIST OF ACRONYMS 43
ATTACHMENT B – SAFETY AND SECURITY CHECKLIST 46

ATTACHMENT C – TOP PROJECT RISKS....47
ATTACHMENT D – AWARDED CONTRACTS....49
ATTACHMENT E – ROLLING STOCK VEHICLE STATUS REPORT....50
ATTACHMENT F – PROJECT MILESTONES/KEY EVENTS....52
ATTACHMENT G – ROADMAP TO REVENUE OPERATIONS....57
ATTACHMENT H – PROJECT MAP....58

LIST OF TABLES

Table 1 – MTA Master Schedule Dates....4
Table 2 – Current Major Issues and Concerns....10
Table 3 – Key Indicators Dashboard....11
Table 4 – Core Accountability Items....12
Table 5 – Project Cost Versus Budget....30
Table 6 – Baseline Cost Estimate by Source Funding....31
Table 7 – Key Milestone Dates....35

1. EXECUTIVE SUMMARY

1.1. 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, Maryland, to New Carrollton in Prince George's County, Maryland. The Purple Line will operate largely at street level in a combination of dedicated and semi-exclusive right-of-way (ROW) and 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) service at Bethesda, Silver Spring, College Park, and New Carrollton, Maryland. The project will also connect to all three Maryland Area Regional Commuter rail lines, Amtrak, and local bus routes. The project includes 21 stations, 2 operations control/vehicle storage and maintenance facilities, and 25 light rail vehicles (LRVs). Maryland Transit Administration (MTA) is executing the project using a Public-Private Partnership (P3) method of project delivery. As documented in the Federal Transit Administration (FTA) Full Funding Grant Agreement (FFGA), the original estimated project cost is $2,407,030,289, and the scheduled Revenue Service Availability (RSA) date is December 31, 2022. On January 26, 2022, the Maryland Board of Public Works (BPW) approved significant revisions to the project cost and the RSA date. On April 11, 2022, private activity bonds went to market, and there was sufficient demand to sell all of the bonds. The Transportation Infrastructure Finance and Innovation Act (TIFIA) loan closed on April 14, 2022, allowing financial close and commercial close on that same day. Financing approvals and subsequent financial close allowed Purple Line Transit Partners (PLTP), the P3 concessionaire, to issue Notice to Proceed (NTP) to the replacement Design-Build (D-B) contractor. Maryland Transit Solutions (MTS) is now the D-B contractor for the project. MTA has prepared a Final Recovery Plan (FRP), which FTA accepted on April 17, 2023. The revised project cost is $5,116,020,380, and the revised Revenue Service Date (RSD) is February 24, 2028. MTA has submitted multiple management plan updates for FTA and Project Management Oversight Contractor (PMOC) review. Several of these management plans have been reviewed and accepted, while several updates remain in progress.

1.2. Project Status

The FFGA was executed on August 22, 2017. The Purple Line project is currently in the construction phase. Due to a contractual dispute, PLTP demobilized the assets/staff and subcontractors of the original D-B contractor, Purple Line Transit Constructors (PLTC), from the project in September 2020.

On November 24, 2020, MTA and PLTP reached a settlement agreement to release PLTC from the P3 consortium and continue the project with the remaining parties. The BPW approved the agreement on December 17, 2020. PLTP agreed to procure a replacement D-B contractor to complete the project and to obtain project financing.

Despite changes within the P3 consortium, MTA intends to complete the full scope of the project as envisioned in the original contract documents, with some minor exceptions such as the addition

of three more LRVs. After a procurement process for a replacement D-B contractor, PLTP selected MTS (a joint venture of Dragados USA and OHL USA) on November 5, 2021. The contract with MTS was executed on April 14, 2022.

MTA submitted a draft Interim Recovery Plan (IRP), dated December 15, 2020, to FTA. The IRP provided additional details related to the settlement agreement and MTA management activities. MTA subsequently prepared and submitted the FRP to FTA. FTA and the PMOC have reviewed the Project Management Plan (PMP) and other MTA management plans, along with the FRP. FTA accepted the FRP on April 17, 2023.

MTA made deliberate choices about how to proceed with the major project elements once PLTC was released from the project. MTA's planning criteria included schedule, budget, and the reduction of risk for the replacement D-B contractor. To address budget constraints, some project activities that were identified for completion in the IRP were deferred. MTA and its Project Management Consultant (PMC) added staff to support subcontractor invoicing, payment processes, and other administrative tasks.

MTA is currently managing a significant number of construction activities that ***were scheduled for completion*** in mid-2023, including some utility relocations, particularly work by Verizon and Comcast. Despite the careful planning during MTA's IRP period, called Operation Step Forward (OSF), several activities fell behind schedule. Delays related to third-party utility relocations and other unforeseen issues ***continue to cause*** MTA to miss milestone dates included in MTA's revised agreements with PLTP that were executed in April 2022. Evaluation and recovery of the impacts on schedule and budget from these missed milestones by MTA continue, ***and MTA has resumed the Tiger Team process for developing schedule mitigation***.

Construction work also continues under the management of both MTA and MTS, including activities and elements such as erosion and sediment control maintenance, bridge structures, retaining walls, the Glenridge Operation and Maintenance Facility (OMF), and utility relocations. The Polk Street Maintenance Facility (for Prince George's County), the Paint Branch stream restoration, and the Ken-Gar wetlands mitigation projects are complete with the exception of warranty periods.

Completion of the Glenridge OMF has been on or near the critical path and continues to be a focus. MTA completed the majority of the OMF building and utilities, but construction of track that accommodates LRV storage and testing was deferred for completion by MTS. There are six outstanding OSF items that MTA must complete at the OMF. However, these items require equipment and materials that have long lead times. MTS was scheduled to assume control of the facility in early 2023, but as ***of May 2023,*** the date of the turnover of the facility from MTA to MTS is still being determined. MTS is currently installing rail and other features ***both inside and outside of the building.***

Delayed completion of the OMF construction upon PLTC's departure required finding an alternative location to store completed LRVs. MTA reached an agreement with Construcciones y Auxiliar de Ferrocarriles (CAF) to store the LRVs at CAF's Elmira, New York facility until track

is ready for acceptance of the LRVs. MTS assumed the storage agreement with CAF upon finalization of the replacement D-B contract.

MTA has revised and submitted the PMP, Risk and Contingency Management Plan (RCMP), Quality Assurance Plan (QAP), project schedule, Safety and Security Management Plan (SSMP), and Safety and Security Certification Plan (SSCP). FTA and the PMOC have reviewed these revised plan documents in conjunction with their review of the FRP. In addition to the FRP, FTA accepted the RCMP. ***FTA is awaiting revisions to the SSMP from MTA as of May 2023.***

MTA continues to provide FTA and the PMOC with updates on the progress of MTA and MTS construction activities and twice monthly updates that track project milestones.

- Scope: There have been no significant reductions or changes to project scope. Three LRVs were added to the project scope (non-FFGA) to support improved operations once service commences.
- Schedule:
    - PLTC never developed an approved recovery schedule to address the delayed start of construction caused by the environmental lawsuit (please see the **NEPA Process and Environmental Mitigation** section, below, for a discussion of the environmental lawsuit). In fall 2019, the P3 concessionaire submitted a revised, fully cost-loaded schedule reflecting a phased project opening (with the first phase opening at the end of 2022 and the second phase opening in mid-2023). This schedule was never incorporated into the working master project schedule.
    - In accordance with the IRP, MTA developed a schedule for the period during which the D-B contractor was being replaced. PLTP and MTA identified several milestones and the requirement to establish a full project schedule before the end of the D-B contractor replacement period.
    - The IRP project milestones, with dates as provided by MTA, include:
        - January 6, 2021 – PLTP issued a Request for Qualifications (RFQ) for replacement D-B contractors.
        - March 8, 2021 – PLTP issued a Request for Proposals (RFP) to the short list of replacement D-B contractors based on the RFQ.
        - October 15, 2021 – PLTP received RFP responses.
        - November 5, 2021 – PLTP and Maryland Department of Transportation (MDOT)/MTA selected the replacement D-B contractor firm.
        - January 26, 2022 – BPW approved the replacement D-B contractor (MTS), contract amendments, schedule, cost, and financing.
        - April 14, 2022 – The TIFIA loan closed, allowing financial and commercial close on that same day. MDOT/MTA issued NTP to PLTP, allowing for execution of the MTS contract.

- September 12, 2022 – MTA approved the Initial Baseline Schedule (IBS).
- October 28, 2022 – MTA submitted the draft FRP to FTA and the PMOC for review.

- A milestone not specifically mentioned in the IRP is the requirement to extend the current RSD. The PMOC therefore added the following milestone to this list:
  - December 31, 2022 – The RSD in the original FFGA is December 31, 2022. MTA requested an extension to the current RSD identified in the original FFGA. FTA accepted the FRP that includes a revised RSD of February 24, 2028.

See also the **Significant Project Activities and/or Key Milestones** subsection of this Executive Summary, below.

Table 1 presents MTA's key milestone dates for the project. This table has been updated to show the dates included in the FRP. The schedule in the FRP is considered the baseline schedule for the project. Through the Quantitative Risk Analysis and processes described in MTA's RCMP, 16 months of schedule contingency was deemed appropriate. ***However, delays to OSF activities continue to have the potential to further consume the contingency. Utilization of a large portion of the schedule contingency at the early stages of MTS's contract is a concern.***

To clarify schedule terminology used by MTA: The RSA date is a contractual date critical to the agreement between MTA and PLTP. The RSD is the contractual date tied to FTA FFGA funding and other project approvals.

MTA and MTS coordinated efforts to mitigate delays related to incomplete OSF activities that MTS identified in late 2022. The mitigation reduced the delays by modifying construction sequencing in critical areas where third-party utility relocations are incomplete. MTA and MTS are currently reviewing additional potential delays and opportunities for schedule recovery**.**

Table 1 – MTA Master Schedule Dates

Activity	*Current Approved Master Project Schedule Milestone Date*[1]
Original FFGA	August 22, 2017
Financial Close / NTP / Amendment Agreement Effective Date for Revised PLTP Agreement	April 14, 2022
Commencement of Integration Testing	September 2, 2025
Commencement of Trial Running	May 27, 2026
Construction Complete All Segments	November 12, 2026
RSA (includes contingency)	June 30, 2027
FFGA RSD (includes contingency)	February 24, 2028

[1] Dates based on April 3, 2023 Maryland Purple Line Project Recovery Plan.

- Cost:
  - The project's documented expenditures are ***$2,807,300,119 through April 30, 2023***. The current Estimate at Completion (EAC) for the project (construction, management, and LRVs) is $5,116,020,380. This budget has been accepted by FTA, and MTA has adopted it as the project cost.
  - The accepted project cost includes $307,293,174 of unallocated contingency.
  - Refer to **Table 4 – Core Accountability Items**, below, for additional project cost information.
  - MTA prepared a summary of actual versus planned expenditures for high-level OSF activities in Standard Cost Category (SCC) format and is updating this summary each month. Through December 31, 2022, MTA forecasted OSF expenditures of $556.15 million, which exceed the original OSF budget by approximately $136 million. A significant portion of the overrun previously had been incorporated into the project budget, but additional contingency may be needed to address the increase of $35 million to $45 million that has occurred since the final recovery budget was developed. MTA states that these overruns are due to labor and material cost inflation as well as the extended duration of the OSF activities. The PMOC recommends that MTA closely monitor these cost overruns.
  - The budget includes funds to address nonconforming construction by PLTC. MTA incorporated known defects into the contract with MTS. However, MTA must pay for any defects unknown at the time of execution of the MTS contract. In February 2023, MTA estimated the total cost of these unknown defects to be approximately $10 million. As with the OSF overruns, the PMOC recommends that MTA closely monitor utilization of contingency to cover these costs.
- Significant Project Activities and/or Key Milestones:
  - The COVID-19 pandemic impacted the project in different ways and at different levels. These impacts were primarily related to availability of resources and labor. MTA, PMC, and other project staff followed recommended COVID-19 protocols. On January 30, 2023, MTA stated that COVID-19 protocols for the project had been suspended.
  - The third lawsuit filed by the Friends of the Capital Crescent Trail in January 2019 against U.S. Army Corps of Engineers (USACE) was dismissed in April 2020. The plaintiff subsequently filed an appeal on May 11, 2020. The District Court denied the appeal on May 13, 2021. The decision resolved the last active lawsuit related to the project.
  - The original baseline schedule indicated design completion by late fall 2017. The current progress through ***May 31, 2023***, is that 212 of the 218 total planned design packages have been issued as Released for Construction (RFC). ***The six remaining Civil and Utility packages that remain in design or approval*** include traffic signal

pre-emption, grade crossing safety systems, lighting, signage, stations, and fare collection. Although Systems packages were scheduled to be complete by the end of the first quarter of 2022, those packages remain in progress. ***The current forecast for completion for several of the design packages is June 2023. MTA expects the Fare Collection package to be completed later in 2023.***

- WMATA's comments on design plans for the Silver Spring Transit Center (SSTC) mezzanine connector pedestrian bridge (over CSX Corporation [CSX] ROW) will result in what MTA deems are betterments. Resolution of WMATA comments continues ***as of May 2023 at the SSTC and at other locations where WMATA and Purple Line stations coincide.*** MTA reports that the slow resolution of these issues has not impacted critical path activities.
- Storm sewer construction under the CSX railroad is required in several locations. Two jack-and-bore installations of culvert pipes were completed in November 2022. One jack-and-bore installation remains to be completed by MTS ***as of May 2023.***
- MTA and Washington Suburban Sanitary Commission (WSSC) reached agreement on the relocation of the 66-inch water main that was under the Glenridge OMF. Energizing the cathodic protection is the only remaining item as of ***May 2023***. WSSC is currently using the line and is responsible for the cathodic protection.
- PLTC reached resolution on the final remaining Alternate Technical Concept (ATC) identified during the proposal process, which is related to the use of jet fans at the Bethesda Station in lieu of vent shafts. In accordance with the established process, MTA reviewed PLTC's design package for National Environmental Policy Act (NEPA) compliance. Final documentation for the ATC is still ***pending as of May 2023.*** MTA and MTS are coordinating the noise and aesthetic impacts of the fans, and they optimistically predict that the ATC will have no Section 4(f) impacts or other impacts to the project's Record of Decision (ROD).
- MTA has completed most of its non-P3 construction contract activities, as follows:
  - Prince George's County Parks (Parks) Polk Street Maintenance Facility D-B – A substantial completion letter was issued to the contractor on March 30, 2021. Parks has taken possession of the facility, and it is currently in the warranty period.
  - Offsite Wetlands Mitigation (Ken-Gar) – The Design-Bid-Build construction NTP was issued on September 5, 2019. The one-year warranty review occurred on January 9, 2022, and the project is now in quarterly monitoring and annual reporting by MTA that will continue through 2028.
  - Offsite Stream Mitigation (Paint Branch) – The Design-Bid-Build construction NTP was issued on September 5, 2019, and the contractor mobilized in late November 2019. Quarterly monitoring and annual reporting by MTA will continue through 2028.

- Building construction at the Glenridge OMF is essentially complete; however, construction of items outside of the building continues, as does final commissioning of systems inside the building. MTS was scheduled to take possession of the Glenridge OMF on December 31, 2022, but that did not occur because MTA had several remaining items to complete. However, MTS is working in the OMF, installing embedded track inside the building and completing other interior features. The turnover letter to transfer possession of the facility from MTA to MTS is in progress ***as of May 2023.***
- Preparation of Traction Power Substations (TPSSs) Q8, QYG, and Q7 continues. As of ***May 2023***, both TPSS Q7 and TPSS QYG have been placed on their foundations, and interior components are being installed and tested. The foundation for TPSS QY8 has been backfilled in preparation for substation installation.
- The following is the status of LRV manufacturing as of ***May 2023:***
  - Assembly of 130 carshell segments in the initial procurement has been completed in Spain, and all have been delivered to CAF's facility in Elmira, New York.
  - All 25 of the vehicles in the FFGA project scope description and one additional vehicle originally ordered are designated as "Ready for Shipment" and are in storage. These vehicles are under a schedule of inspection and maintenance until delivery can occur.
  - MTA has added three vehicles by change order to CAF's contract. The additional LRVs will support better operations at the RSA date. It is important to note that these three additional LRVs are not a part of the FFGA between MTA and FTA. One vehicle is in storage in Elmira along with the 25 FFGA LRVs, and assembly of the other two vehicles (ten cars) is in progress in Spain. Ultimately, these ten cars will be shipped to Elmira for final assembly and static testing, following the same process as the other 130 cars.
  - The previously identified quality issue related to the M33 bolt on the LRVs is nearly resolved. MTA determined that the issue does not impact safety, and the solution is likely the use of a higher strength bolt. The final report on this ***was*** expected in May 2023, ***although the PMOC has not yet received it.***
  - Delivery of vehicles was expected to begin in spring of 2021; however, the location for their delivery was uncertain because the Glenridge OMF is not ready to accept railcars. MTA and CAF negotiated an agreement for CAF to store the completed cars in Elmira to await delivery. The terms of the agreement became a part of MTS's agreement. Deliveries of LRVs to the Glenridge OMF ***have been delayed to early 2024.***
  - MTA has reviewed the systems testing and commissioning management plan and has provided its comments to PLTP.

- The project's Buy America compliance audit for the LRVs was conducted on November 14, 2022. In January, CAF provided additional documentation requested to assist with evaluation of Buy America compliance. The draft audit report ***was expected be available in May 2023***. Preliminary information from the audit indicates that the percentage of U.S. domestic content of the LRVs meets FTA requirements.

- MTA is responsible for providing offsite stormwater mitigation in Montgomery County. To date, MTA has accumulated a credit for more than 10 acres of designed, Maryland Department of the Environment (MDE)-approved, offsite stormwater management (SWM) capacity in its "bank." MTA has determined that there is a need for additional mitigation in Prince George's County, and a project to construct additional mitigation is included in the scope of work for MTS.
- ROW acquisition activities continue for the required 464 private parcels and 137 public parcels (a total of 601 parcels). All of the private parcels related to the original P3 contract Exhibit 9 FFGA scope are in MTA's possession. ***As of May 17, 2023***, ***415*** of the 464 private parcels have completed settlement, and an additional ***7*** parcels have settlements pending.
- MTA has identified 188 small property acquisitions that are required for utility relocations, of which 134 are private and 54 are public. As of April 25, 2023, all 188 of the additional properties were in MTA's possession through Right of Entry (ROE), through options, and/or through agreements. This achievement marks a significant project milestone and allows the project to retire real estate risks that have been tracked for several years. ***As of May 25, 2023***, MTA estimated that approximately ***$35.2 million*** of exposure remains in the acquisition process. This amount is included in the risk assessment.
- To date, all 177 required property relocations have been completed. Costs for the completed relocations continue to be processed in accordance with the applicable procedures. As of ***May 25, 2023, there are three additional*** commercial properties that may require relocation.
- MTA estimates that approximately $13 million of risk exposure remains due to necessary extensions of Temporary Construction Easements (TCEs). This amount has been included in the risk assessment.
- Preparation for safety certification is an ongoing process for MTA, including the development of the appropriate checklists for both design and construction. Design Criteria Conformance Checklists (DCCCs) are ***98.4 percent*** validated. Construction Specification Conformance Checklists (CSCCs) are ***16.9 percent*** validated.
- Staffing of management personnel has been adjusted to address the varying activities that MTA is managing and to integrate new team members as needed. ***On May 25, 2023, MTA communicated the departure of Executive Director Matthew Pollack, Deputy Project Director and Contracting Officer Anita Rodgers, and Director of***

Communications David Abrams, from the Purple Line project team. Project Director Ray Biggs, Jim Mitchell of the PMC, and MDOT Chief Financial Officer Jaclyn Hartman will lead the project while those vacated positions are being filled. Ken Forsythe's role will change from his current role as Deputy Director to the Director of Communications role. The PMOC expressed concern related to MTA's ability to deliver the project considering these significant changes, and will continue to monitor MTA's management capacity and capabilities.

- MTA carefully considered a request from Montgomery County to single-track the Purple Line through the Bethesda tunnel. MDOT/MTA determined that it would not be able to accommodate the request.
- MTA and PLTP coordinated to obtain a modified version of the existing TIFIA loan for the project. On April 14, 2022, the TIFIA loan closed, and all bonds were marketed. MTA is required to update the Transportation Investment Program and State Transportation Investment Program plans to reflect changes in the project.
- MTA's Equal Employment Opportunity Officer assigned to the project is Marcques Washington. He is supporting MTS in its hiring program and monitoring project adherence to hiring of specific companies and personnel. As MTS ramps up construction, it is making significant progress toward achieving the project's hiring, wage, and Disadvantaged Business Enterprise (DBE) goals. ***In May 2023, the PMOC recommended that MTA report the projected values for these goals at the end of the project in addition to the current values to allow for a better evaluation of progress toward meeting the goals.***
- MTA hired a consultant team that is analyzing alternatives for providing security and fare enforcement services for the Purple Line. MTA does not currently have existing facilities or staff that can adequately provide these services because the distance from their location to the Purple Line light rail facilities is too far. ***In late April 2023, MTA provided FTA with the alternatives study for review. The study indicates that the preferred alternative is the development of a Southern District of the MTA Police Department and recommends several next steps toward implementation of the new district, including hiring a commander, developing operating procedures, working on Memorandums of Understanding (MOUs) with other local jurisdictions, and developing a facility to house the district.***
- ***In May 2023, MTA continues to conduct public outreach to interested groups by providing general and specific project updates. MTA plans to present a project briefing to Prince George's County in June 2023.***

1.3. Major Issues and/or Concerns

Table 2 discusses any major issues or concerns impacting the project's scope, schedule, cost, risks, quality, safety, etc.

Table 2 – Current Major Issues and Concerns

Issue/Concern	Continuation of the project without PLTC has been a significant challenge for the project. MTA's IRP, the permanent replacement of the D-B contractor, and the management of interim design/construction activities have been significant MTA priorities. The replacement D-B contractor, MTS, has now been under contract to PLTP for more than one year.
Date Identified	September 2020.
Status	The IRP was approved in January 2021, and an update was approved in July 2021. Implementation is nearly complete. MTA has now completed the FRP, which FTA reviewed and accepted in April 2023.
Project Sponsor Action	Management of a transition plan and support of PLTP in the replacement of the D-B contractor was the focus of the Project Sponsor. Another focus was the management of MTA's contractors to continue key activities that maintained the integrity of the schedule under OSF. MTA now has an accepted FRP.
PMOC Recommendation	The PMOC recommends that MTA ensure that sufficient staff is dedicated to completing OSF project activities and assessing the remaining potential impacts to the MTS schedule. In addition, now that MTS is under contract, MTA and the PMC should emphasize their oversight of PLTP and MTS.
Issue/Concern	According to the PMP, the master project schedule should be updated monthly.
Date Identified	2022.
Status	Ongoing.
Project Sponsor Action	MTA reports that the ***June 2023*** master project schedule will incorporate schedule recovery efforts that have been coordinated with MTS. The FRP schedule, also considered to be the current baseline schedule, was accepted by FTA in April 2023. ***As of May 2023, MTA recognizes that delays caused by OSF activities will consume significant schedule contingency.***
PMOC Recommendation	The PMOC recommends that MTA track all schedule elements according to the FRP and report status to FTA and the PMOC each month. MTA should employ additional methods of evaluating schedule progression and performance, including earned-value metrics, to identify issues as soon as possible. ***The PMOC recommends that MTA develop a procedure to monitor the OSF schedule more closely, because those delayed OSF activities appear to be causing significant impacts to the schedule contingency.***
Issue/Concern	Changes in the project have significantly impacted the project cost, as reflected in the original FFGA. The April 2023 FRP includes a revised project cost estimate and a reasonable cost contingency to address remaining project risks.
Date Identified	September 2020.
Status	Ongoing.
Project Sponsor Action	MTA should continue to monitor project progress against the total project cost estimate.
PMOC Recommendation	The PMOC recommends that MTA continuously monitor project cost and utilization of project contingencies. The budget contingency must reflect potential additional costs required to address potential schedule delays and support a realistic EAC.
Issue/Concern	MTA does not have a police force located in proximity to the Purple Line.
Date Identified	September 2022.
Status	***As of May 2023,*** MTA has determined a preferred alternative for providing security and fare enforcement, and has identified several next steps for implementation.
Project Sponsor Action	MTA's preferred security alternative includes the creation of a new Southern District of the MTA Police and will require associated staff, operating procedures, and a facility.

PMOC Recommendation	Although the currently forecasted RSA date is in 2027, the PMOC recommends that MTA promptly move toward implementation of the preferred alternative. ***MTA should identify the parties responsible for implementing the preferred alternative and determine a detailed schedule and budget.*** The PMOC also recommends that the State Safety Oversight Agency (SSOA) be included in the review and comment process for security and fare enforcement.
Issue/Concern	Lost Time Injury and Total Case Incident Rates have increased significantly in recent months. The current rates are significantly higher than the stated project goals.
Date Identified	April 2023.
Project Sponsor Action	MTA has increased coordination with MTS through additional biweekly coordination meetings.
PMOC Recommendation	The PMOC recommends that MTA and MTS review the safety procedures and the implementation of those procedures to identify opportunities for improvement.

1.4. Status of Key Indicators Dashboard (Post-grant)

Table 3 shows the project Key Indicators Dashboard after the FFGA was awarded.

Table 3 – Key Indicators Dashboard

Project Sponsor:				Maryland Transit Administration	
Project Name:				MTA National Capital Purple Line Light Rail Transit Project	
Date:				***May 28, 2023***	
Project Detail					
Oversight Frequency:				**Monthly**	
Element	**Status**			**Prior Status**	**Issue or Concern**
	●	●	●		
	G	**Y**	**R**		
Project Management Plan			●	●	MTA has developed an updated PMP that reflects revised project conditions, and in October 2022, MTA submitted a revised PMP to the PMOC and FTA for review. On February 1, 2023, FTA provided its review comments on the PMP, and on April 28, 2023, MTA submitted the second revision of the PMP to FTA. ***In May 2023, MTA announced significant changes to the Purple Line leadership staff, which now has vacancies in the Executive Director and Deputy Project Director positions. The PMOC recommends that MTA create a documented transition plan that includes an expedited process, requirements, and resources for replacing these key positions. This concern also applies to the Management Capacity and Capability (MCC) element below.***
Management Capacity and Capability			●	●	***Recent staff departures magnify the need for MTA to focus on MCC issues.*** A revised organizational chart, along with MTA's ability to demonstrate MCC, was approved with the IRP. Evaluation of staffing requirements for both MTA and its PMC support team occurred in conjunction with review of the revised PMP and the FRP. FTA and the PMOC provided comments on MTA's MCC in their PMP review transmitted to MTA on February 1, 2023. In February 2023, the PMOC also requested that MTA provide additional detail on the construction management and oversight organizational chart to allow for the PMOC's review of MTA, PMC, and other staff classifications and headcount.
Cost*		●		●	MTA has developed a revised cost estimate that reflects new project conditions. Based on PMOC and FTA review comments and a revised MTA Quantitative Risk Analysis, MTA has established a budget contingency that appears appropriate at this

					stage of the project. MTA should track project status according to the FRP and the updated PMP and management plans.
Schedule			●	●	A revised project schedule that incorporates the current project status is in place. ***However, MTS's schedule updates include significant delays caused by MTA-managed OSF activities that are behind schedule. MTA indicates that the RSD has not yet slipped, but available schedule contingency is being depleted, which is a cause for concern.***
Quality		●		●	Quality continues to be acceptable, although the reporting to the PMOC requires refinement to meet FTA requirements. In October 2022, MTA submitted to FTA and the PMOC an updated QAP for review in conjunction with their review of the FRP and other management plans. FTA and the PMOC provided review comments on the QAP to MTA in March 2023, and ***MTA provided a response in April 2023.***
Safety		●		●	Safety continues to be acceptable, although with an increase of MTS activities, recordable incidents are increasing. In October 2022, MTA submitted to FTA and the PMOC Version 13 of the SSMP and Version 5 of the SSCP for review in conjunction with their review of the FRP. FTA and the PMOC have provided their review comments to MTA for incorporation into the safety plans. In April 2023, the PMOC noted to MTA that both the Lost Time Injury Rate and the Total Case Incident Rate have significantly increased. MTA recognizes the issue and reports that it has scheduled additional safety coordination efforts. ***In May 2023, the PMOC requested documentation on these additional efforts.***
Risk		●		●	MTA updated the RCMP and the Risk Register to reflect the changes related to interim MTA management and construction delivery. In October 2022, MTA submitted to FTA and the PMOC Version 15 of the RCMP for review in conjunction with their review of the FRP and other management plans. FTA and the PMOC provided comments on the revised RCMP to support MTA's development of budget and schedule contingency, to which MTA responded with plan revisions in April 2023. ***In May 2023, FTA accepted the RCMP but also noted additional comments that MTA should address in future updates to the plan.***

Legend	
Green	Satisfactory: No Corrective Action necessary.
Yellow	Caution: Risk/Issues exist. Corrective Action may be necessary.
Red	Elevated for immediate Corrective Action: Significant risk to the health of the project.

*Note: With regard to cost, the colors indicate the following status:
Yellow – Forecast cost exceeds the project budget by up to 3%.
Red – Forecast cost exceeds the project budget by more than 5%.

1.5. Core Accountability Items

Table 4 shows the core accountability items for the project, including the current status of the project and the major issues and how they are being addressed.

Table 4 – Core Accountability Items

		Original (Grant)	Current Forecast[1]	PMOC Assessment of Current Forecast
Cost	Capital Cost Estimate	$2,407,030,289	$5,116,020,380	Acceptable
Contingency	Unallocated Contingency	$90,535,748	$307,293,174	Acceptable
	Allocated Contingency	$59,500,464	$0	Acceptable
	Total Contingency	$150,036,212	$307,293,174	Acceptable

		Original (Grant)	Current Forecast[1]	PMOC Assessment of Current Forecast
Schedule	Revenue Service Date	12/31/2022	02/24/2028	Acceptable

Project Progress		Amount ($)	Percent of Total
Total Expenditures	Actual cost of all eligible expenditures completed to date	***$2,807,300,119***	***54.9%***
Planned Value to Date[2]	Estimated value of work planned to date	Not Applicable (N/A)	N/A
Actual Value to Date[2]	Actual value of work completed to date	N/A	N/A

Contract Status		Amount ($)	Percent of Total
Total Contracts Awarded	Value of all contracts (design, support, construction, equipment) awarded; % of total value to be awarded	To Be Determined (TBD)	TBD
Construction Contracts Awarded	Value of construction contracts awarded; % of total construction value to be awarded	TBD	TBD
Physical Construction Completed	Value of physical construction (infrastructure) completed; % of total construction value completed	***$855,555,106***	***45.7%***

Rolling Stock Vehicle Status	Date Awarded	No. Ordered	No. Delivered
28 total car sets[3]	First 26 LRVs: 2016 Additional 2 LRVs: January 2022	28 car sets	0

Next Quarterly Progress Review Meeting Date:	***August 9, 2023***

[1]The original D-B contractor has been replaced. Draft budget figures, including the work under contract, are being incorporated into this report as they are provided by MTA. Not all information is up-to-date as ***of May 2023***. FTA accepted the FRP in April 2023. This monthly PMOC monitoring report will incorporate the schedule and budget information from the FRP in upcoming months.
[2]Earned value information is not available.
[3]The approved FFGA includes a total of 25 LRVs.

2. OBSERVATIONS AND FINDINGS

2.1. Summary of Monitoring Activities

The PMOC received an update from the Purple Line project team during ***the May 25, 2023, monthly meeting with MTA, the PMC, and the PMOC.*** Information from the FTA/MTA/PMOC Biweekly Progress Conference Calls held on ***May 9 and May 30, 2023,*** also contributes to this report. ***On May 15, 2023, the Quarterly Progress Review Meeting was held at MTA facilities in Baltimore, and on May 16, 2023, MTA provided a site tour to representatives of FTA, the PMOC, and the SSOA.*** In addition, MTA provided supplementary information before the PMOC monthly meeting. Monitoring activities include review of MTA-provided scope, schedule, risk, financial, construction, safety and security, and real estate information.

After the U.S. Court of Appeals reversed the vacation of the ROD in July 2017 (refer to the **NEPA Process and Environmental Mitigation** section, below, for details), the FFGA was executed on August 22, 2017, approximately one year later than planned. In September 2020, the construction

(D-B) contractor, PLTC, left the project, and a new project delivery plan was developed, including replacement of the D-B contractor. During the period when the replacement D-B contractor was being solicited, MTA managed specific construction and design activities (OSF activities) in order to reduce uncertainty and support the project schedule. On November 5, 2021, MTS was selected as the replacement D-B contractor, and financial and commercial close occurred on April 14, 2022. MTA continues to manage OSF construction and design activities. MTS has mobilized and started work on activities throughout the entire project corridor.

MTA and MTS held initial partnering activities during which they developed relationships, general project priorities for teamwork, and an understanding of key issues for different stakeholders. MTA provided partnering process information to FTA and the PMOC on March 29, 2023.

2.2. Oversight Triggers

The oversight triggers most applicable to the project are the Oversight Procedure (OP) 25 cost and schedule triggers. The project did not have a mutually agreed-upon baseline schedule between March 2017 and September 2022. Significant schedule delays and a significant increase in project cost keep the project eligible for rigorous oversight. Project schedule delays typically impact project cost, another significant indicator of project health. MTA has developed a revised project EAC in conjunction with development of the project's schedule and FRP.

2.3. Project Management Plan and Sub-plans

2.3.1. Project Management Plan

The PMOC reviewed the Purple Line PMP Version 10 in accordance with OP 20 for a PMP at the FFGA execution stage of a project. Subsequently, FTA and the PMOC reviewed PMP Versions 11, 12, and 13. Due to significant project team changes since those versions, another update to the PMP was required. In October 2022, MTA provided an updated PMP (Version 14) to FTA and the PMOC for review, and FTA and the PMOC provided comments on PMP Version 14 to MTA. On April 27, 2023, MTA provided PMP Version 15 to FTA.

2.3.2. Safety and Security Management Plan

In February 2016, the PMOC reviewed the project's SSMP Version 6, dated October 22, 2014, in accordance with OP 22 for a project at the FFGA execution stage. The PMOC review found that the SSMP was compliant with FTA content requirements for execution of the FFGA, but the PMOC requested that MTA resubmit the SSMP after execution of the FFGA and address the comments in the PMOC report with updated information from the P3 concessionaire. Subsequently, FTA and the PMOC reviewed SSMP Versions 7 through 11 over the next four years. MDOT, which is the SSOA for the project, also reviewed SSMP Versions 8 through 11. On January 13, 2022, FTA provided comments on SSMP Version 12 to MTA. MTA submitted SSMP Version 13 as well as Version 5 of the Purple Line SSCP to FTA and the PMOC for review in October 2022. FTA and the PMOC reviewed the SSCP and SSMP updates and provided their comments to MTA in February 2023. MTA indicates that it will submit a revised SSMP and a revised SSCP in ***June 2023.***

2.3.3. Quality Assurance Plan

In October 2022, MTA submitted QAP Version 10 to FTA and the PMOC for review, and on March 8, 2023, FTA provided review comments on QAP Version 10 to MTA. ***MTA then provided a revised QAP to FTA for review in May 2023.***

MTA meets with PLTP, the PMC, and the General Engineering Consultant (GEC) monthly to review quality status. ***In May 2023,*** MTA reported the following quality management activities that took place ***in April 2023***:

- Field inspections for OSF
- Meetings to coordinate closure of outstanding PLTC Non-conformance Reports
- Processing of Quality Oversight Assessment Reports (QOARs)
- Field audits of the Quality Assurance (QA) materials laboratory quality control manual and the precast concrete quality plan
- Field inspections of MTS activities
- Offsite inspections of structural steel and structural precast concrete
- Interdisciplinary Design Reviews
- Quality Control Reviews
- Design Submittal Reviews
- Design Services During Construction coordination with Atkins
- Reviews of asphalt, concrete, and earthwork sample and in-situ test results
- Monthly Quality Control (QC) review meeting

MTS did not meet its cleaning incentive metric for March 2023. The monthly report states, "MTS received an 'F' rating for the month of March." ***MTA reported in May 2023 that MTS has improved its performance in this area, and received an "A" rating for its cleaning metric in April 2023.***

During OSF, MTA provided notes from monthly CAF and SNC-Lavalin LRV manufacturing quality meetings for PMOC review. The information provided a summary of issues and corrective actions, and upcoming quality audits. MTS is now responsible for preparing these notes.

One manufacturing quality issue, the recurring failure of a bolt in multiple vehicles, has not been resolved. MTA determined that the issue does not impact safety, and the solution is likely the use of a higher strength bolt. The final report on this issue has been delayed to ***June 2023.***

2.3.4. Real Estate Acquisition Management Plan

The PMOC reviewed the project's Real Estate Acquisition Management Plan (RAMP) Versions 10, 11, and 12. The PMOC reviewed the plans with respect to the guidelines in OP 23 for a project in the construction phase. MTA submitted an updated RAMP Version 13 to FTA and the PMOC in October 2022. FTA provided review comments on RAMP Version 13 to MTA on February 27, 2023, and accepted RAMP Version 13 with comments.

2.3.5. Fleet Management Plans

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 on March 4, 2016, issued its final OP 37 BFMP review report, concluding that the BFMP met the requirements of OP 37 for the execution of an FFGA for the Purple Line project.

2.3.6. Risk and Contingency Management Plan

In early 2020, MTA commenced another update to the RCMP to incorporate the results of the latest Quantitative Risk Analysis that, in turn, incorporated the results of the replacement D-B contractor resolicitation and the revised project implementation details. MTA held a risk management workshop that focused on the interim period on January 26, 2021.

MTA provided a comprehensive Risk Register and risk mitigation activities in conjunction with the draft FRP. In preparation for a risk analysis, MTA held risk assessment interviews with individual risk owners to review existing risk items and identify new risks. In December 2021, MTA prepared an updated Risk Register that includes over 100 risk items, including PLTP and MTS risks.

At a risk workshop held the week of May 2, 2022, the PMOC and FTA participated in an OP 40 risk and contingency review that evaluated cost, schedule, and project contingency. MTA confirmed and finalized the Risk Register, and prepared the Quantitative Risk analysis and an update of the RCMP. The PMOC developed a draft summary of the risk and contingency review results. FTA provided a risk summary to MTA on June 22, 2022, for MTA's consideration while it was updating the RCMP. MTA provided responses to FTA's comments on the risk summary on July 15, 2022, and provided further clarification on August 25, 2022. MTA submitted RCMP Version 15 to FTA and the PMOC for review in October 2022. In February 2023, FTA and the PMOC provided comments on the revised RCMP, which supported MTA's development of the project's budget and schedule contingency. MTA subsequently submitted the revised RCMP Version 16, dated April 21, 2023, ***and FTA accepted it on May 22, 2023.***

2.3.7. Safety and Security Certification Plan

Version 3 of the Purple Line SSCP is dated November 4, 2014. The PMOC review found that the SSCP Version 3 met the FTA requirements in support of the FFGA application. MTA submitted SSCP Version 4 on February 3, 2020, in conjunction with the updated SSMP submittal (see the **Safety and Security Management Plan** subsection, above). The SSOA completed its review of SSCP Version 4 and discussed its comments with the PMOC. MTA decided that the new emergency management working group would be a subcommittee to the Fire Life Safety and Security Committee, and this decision would be reflected in the next revisions of the SSMP and the SSCP, which were planned for after the replacement D-B contractor was in place. MTA submitted SSMP Version 13 and SSCP Version 5 to FTA and the PMOC in October 2022. In February 2023, FTA and the PMOC completed their reviews and provided comments on these

plan documents to MTA. ***MTA provided a response to the SSCP review comments to FTA and the PMOC in May 2023. MTA reports that revisions to the SSMP are still in progress.***

2.4. Management Capacity and Capability

MTA continues to identify and assign sufficient Management Capacity and Capability (MCC), as needed, to complete the project in compliance with applicable FTA requirements. These efforts have included bringing staff, either MTA or MDOT personnel or consultants, onto the project to manage the current needs, such as planning, P3 procurement and contracting, real estate acquisition, and construction.

In November 2021, MTA's quality lead for the Purple Line project, Rene Schroeder, retired. It was proposed that Roland Carroll, the Purple Line systems safety and construction safety lead, add the quality lead role to his other Purple Line roles. In February 2022, MTA provided a white paper outlining Mr. Carroll's experience, his recent training, and the proposed supporting staff related to the new quality management role. The PMOC has evaluated this change as a part of the PMP review and will continue to monitor management capacity for this function and all positions through ongoing oversight activities.

In February 2023, the PMOC requested additional detail on the construction management and oversight organizational chart to allow for the PMOC's review of MTA, PMC, and other staff classifications and headcount. In April 2023, MTA indicated that it would provide this information following acceptance of the revised PMP ***but has not yet done so***.

In March 2023, MTA hired John Donovan in the role of Construction Manager. MTA is also forming a commercial project controls team, and Anita Rodgers was to assume the role of Contracting Officer. These changes were in response to: (1) the near completion of OSF and (2) the need to support the management of MTS's increasing amount of work.

On May 25, 2023, MTA communicated the departure of Executive Director Matthew Pollack, Deputy Project Director and Contracting Officer Anita Rodgers, and Director of Communications David Abrams from the Purple Line project staff. Project Director Ray Biggs, Jim Mitchell with the PMC, and MDOT Chief Financial Officer Jaclyn Hartman will lead the project while those vacated positions are being filled. Ken Forsythe's role will change from his current role as Deputy Director to the Director of Communications role. The PMOC expressed concerns related to MTA's capacity to deliver the project with limited staff and is monitoring MTA succession planning efforts.

2.5. NEPA Process and Environmental Mitigation

2.5.1. NEPA Process

FTA issued a ROD on March 19, 2014. The National Park Service issued its ROD on July 16, 2014.

MTA has continued to submit environmental re-evaluations as required based on design advancement and other causes. To date, PLTC (before it left the project) 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. The most recent status ***(as of May 2023)*** of NEPA items is:

- All formally submitted LOD cases have been approved. MTA currently expects one additional LOD case and is preparing a submittal for review by FTA. ***MTA intends to submit the new LOD to FTA before the end of June 2023.***
- The ATC for the Bethesda Station jet fan has been vetted, and final documentation is being prepared for submittal to FTA for concurrence that the ATC meets project requirements. Final documentation is still pending as of ***May 2023***. MTA and MTS are coordinating to address the noise and aesthetic impacts of the fans, and they optimistically predict that the fans will not have Section 4(f) impacts or other impacts to the ROD**.**

On August 3, 2016, in response to the lawsuit filed by the Friends of the Capital Crescent Trail against FTA, a federal judge filed his Order and accompanying Memorandum Opinion. In those documents, it was ordered that the ROD for the Purple Line project be 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 whether 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 in 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 U.S. Court of Appeals issued its ruling on December 19, 2017, in which the judges ruled in favor of FTA and the project, and ruled that the transit agencies would not have to conduct a new environmental study to examine other potential routes for the Purple Line.

The Friends of the Capital Crescent Trail filed a second lawsuit after the FFGA signing and after the groundbreaking ceremony was held on August 28, 2017. The September 19, 2017, Preliminary Hearing for this suit resulted in no temporary injunctions or restraining orders, and project construction proceeded as the case progressed 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 FTA.

The Friends of the Capital Crescent Trail filed a third lawsuit in January 2019, this time against USACE. The USACE legal staff and the Office of the Attorney General provided the defense. 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 USACE. In October 2019, USACE filed for a Summary Judgment to

Dismiss the case, and the plaintiffs filed their response; a hearing date was set for March 23, 2020. However, in late February 2020, the assigned judge recused himself from the case, and the scheduled hearing was canceled. In mid-April 2020, the District Court ruled in favor of the USACE/MTA motion for a Summary Judgement to Dismiss, and the case was dismissed. The plaintiff subsequently filed an appeal on May 11, 2020, and the case continued in the legal process. Oral arguments related to the appeal occurred on March 11, 2021. The District Court denied the appeal on May 13, 2021. The decision resolved the last remaining lawsuit related to the project.

2.5.2. Environmental Mitigation

The project achieved the required mitigation for reforestation through the purchase of 82.5 acres of offsite credits (combined, in both Montgomery County and Prince George's County). This amount of offsite credits is expected to be more than needed, and the P3 concessionaire will monitor that this remains the case. PLTP's Forest Conservation Plan (FCP), which documented a need of 75.73 acres, 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. In Maryland, need is based on land disturbance rather than only forest removal. MTA's tracking of additional disturbance due to the progress of design and construction indicated that the total need is still within the amount of available offsite credits.

The Joint Permit Application for Wetlands and Stream Mitigation was formally submitted to USACE and 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, because time had passed since the permit was drafted, MDE updated and issued the finalized permit the first week of April 2018. USACE completed its NEPA and conditions review as well as its 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 the longer construction periods resulting from construction moratoriums for forests and streams. The project received approval from MDE during the week of December 3, 2018, and received the USACE approval letter in mid-June 2019.

The project team has been addressing the environmental mitigation for wetlands through the development of the offsite Ken-Gar location, which is implemented through 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 the bids underwent MTA Procurement Department review. The BPW approval of the award was received on September 4, 2019. As of June 2021, the Ken-Gar wetlands mitigation project is complete and has completed its one-year warranty period. See the **Construction** section of this report, below, for further discussion of the status of this Ken-Gar Wetlands Mitigation construction contract.

The project team has addressed the environmental mitigation for streams through the development of the offsite Paint Branch location, which is implemented through 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 the award was received on September 4, 2019. The Paint Branch stream restoration is complete, and warranty corrections (partial replanting) occurred in December 2022. See the **Construction** section of this report, below, for further discussion of the status of this contract.

The project has plans to address stormwater mitigation, beyond what can be mitigated on the project site, through retrofitting offsite locations in both Montgomery County and Prince George's County. On November 12, 2021, MTA determined that there is a need for additional stormwater mitigation in Prince George's County. A project to construct additional stormwater mitigation is included in the scope of work for MTS.

The joint MTA and University of Maryland (UMD) technical board resumed meetings in December 2021 to coordinate efforts related to the mitigation of noise, vibration, and electromagnetic interference at the UMD facilities. Following this meeting, the members of the joint technical board voted to approve the outstanding design packages. This action effectively ended the activities of the technical board until the LRT is in trial running.

The Purple Line project team submits quarterly Environmental Mitigation Monitoring Reports for the project. MTA managed the environmental mitigation and monitoring activities as the project transitioned to the replacement D-B contractor, MTS. Because MTS is now performing construction, MTA will monitor the environmental activities performed by MTS. On April 27, 2023, MTA provided the First Quarter 2023 Environmental Commitment and Mitigation Monitoring Program Report. The report conveys the status of progress toward meeting commitments in the ROD that was issued in March 2014 and any pending actions required. In the first quarter report, MTA notes that "no problems, gaps, nonconformances, or NEPA issues of any sort were found during this quarterly assessment."

2.6. Project Delivery Method and Procurement

The majority of the capital cost of the Purple Line project has been packaged into a Design-Build-Finance-Operate-Maintain 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") in which appropriate risks and benefits are allocated in a cost-effective manner between the contractual partners. The P3 concessionaire is intended to perform some functions normally undertaken by the transit agency, but MTA remains ultimately accountable for the Purple Line project 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 PLTP had been selected as the P3 concessionaire. Commercial close of the P3 contract occurred on April 7, 2016, and financial close occurred on June 17, 2016.

In late April 2020, PLTC notified PLTP that due to PLTC's forecasted schedule delays on the project (which did not receive agreement from MTA), PLTC intended to exercise the clause that allowed it to terminate its contract with PLTP for the design and construction services under the P3 contract if delays exceed 365 days. MTA sent a formal request to PLTP for a response that would include a definitive path forward. On the response due date of May 14, 2020, PLTP submitted its response, which stated that PLTP intended to continue to negotiate with PLTC to retain PLTC as part of the P3 concessionaire team. On June 23, 2020, PLTP sent a formal Notice of Unconditional Election to Terminate the P3 Agreement to MTA, although PLTP indicated a willingness to negotiate a settlement. On June 24, 2020, MTA sent a Formal Notice of Concessionaire Default. This notice essentially refuted the validity of the PLTP delay claims and stated that if PLTP fails to perform, MTA has a number of options related to the P3 Agreement. Through July 2020, construction activities continued at the levels previously planned and were not affected by the dispute.

In early August 2020, PLTC and subcontractors demobilized equipment, materials, and personnel. In response, the Maryland Attorney General filed a motion for a Temporary Restraining Order (TRO) that prevented PLTP from abandoning the work or demobilizing. Upon issuance of the TRO, the contractor and subcontractors remobilized some equipment and restarted many construction activities. A hearing to uphold or rescind the TRO occurred before the expiration of the TRO on September 14, 2020, and the court rescinded the TRO, allowing PLTP to leave the project. If the TRO had been upheld, PLTP would have been required to continue working until the contractual dispute resolution procedures were followed.

When an agreement was not reached, the bond holder firms had the first right to take over the project. However, MTA planned an alternate path forward based on its exercise of step-in rights. To that end, MTA assumed the contracts of over 100 subcontractors, indicating MTA's intent to continue the project. MTA adjusted staffing for construction management, resident engineers, and inspectors to move forward with the project.

On November 24, 2020, MTA and the P3 concessionaire, PLTP, reached a settlement agreement to release the project's D-B contractor from the P3 consortium and continue the project with the remaining parties. The state's BPW approved the settlement agreement on December 17, 2020. Activities set out in the agreement and the IRP have proceeded with multiple modifications to milestone dates as needed.

The agreement included the following key aspects, as MTA has communicated to the PMOC:

- PLTP agreed to procure a replacement D-B contractor to complete the project and to obtain project financing. The selection of the preferred replacement D-B contractor, MTS, occurred on November 5, 2021. The TIFIA loan for the project closed on April 14, 2022, allowing financial close and commercial close on that same day. MTS is now the D-B contractor for the project.
- The settlement agreement provided a mutual release from all disputed and undisputed amounts (incurred before September 28, 2020) for PLTP, PLTC, and subcontractors. The agreement also released outstanding litigation among the parties.

2.7. Design

2.7.1. MTA Design

MTA's GEC completed the project design to approximately the 30 percent design level in fall of 2013 and provided incremental enhancements through late 2015. This design formed the basis of the RFP for the P3 contract. See the **P3 Design** subsection, below, for a discussion of the advancement of this design by PLTC, the former PLTP partner that was responsible for the design and construction of the capital project, and continued design under MTA.

MTA was responsible for the design and construction contracts under a Design-Bid-Build delivery method (separate from the P3 scope) for the following projects:

- Stream mitigation – MTA completed the 100 percent design packages in June 2017 and received approval from MDE in May 2018. Construction of the stream mitigation is now complete. See the **Environmental Mitigation** subsection of this report, above, for additional details.
- Wetlands mitigation – MTA completed the 100 percent design packages in June 2017. Several design adjustments were subsequently made based on MDE and Montgomery County comments. The construction contract was advertised on May 3, 2019. Construction of the original wetlands mitigation is now complete. See the **Environmental Mitigation** subsection of this report, above, for additional details.
- Offsite SWM sites – MTA completed design and obtained MDE approval of more than the P3 contract-required 5 acres of offsite mitigation in Montgomery County on May 29, 2018. In late October 2019, MTA received MDE approvals for the next 5 acres to be added to the mitigation credit "bank," thus satisfying the contract requirements for 2019. MTA has determined that there is a need for additional mitigation in Prince George's County, and a project to construct additional mitigation is included in the scope of work for MTS.
- See the **Environmental Mitigation** subsection of this report, above, for the current requirements.

MTA also completed the design to support a D-B contract for the replacement of the existing Parks Maintenance Facility with a facility on Polk Street. Construction of the facility is now complete. See the **Real Estate Acquisition and Relocation** and the **Construction** (MTA Scope) sections of this report for further details.

2.7.2. P3 Design

PLTC's design progress was forecasted to achieve substantial design completion for Civil packages in August 2020, substantial design completion for Systems packages (except for Fare Collection) in September 2020, and completion of the Fare Collection design package in 2021. The original baseline schedule anticipated design completion by late fall 2017. As of August 2020, the number of planned Civil, Systems, and Utility design packages was 218.

Upon the departure of PLTC, MTA contracted with the engineer-of-record, Atkins, to continue to advance the design of limited aspects of the project.

The current progress through ***May 30, 2023,*** is that 212 of the 218 total planned design packages have been issued as RFC. Civil and Utility packages that remain in design or approval include traffic signal pre-emption, grade crossing safety systems, lighting, signage, and stations. Although Systems packages were scheduled to be complete by the end of the first quarter of 2022. ***The current forecast for completion for several of the design packages is June 2023. The Fare Collection package is expected to be completed later in 2023.***

PLTC reached resolution on the final remaining ATC identified during the proposal process. The ATC is related to the use of jet fans at the Bethesda Station in lieu of vent shafts. In accordance with the established process, MTA is reviewing the design package for NEPA compliance. Final documentation for the ATC is still pending as of ***May 2023***. MTA and MTS are coordinating to address the noise and aesthetic impacts of the fans, and they optimistically report that the ATC will have no Section 4(f) impacts or associated impacts to the ROD.

MTA and CSX worked to resolve issues related to the applicable design criteria and which project areas were affected until, in July 2019, a mutually agreeable path forward was defined for all areas. 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 SSTC 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 May 2020, CSX indicated that the final design is acceptable. Revised documents, providing some minor clarifications related to ROW, were submitted to CSX on September 8, 2020, and ultimately CSX approved the design. The revised documents were submitted to WMATA several times in early 2021.
- WMATA's comments on design plans for the SSTC mezzanine connector pedestrian bridge (over CSX ROW) will result in what MTA deems are betterments. Resolution of WMATA's comments ***continued in May 2023.*** MTA reports that the slow resolution of these issues has not impacted critical path activities.
- An encroachment into the CSX vertical clearance was discovered upon installation of girders at SSTC. Although the designer believed the loading of the bridge deck might alleviate the issue, shimming was discussed as a potential solution. Shimming was not MTA's preferred solution; therefore, an exception was requested from CSX to allow the ¾-inch encroachment to remain. CSX denied the exception. MTA and the designer prepared for a contractor to jack and shim the structure to create the required clearance. Construction of this work was completed in August 2021.
- CSX provided review comments disallowing revised drainage networks, related to the Capital Crescent Trail work, which would connect to CSX's existing drainage culverts. The work on the Capital Crescent Trail is not part of the FFGA and is separately funded

by Montgomery County. As a result of work with Montgomery County, the connections were relocated from CSX property to Montgomery County property and therefore are no longer a CSX issue. To fully accomplish this approach, two connections required resolution. Montgomery County acquired two parcels of land from CSX (not FFGA-funded) and then accepted responsibility for one connection currently under the responsibility of CSX. Storm sewer construction under the CSX railroad was required in several locations. Two jack-and-bore installations of culvert pipes were completed in November 2022. Completion of another 72-inch-diameter culvert ***is pending construction by MTS.***

2.8. Real Estate Acquisition and Relocation

As of ***May 17, 2023,*** the total number of planned property acquisitions is 601, including 464 privately owned properties and 137 public acquisitions. For the private properties, to date, a total of 476 offers were made, including for parcels that were subsequently eliminated, and 234 offers were accepted. All of the original Exhibit 9 FFGA-scope private parcels in the P3 contract are in MTA's possession, some of which are properties that continue in condemnation under the State Highway Administration process. To date, ***415*** of the original 464 private properties have completed settlement, ***7*** additional properties (not part of the original 464 private properties) are pending settlement, and ***50*** condemnations remain to be settled.

All required public properties have been available for construction when needed. Several public property rights transfers are currently being coordinated to accommodate sidewalk changes, utility easements, and ROW exchanges.

As the project has progressed and new utility relocation needs have been identified, additional small parcel acquisitions have been added to the total as utility down-guys. In December 2017, PLTC initially submitted a list of approximately 280 such parcels related to utility relocations and subsequently added to that list. MTA resolved that it would acquire these properties, rather than execute amendments to the utility agreement that would 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 has been expediting the process somewhat. ***As of May 17, 2023,*** the list of additional acquisitions totals 188 parcels, and several more acquisitions potentially may be needed for stormwater facilities. Of these parcels, 54 are public property and will be acquired by agreement, and 134 are private acquisitions. MTA is tracking the additional parcels (approximately 98 percent are for utility relocations) separately in its ROW tracking system to best manage changes to parcels already acquired or in the process of acquisition. Sixty-six of the 188 properties are filed for condemnation, excluding those that were subsequently optioned or settled, and 92 are settled. MTA estimates that approximately $35 million of exposure remains in the acquisition process. This amount has been included in the Quantitative Risk Analysis.

The project required a total of 177 relocations, of which 57 were residential and 120 were businesses. To date, all 177 of those identified relocations have been completed in accordance with the applicable procedures, and no active claims remain to be settled. Also, MTA is monitoring terms of agreement of the property acquisitions discussed above that have not yet

completed settlement, because some of them could potentially result in the need for additional relocations. As of October 2022, there were two new relocations related to commercial properties that potentially will be needed.

On April 25, 2023, MTA reported that BPW has approved the last of seven critical project acquisitions. These acquisitions were required to allow MTS access to construction areas that include activities on or near the critical path. ***In May 2023, MTS indicated that there may be an outstanding acquisition that is limiting construction access. MTA is discussing the issue with MTS.***

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 MTA shares this information with the PMOC. Based on actual settlement amounts and projected amounts for those not yet closed, settlement/condemnation values are ***55.2 percent higher*** than the original 2014 SCC budget for ROW. Settlements have not yet been reached for a significant number of properties. Currently, with 134 properties that still need to be settled, the total ROW budget is likely to continue to increase. MTA included these ROW cost projections in its development of a FRP project cost estimate (see the **Project Cost** section of this report, below).

Due to the extended project duration, some agreements will expire before the expected RSA date. MTA and MTS have started the process of identifying the end dates now needed for the agreements and will begin the process of obtaining extensions. MTA has evaluated the risks, estimated the cost of the extensions, and included those costs in a budget contingency. MTA estimates that approximately $13 million of risk exposure remains due to necessary TCE extensions.

The relocation of the existing Parks Maintenance Facility to make way for the siting of the new Purple Line Glenridge OMF was implemented as a negotiated/functional replacement. MTA's Procurement Department led the D-B contract solicitation for the Prince George's County facility. The replacement facility is complete and has been turned over to Prince George's County Parks.

2.9. Third-party Agreements and Utilities

All major third-party agreements (specifically, those agreements with Washington Gas, Verizon, Potomac Electric Power Company [PEPCO], CSX, UMD, Montgomery County Parks, Prince George's County Parks, WMATA, 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 lines that are currently overhead be placed underground when they cross the light rail alignment. To minimize the total cost impact of this change, MTA and Verizon reduced the number of locations where Verizon lines cross the alignment to 34. MTA is of the opinion that this reduction 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 for placing 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 upon in early March 2019.

MTA had planned to negotiate the cost responsibility with PLTC and Verizon after all major Verizon relocations were completed. However, since the departure of PLTC, MTA carries this cost as a betterment outside of the FFGA scope.

In early June 2018, MTA and PLTP completed the negotiation of all remaining third-party agreements with the smaller utility and telecommunications (telecom) 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 to existing executed agreements continues to be evaluated. The significant items include:

- To date, the design differences with CSX, as discussed earlier in this report, have been adequately resolved through design review and concurrences, and have not resulted in the need to amend the CSX agreement.
- WSSC proposed that the project relocate a 66-inch underground water main that runs through the Glenridge OMF site. In March 2020, MTA and WSSC agreed on a water main alignment primarily in the median of Veterans Parkway, as well as a strategy for completing the relocation. The original Purple Line project GEC performed the design; WSSC provided the material; and MTA separately contracted for the construction, thus avoiding impact to the P3 concessionaire's scope of work. On May 21, 2021, WSSC authorized work, and mobilization began August 9, 2021. ***Energizing of the cathodic protection is the only remaining item of this relocation as of May 2023. WSSC is currently using the line and is responsible for the cathodic protection.***
- In late July 2022, MTA and MDOT held a summit with the many utility providers that experience relocations related to transportation projects to discuss best practices and improvements to the utility relocation process. ***As of May 2023, some of the utility providers are experiencing staff shortages that limit construction production rates. These staff shortages present an ongoing challenge for both MTA's OSF work and MTS's scope of work.***

The project has been addressing its interface with 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 MOU with the Montgomery County Schools system, which was approved by the School Board and signed by the School Superintendent, Montgomery County, and MTA. A similar MOU was negotiated between MTA and the Rosemary Hills School and was approved at the School Board meeting on February 12, 2019. MTA submitted a draft second MOU to Montgomery County Schools on November 3, 2022, and currently is awaiting a response from Montgomery County Schools. Work will continue under ROE agreements with these parties through 2024.

As MTS commenced construction work, coordination meetings were held to ensure that prior agreements with third parties (utility companies and others) are followed. It is MTA's position

that the transfer of third-party agreements from PLTC to MTA and now to MTS should not allow for a change in the terms of the agreements.

2.10. Construction

2.10.1. 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 replacement Parks Maintenance Facility (which is part of the real estate effort and budget), wetlands mitigation, stream mitigation, and possibly some offsite SWM sites. MTA has accomplished forest mitigation without the need for additional construction. The following discussion presents the current status of the MTA construction contracts:

- **Prince George's County Parks Polk Street Replacement Maintenance Facility** – This D-B contract was awarded after the BPW approved the construction contract award on March 20, 2019. Forrester Construction Company completed construction and Parks has taken possession of the facility.
- **Offsite Wetlands Mitigation (Ken-Gar)** – The Wetlands Mitigation construction contract was awarded after the BPW approved the award on September 4, 2019, and NTP was issued to Environmental Quality Resources, LLC on September 5, 2019. The contractor mobilized in December 2019 and completed site surveys and the installation of Erosion and Sedimentation (E&S) controls. Clearing and grubbing began in February 2020. Prince George's County took partial acceptance of the entire project on March 3, 2021. Acceptable growth of vegetation has been achieved, allowing for closure of this project. The one-year warranty review occurred on January 9, 2022, and now the project requires MTA quarterly monitoring until closeout in 2028.
- **Offsite Stream Mitigation (Paint Branch)** – The Stream Mitigation construction contract was awarded after the BPW approved the award on September 4, 2019, 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. The one-year warranty inspection occurred on August 4, 2022, and 1,700 plants were replaced in November 2022.

2.10.2. P3 Scope

Highlights of construction activities ***through May 2023*** throughout the alignment include*:*

- General: As a result of the dispute with PLTC (see the **Project Delivery Method and Procurement** section, above), all project activities slowed in the fall of 2020. In early August 2020, contractor forces, equipment, and materials were demobilized, and work in some areas ceased. Upon legal action from MTA, partial remobilization occurred. Following the court's rescission of the TRO, demobilization and safe-up activities in the construction area began in earnest in mid-September 2020 and continued into October 2020. Following PLTC's exit, MTA engaged a number of former PLTC subcontractors

to continue select project activities. This work has been progressing under MTA management with a goal of advancing critical path activities and reducing risk for the replacement D-B contractor.

- Status of ongoing P3 construction items that MTA manages:
  - Utility installations of all types are underway, including construction by the electric provider, PEPCO, and the communications company, Verizon. Water, storm sewer, sanitary sewer, and gas lines are also being constructed.
  - TPSS QYG is in place, and testing and commissioning are in progress. TPSS Q8 is on its foundation, and equipment is being installed. Site preparation for the installation of TPSSs QY7 and QYP continues.
  - In April and May 2021, 29,000 concrete railroad ties were delivered to an onsite storage location for future use by the replacement D-B contractor. As a part of OSF, MTA ordered rail, ties, special trackwork, and turnouts to mitigate supply chain risks. MTA has received and stockpiled some of this material. As of August 2022, materials were received at the Glenridge OMF, and MTS unloaded and placed them in storage for installation by MTS.
  - Building construction at the Glenridge OMF is essentially complete; however, construction of civil items outside of the building continues, as does final commissioning of systems inside the building. MTS was scheduled to assume control of the facility in early 2023***; however, as of May 2023, the date of the turnover of the facility from MTA to MTS is still being determined. MTS is currently installing rail and other features*** both inside and outside of the building. MTA is still responsible for completing six remaining items that it cannot yet complete because of long lead times for necessary replacement parts. MTS will assume control of the facility with those items outstanding, and MTA will complete the items when feasible. MTS then will maintain the facility until it is turned over to PLTP. MTS will complete the tracks for storage and testing of LRVs.
  - Based on the status of construction, MTA determined which items would be completed before mobilization of the replacement D-B contractor. MTA reports that it is coordinating with MTS to address construction items that have fallen behind the OSF schedule. OSF construction activities were expected to be completed before September 1, 2022, but previous schedules provided by MTA indicated completion in mid-2023 of most OSF activities, including Verizon relocations. ***OSF utility relocations that are behind schedule continue to cause impacts to MTS's work, and delays have occurred as a result. The most recent information the PMOC has received indicates that there are significant delays to activities on the critical path, and that MTS's work is being further delayed. MTA has mobilized the Tiger Team to develop schedule mitigation alternatives.***
  - MTS has taken responsibility for traffic control, E&S controls, security, and other housekeeping activities.

- MTA's Equal Employment Opportunity Officer assigned to the project is Marcques Washington, and he is supporting MTS in its hiring program. The former contractor, PLTC, left the project with a shortfall in meeting the requirements of its DBE program, and MTS is required to address this shortfall of approximately $12 million in contract value. In March 2023, MTA reported that the design portion and the nationally targeted worker program of the P3 contract had exceeded the DBE program goal. The percentage DBE participation for general construction is below the goal; however, in April 2023, Mr. Washington reported that the DBE participation statistics are improving as construction continues. ***In May 2023, the PMOC recommended that MTA report the projected values for these goals at the end of the project in addition to the current achieved values to allow for a better evaluation of progress toward meeting the goals.*** Also, MTA has been performing 20 audits per month in 2023 to monitor the Davis Bacon prevailing wage requirements.

2.11. Vehicle Technology and Procurement

The LRVs are five-car vehicles consisting of 136-foot-long, articulated units. Twenty-five vehicles (22 in operation and 3 spares) will be provided under the FFGA for the opening year. PLTP executed the LRV contract with CAF on June 17, 2016, and issued NTP to CAF on July 5, 2016 for the 25 FFGA vehicles. NTP to CAF also included one LRV outside of the FFGA.

Later, MTA added two additional vehicles (outside of the FFGA) by change order to CAF's contract, for a total of 28 vehicles to be supplied by CAF. The two additional LRVs will support better operations. MTS has incorporated these two additional LRVs into its scope of work (in addition to the cost and terms of LRV storage in Elmira).

Vehicle carshell manufacturing activities, which are coordinated with design progress, occurred until the facility in Spain was shut down in late March 2020 due to supply chain issues and to limit the spread of COVID-19. The final assembly facility in Elmira, New York, was shut down in early April 2020 due to New York State restrictions related to COVID-19 and reopened on May 18, 2020, at 50 percent of its workforce capacity. As of early August 2020, both the Spain facility and the Elmira facility were back to 100 percent staffing levels.

The final assembly of vehicles is being performed in CAF's facility in Elmira. MTA, its PMC, and SNC-Lavalin are meeting weekly with CAF to resolve all open items for design, testing, and manufacturing activities. First Article Inspections (FAIs) for Interior and Cab were completed on March 18, 2021, and FAIs for Exterior, Roof, and Undercar were completed on April 2, 2021.

Shipment of the first vehicle to the project site was expected in late spring of 2021. The lack of available storage at the yet-to-be-completed Glenridge OMF requires use of an offsite storage facility where vehicles can be stored, occasionally powered, and occasionally "exercised" or moved on tracks. MTA and CAF negotiated an agreement for CAF to store the completed LRVs in Elmira. That storage agreement subsequently transferred to MTS, and its terms are part of MTS's agreement. Twenty-six LRVs have been designated as Ready for Shipment and have been placed into storage in Elmira. MTS's proposed construction schedule establishes when the test

tracks will be available for acceptance of the railcars at the Glenridge OMF. Currently, the schedule indicates that initial deliveries of LRVs ***have slipped to early 2024.***

The status of the LRV manufacturing as of ***May 17, 2023,*** is:

- To date, 130 carshell segments have been assembled in Spain.
- All 130 carshells have been delivered to CAF's facility in Elmira, New York.
- All 25 full LRVs in the FFGA are designated as Ready for Shipment and are in storage at CAF's Elmira facility. One additional LRV (outside of the FFGA) is also Ready for Shipment and in storage.
- Two additional LRVs are under contract. These LRVs are not a part of the FFGA, but rather an addition to the contract by MTA to support rail operations. Assembly of the two additional vehicles is underway in Spain.

2.12. Project Cost

Table 5 summarizes the project's current actual expenditures and EAC, and compares them to the project budget as reported in MTA's SCC Workbook dated June 1, 2016, which is the basis of the project's FFGA. The project's documented expenditures total ***$2,725,101,221 through April 30, 2023.*** Refer also to **Table 4 – FFGA Core Accountability Items** in the **Executive Summary** section of this report for details on the project's planned and actual expenditures. The following table shows project budgets, actual expenditures, and forecast at completion amounts through ***April 30, 2023***, compared with the project budget as reported in MTA's SCC Workbook dated June 1, 2016, and MTA's current working budget.

Table 5 – Project Cost Versus Budget

SCC	Cost Category	Budget (June 1, 2016 Original FFGA)	Working Budget[1] (April 3, 2023 Final Recovery Plan)	Expenditures *(as of April 30, 2023)*	Forecast at Completion[1]
10	Guideway and Track	$280,620,726	$371,508,682	***$177,339,255***	$371,508,682
20	Stations	$114,857,016	$161,159,923	***$13,408,398***	$161,159,923
30	Maintenance Facility	$94,155,591	$93,454,387	***$84,883,147***	***$93,329,787***
40	Sitework	$521,968,990	$796,081,289	***$461,802,878***	***$737,092,913***
50	Systems	$263,887,313	$517,256,196	***$118,121,427***	***$506,216,467***
	Subtotal 10–50	$1,275,489,636	$1,939,460,477	***$855,555,106***	***$1,869,307,772***
60	Right-of-Way	$229,600,000	$329,126,214	***$287,871,757***	$329,126,214
70	Vehicles	$212,940,927	$292,780,600	***$146,488,882***	$292,780,600
80	Professional Services (total)	$571,658,114	$2,247,359,915	***$1,495,209,683***	$***2,339,687,312***
80.01	Project Development	$87,149,878	$85,469,312	$85,469,312	$85,469,312
80.02	Engineering	$139,766,036	$196,722,013	***$200,525,423***	***$219,893,880***
80.03	Project Management for Design and Construction	$148,555,323	$655,185,988	***$307,923,747***	$640,202,588

SCC	Cost Category	**Budget** (June 1, 2016 Original FFGA)	**Working Budget**[1] (April 3, 2023 Final Recovery Plan)	**Expenditures** ***(as of April 30, 2023)***	**Forecast at Completion**[1]
80.04	Construction Administration and Management	$83,269,280	$734,209,735	***$470,813,844***	$821,735,385
80.05	Professional Liability; Other Non-construction Insurance	$34,534,796	$85,701,891	***$78,019,602***	$78,280,490
80.06	Legal; Permits; Review Fees by Other Agencies, Cities, etc.	$5,805,117	$341,013,320	***$300,853,829***	$339,015,520
80.07	Surveys, Testing, Investigation, Inspection	$15,164,346	$92,504,023	***$46,822,392***	***$100,411,902***
80.08	Startup	$57,413,338	$56,553,635	***$4,781,535***	$54,678,235
	Subtotal 10–80	$2,289,688,678	$4,808,727,206	***$2,785,125,428***	***$4,830,901,897***
90	Unallocated Contingency	$90,535,748	$307,293,174	***$22,174,691***	***$285,118,483***
100	Finance Charges	$0	$0	$0	$0
	Total	$2,407,030,288	$5,116,020,381	***$2,807,300,119***	$5,116,020,380

[1]***The Purple Line project Working Budget and Forecast at Completion are based on the accepted FRP dated April 3, 2023.***

MTA developed the unallocated contingency of $307,293,174 by utilizing a Quantitative Risk Analysis, and the RCMP dated April 21, 2023, recommended that amount for unallocated contingency.

On July 15, 2021, the PMOC requested that MTA provide revised budget tracking information that accurately reflected the combined IRP and OSF expenditures. MTA prepared a summary of actual versus planned expenditures for high-level OSF activities for review by the PMOC. MTA submitted the latest version of the summary that provides information through December 2022. MTA forecasted OSF expenditures of $556.15 million, which exceed the original OSF budget by approximately $136 million. MTA has incorporated a significant portion of the overrun into the FRP budget, but additional contingency may be needed to address the increase in overruns of $35 million to $45 million that has occurred since the FRP budget was developed. MTA states that these overruns are due to labor and material cost inflation as well as the extended duration of OSF. The PMOC recommends that MTA closely monitor these cost overruns and the potential need for contingency.

2.12.1. Project Funding

The funding for the project, as reflected in Attachment 3 of the FFGA, is shown in Table 6.

Table 6 – Baseline Cost Estimate by Source Funding

Initial New Starts Project Cost	Total FFGA Cost in Year of Expenditure (YOE) Dollars	Federal 5309 New Starts in YOE Dollars	Federal 5307 in YOE Dollars	Federal American Rescue Plan Act (ARPA) in YOE Dollars	Federal Surface Transportation Program (STP) in YOE Dollars	Local in YOE Dollars
10 Guideway & Track Elements	$280,620,726	$106,464,907	$0	$0	$0	$174,155,819

20 Stations, Stops, Terminals, Intermodal	$114,857,016	$43,747,594	$0	$0	$0	$71,109,422
30 Support Facilities, Yards, Shops, Admin. Bldgs.	$94,155,591	$35,721,760	$0	$0	$0	$58,433,831
40 Sitework & Special Conditions	$521,968,989	$197,858,301	$0	$0	$0	$324,110,688
50 Systems	$263,887,313	$100,116,405	$0	$0	$0	$163,770,908
60 ROW, Land, Existing Improvements	$229,600,000	$87,108,116	$0	$0	$0	$142,491,884
70 Vehicles	$212,940,927	$80,787,818	$0	$0	$0	$132,153,109
80 Professionals Services	$571,658,113	$216,881,800	$36,000,000	$0	$0	$318,776,313
90 Unallocated Contingency	$90,535,748	$31,313,299	$0	$0	$0	$59,222,449
100 Finance Charges	$26,805,863	$0	$0	$0	$0	$26,805,863
Total Project Cost (10-100)	**$2,407,030,286**	**$900,000,000**	**$36,000,000**	**$0**	**$0**	**$1,471,030,286**

Source: Maryland Purple Line Project Recovery Plan dated April 3, 2023.

2.13. Project Schedule

The March 15, 2017 progress update of the master project schedule was approved, as noted, in May 2017 and served as the only approved version of the schedule until September 2022. Numerous submissions of schedule updates from PLTC were not approved for various reasons, but the primary reason was the inability of MTA and the P3 concessionaire to agree on the schedule impacts of the approximately one-year delay in the execution of the FFGA. In response to a letter that FTA issued to MTA in early August 2018 expressing concerns about the amount of time that the project had advanced without an approved schedule, MTA prepared a working schedule update of the master project schedule. The working schedule update was based on the negotiations of the P3 contract schedule occurring at the time, but the update was not based on a mutually agreed-upon P3 contract schedule.

In late April 2020, PLTC notified PLTP that, based on its forecasting of schedule delays on the project (which were not mutually agreed upon), PLTC intended to exercise the clause in its P3 contract with PLTP that allows it to terminate the contract for design and construction services under the P3 contract if delays exceed 365 days. MTA sent a formal request to PLTP for a response that included a definitive path forward for PLTP's intended management of the P3 contract. On May 14, 2020 (the date the response to the formal request was due), PLTP submitted its response, which stated that PLTP intended to continue to negotiate with PLTC to retain PLTC as part of the P3 concessionaire team. On June 23, 2020, PLTP sent a formal Notice of Unconditional Election to Terminate the P3 Agreement, although PLTP indicated a willingness to negotiate a settlement. On June 24, 2020, MTA sent a Formal Notice of Concessionaire Default. This notice essentially refuted the validity of the PLTP delay claims and stated that if PLTP failed to perform, MTA had a number of options related to the agreement. Through late July 2020, construction activities continued at the level previously planned, and construction progress was not affected.

In early August 2020, PLTC and subcontractors demobilized equipment, materials, and personnel. In response, the Maryland Attorney General filed a motion for a TRO that prevented PLTP from abandoning the work or demobilizing. Upon issuance of the TRO, the contractor and subcontractors remobilized some equipment and restarted many construction activities. A hearing to uphold or rescind the TRO was held on September 14, 2020. The court rescinded the TRO,

allowing PLTP to leave the project. Through negotiation, it was determined that PLTP would remain on the project, although PLTC would not.

MTA contracted with numerous subcontractors to continue the project. MTA developed organizational options with respect to construction management, resident engineers, inspectors, and other staff needed to move forward select project activities.

It was certain that the project schedule as reflected in the FFGA would be negatively affected, and a Recovery Plan for the project, including a revised project schedule with adequate schedule contingency to address remaining project risks, would be required. MTA submitted its draft IRP to FTA in December 2020, and FTA approved the IRP on January 12, 2021. A schedule for the period during which the D-B contractor was to be replaced was developed, and MTA monitored project progress against the schedule. On November 5, 2021, PLTP announced the selection of the preferred replacement D-B contractor, MTS.

PLTP and MTA continued to coordinate during the financial process and State of Maryland approvals for the replacement D-B contractor. In addition, MTA successfully coordinated other key issues that needed to be resolved before PLTP could execute the contract with MTS.

The following is a summary of IRP milestones:

- January 6, 2021 – PLTP issued an RFQ for replacement D-B contractors.
- March 8, 2021 – PLTP issued an RFP to the short list of replacement D-B contractors based on the RFQ.
- October 15, 2021 – PLTP received RFP responses.
- November 5, 2021 – PLTP and MDOT/MTA selected the replacement D-B contractor firm (MTS).
- January 26, 2022 – BPW approved the replacement D-B contractor, contract amendments, schedule, cost, and financing.
- April 11, 2022 – Private activity bonds went to market.
- September 12, 2022 – MTA approved the IBS.
- October 14, 2022 – MTS was required to have commenced action on the 11 critical elements that are specified in the D-B contract. At the December 2022 PMOC meeting, MTA confirmed that MTS missed the 180-day window to commence action on 3 of the 11 critical elements. MTA and MTS are coordinating these specific activities and generally agree that a delayed start for each is logical based on construction sequencing. These three elements are not currently on the critical path.
- October 28, 2022 – MTA was required to have submitted a draft FRP to FTA and the PMOC for review and comment. On October 4, 2022, MTA submitted the draft FRP to FTA and the PMOC for review.

A milestone not specifically mentioned in the IRP is the requirement to extend the current RSD. The PMOC therefore adds the following milestone to this list:

- December 31, 2022 – The RSD in the original FFGA is December 31, 2022. MTA requested an extension to the current RSD identified in the original FFGA. FTA has now accepted the FRP, which indicates a revised RSD of February 24, 2028.

Current critical path analysis indicates that the critical path runs through the activities in Segments 7 and 8 of installation of Civil and Systems packages, and then train testing. There are ten other near-critical paths with activities that have less than two weeks of float. MTA reports that MTS's IBS includes a proposed sequence and duration of activities that have zero float and a completion date in October 2026. MTA used MTS's approved IBS to develop a master schedule that incorporates operational readiness activities and schedule contingency (float).

The schedule included in the FRP is considered to be the new baseline schedule. The next update to the master schedule will incorporate the schedule recovery developed by MTA and MTS. By implementing Maintenance of Traffic and construction activity resequencing, at a cost of $21,343,588, they were able to reduce schedule delays from 218 days to 81 days. These schedule delays are a result of OSF utility adjustments that fell behind schedule. MTS has indicated that delays continue as a result of the MTA-managed OSF work. ***MTA has resumed the Tiger Team process to develop schedule mitigation alternatives***.

2.13.1 Key Milestones

Table 7 shows the current key milestone dates for the project for the prior approved (March 15, 2017) progress update of the master project schedule and the MTA master schedule incorporated in the FRP dated April 3, 2023. Issuance of NTP to PLTP on April 14, 2022, triggered the contract requirement for an MTA-approved MTS IBS for the full project to be in place within 120 days of financial close (by August 14, 2022). In January 2022, MTA submitted a draft version of the master schedule for FTA and PMOC review, and FTA and the PMOC transmitted their review comments to MTA in April 2022. MTS submitted its IBS, and on September 12, 2022, MTA approved it. MTS submitted the 120-day mobilization schedule, which MTA also approved.

In August 2022, MTA and the PMOC discussed the current state of the baseline schedule, particularly the inclusion of adequate float to address schedule risk. The P65 date that MTA proposed before the risk workshop held in May 2022 included approximately seven months of float and an RSA date in October 2026. After MTA performed the Quantitative Risk Analysis for the updated RCMP, MTA added additional float to address known and unknown schedule risk. The RSD proposed in the FRP is now February 24, 2028, which includes 16 months of float as of April 3, 2023.

The PMOC recommends that MTA closely monitor schedule contingency and the corresponding budget contingency when evaluating the RSA date/RSD and the EAC that have been incorporated into the FRP. The information in Table 7 will be updated once the schedule reviews and approvals are complete.

Table 7 – Key Milestone Dates

Activity	Prior Approved Master Project Schedule (March 15, 2017)	MTA Master Schedule (FRP dated April 3, 2023) (working baseline)
Locally Preferred Alternative Approval Date	08/04/2009 (A)[a]	---
FTA Approval to Enter Preliminary Engineering	10/07/2011 (A)	---
FTA ROD	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 through 03/02/2016 (A)	---
BPW Approval of P3	04/06/2016 (A)	---
P3 Commercial Close	04/07/2016 (A)	---
Limited NTP for P3 Engineering	04/07/2016 (A)	---
MTA Submit FFGA Application	05/24/2016 (A)	---
P3 Financial Close	06/17/2016 (A)	---
FFGA Signed	08/22/2017 (A)	---
Start of First Major Construction Activity	08/28/2017 (A)	---
All Significant ROW Acquisition and Relocation	As needed by construction	---
Commencement of Contract Work for Replacement D-B Contractor (MTS)	---	04/14/2022 (A)
Commencement of Integration Testing	---	07/28/2025
All Segments Complete Construction (with Contingency)	---	02/19/2027
Revenue Service Availability per P3 Amendment (with Contingency)	---	05/03/2027
FFGA RSD Date (includes contingency)	12/31/2022	02/24/2028

(A) = Actual.

2.13.2 90-day Look-ahead

The critical 90-day (***June 2023 through August 2023***) look-ahead includes activities highlighted by MTA in the recent monthly. MTA and MTS also are preparing four-week look-ahead schedules to manage interim activities. Key activities that MTA has identified for the short term are:

- Retaining wall, Overhead Contact System (OCS) foundation, and bridge structure construction in multiple locations.
- Water, sanitary sewer, and storm sewer construction in multiple locations.
- Overhead electrical line, communications line, and buried gas line relocations.

- TPSS installation and commissioning.
- MTA's closeout of Glenridge OMF punch lists and turnover of the facility to MTS.
- ***Summer work on the UMD campus.***
- Activities related to the replacement D-B contractor, including the continuation of required activities by MTS on the key structures and other elements on the critical path.
- Blasting at the Bethesda shaft. Construction of the Bethesda Enclosed Trainway grade beam.
- Track construction at the Glenridge OMF.

2.13.3 Critical Path Activities

In the MTA master schedule update dated March 12, 2023, for which final agreement with PLTP was never reached, the critical path runs through the activities in Segments 7 and 8 of installation of Civil and Systems packages, and then train testing. During review of the FRP, FTA and the PMOC provided input on the schedule information, including the schedule contingency, to be included in a revised RSD and FFGA.

2.14 Project Risk

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

During the approximately one-year period during 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 Quantitative Risk Analyses, or perform formal updates of the Risk Register. However, the Purple Line project management team did assess and respond to the risks associated with the unforeseen chain of events related to the lawsuit.

The project team resumed formal risk management 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 in draft form in January 2018, and was updated further and reissued in March 2018. As an ongoing process, MTA currently is performing updates of the Risk Register periodically, though somewhat less frequently than bimonthly (the frequency established in its RCMP). The current status of the RCMP is discussed in the **Project Management Plan and Sub-plans** section of this report, above.

MTA provides copies of significant updates of the Risk Register to FTA and the 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; the project's top five project risks are included as Attachment C of this report and are updated quarterly. A risk management workshop was held on January 26, 2021, at which the PMOC and FTA participated. The workshop

focused on the resolicitation period for the replacement D-B contractor (January through October 2021).

Now that the replacement D-B contractor is under contract, risk updates have been prepared. The project held a risk workshop the week of May 2, 2022, at which the PMOC and FTA participated in an OP 40 risk and contingency review that evaluated cost, schedule, and project contingency. Confirmation and finalization of the Risk Register, the Quantitative Risk Analysis, and an update of the RCMP are components of the required FRP. FTA provided a summary of the risk workshop to MTA on June 22, 2022, for MTA's consideration and incorporation into its management plans and contingency evaluation. MTA provided responses to FTA comments on the risk workshop summary on July 15, 2022, and clarification on August 25, 2022. In October 2022, MTA submitted RCMP Version 15 to FTA and the PMOC for review. In February 2023, FTA and the PMOC provided comments on RCMP Version 15 to support MTA's development of the project's budget and schedule contingency. On April 21, 2023, MTA provided a revised RCMP to FTA and the PMOC for review***, and on May 22, 2023 FTA accepted the revised RCMP with comment.***

2.15 Quality Assurance/Quality Control

The project's QA/QC is addressed in Section 10 of the PMP, the Quality Program Plan, and the updated MTA QAP Revision 8.0, which incorporates the quality plans prepared by PLTC. The **Project Management Plan and Sub-plans** section of this report, above, discusses the most current versions of the PMP and the QAP. MTA also submitted to FTA the package of inter-related quality plans prepared by the P3 concessionaire after the package was reviewed and approved by MTA.

MTA obtained and used PLTP's quality logs and other applicable documents and procedures for use during the transition to the replacement D-B contractor. Several former subcontractors are now under contract with MTA and conducted QA/QC activities during the replacement D-B contractor solicitation period. The budget to address nonconforming construction by PLTC is a concern. MTA incorporated known defects into the MTS contract; however, MTA has not clarified the specific budget that will be used to rectify defects found since the contract with MTS was executed. MTA estimates that the potential magnitude of this budget impact will be no more than $10 million.

In October 2022, MTA submitted QAP Version 10 to FTA and the PMOC for review, and on March 8, 2023, FTA provided review comments on the QAP to MTA. MTA provided a revised QAP to FTA and the PMOC in May 2023.

The project has continued to conduct its monthly meeting to review the QA/QC activities performed by the Purple Line project team, including those activities performed by the PMC and the GEC. Documentation from this meeting is distributed and maintained. The project's Monthly Progress Report to FTA also contains a summary of the significant current QA/QC activities and events, including quality audits and quality reviews. ***In April 2023,*** quality management topics included quality process improvements, records storage, field inspections to close open issues, equipment testing inspections, design submittal reviews, records spot checks, approval of MTS's

quality management plans, MTS offsite inspections at the fabrication location for OCS poles, and planning of the monthly QC meetings.

In November 2021, MTA's quality lead for the Purple Line project, Rene Schroeder, retired. Roland Carroll, the Purple Line systems and construction safety lead, added the quality lead role to his other Purple Line roles. In February 2022, MTA provided a white paper outlining Mr. Carroll's experience, his recent training, and the proposed supporting staff related to his new quality management role. The PMOC has evaluated this change as a part of the PMP review and ***will continue to monitor MTA's management capacity for this function and all positions through ongoing oversight activities***.

2.16 Safety and Security

PLTP has conducted 44 Preliminary Hazards Analysis (PHA) workshop sessions to date. These workshops were held to resolve MTA's comments on the PHAs completed to date.

To support the ultimate Safety and Security Certification of the Purple Line project, the PLTP System Safety team completed development of its first DCCC in May 2017 and submitted it to MTA for approval. MTA (assisted by the PMC) reviews the DCCCs as part of the Final Design package, according to the established submittal review process. According to PLTP, the DCCCs were being verified before the issuance of RFC packages. To date, an estimated 96.6 percent of the DCCCs have been verified. All previous comments on PLTP's Certified Elements List (CEL), which includes operations and maintenance and system integration testing elements, have been resolved, and CEL Revision 2 was accepted in March 2020. The Certified Items List (CIL) Revision 1 has been accepted. The next revision of the CIL is expected after MTS completes the design. MTA will provide the revised CIL to FTA and the PMOC as soon as it is completed. Approximately 10.6 percent of the CSCCs have been verified to date.

MTA chairs a Safety and Security Certification Committee (SSCC) that reviews, comments on, and approves any PLTP hazard management and safety and security certification issues. The first meeting of the MTA SSCC was conducted on March 20, 2018. Since July 11, 2018, the SSCC meeting has been held regularly and will continue as a monthly meeting until the level of activity requires more frequent meetings. ***As of May 2023,*** monthly SSCC meetings continue. Resolution of comments is still needed from Atkins (the designer) for a previous blast analysis review, but as of January 2023, MTA believed that resolution of these comments was nearly complete. MTA stated that the progressive collapse analysis of the Carr Building, although it may lead to remedial actions, will no longer be tracked by the Purple Line project. MTA stated that there would be no use of funds from the Purple Line project for remediation at the Carr Building.

PLTC submitted a Threat and Vulnerability Assessment, and on July 15, 2019, MTA accepted and verified the comment responses and approved PLTC's Threat and Vulnerability Assessment. PLTC then completed its Threat and Vulnerability Assessment process.

MTA continues to conduct bimonthly Fire/Life Safety meetings with Montgomery County and Prince George's County. The meetings provide a basis for the counties' emergency responders to understand the features of the Purple Line systems and to resolve any concerns. Topics of

discussion include: Police Department MOUs; Fire Department connection and hydrant locations; access, signage, and station naming conventions; MOUs for training; the PHA at the Glenridge OMF maintenance gate; station names; and addresses/emergency phone numbers for locations along the corridor. Other topics of discussion have included closed circuit television cameras and Mobile Emergency Vehicle Response access. It is the opinion of the PMOC that MTA should emphasize resolving the project's outstanding Fire/Life Safety issues, because progress on the resolution of these issues is not apparent.

MTA police continue coordinating MOUs with local safety agencies and developing MOUs with police jurisdictions (such as the Maryland National Capital Park Police) along the Purple Line. These MOUs are related to training the existing police agencies on how to respond to transit situations. During the September MTA/PMOC meeting, a larger related issue was discussed at length. The SSOA staff participated in this discussion as well. The crux of the issue is that MTA does not have a police force located in proximity to the Purple Line. MTA hired a consultant team to analyze alternatives for providing security and fare enforcement services for the Purple Line. Alternatives include: expanding MTA's enforcement services geographically, bringing on a third party to provide these services through a contract, or sharing police services with another party. On February 23, 2023, MTA submitted its prepared draft recommendation for providing security and fare enforcement to several State of Maryland departments. Representatives from MDOT, which is the SSOA, who are monitoring the Purple Line project development provided comments on the draft recommendation before MTA submitted it to MTA's upper management and the several state departments. ***In late April 2023, MTA provided FTA with the alternatives study for review. The study indicates that the preferred alternative is the development of a new Southern District of the MTA Police Department and recommends several next steps toward implementation of the new district, including hiring a commander, developing operating procedures, working on Memorandums of Understanding (MOUs) with other local jurisdictions, and developing a facility to house the district.***

As required by the P3 contract, PLTP was responsible for directly implementing many of the safety and security requirements for the project, including those for construction safety and the collection and maintenance of the Occupational Safety and Health Administration (OSHA) safety statistics for the project. PLTC performed this work until its departure from the project, at which time MTA assumed responsibility. MTS transitioned into the safety and security role that PLTC held. MTS and MTA are holding regular safety and security coordination meetings.

Safety continues to be acceptable, although with an increase of MTS activities, recordable incidents are increasing. Also, MTS appears to be having difficulties in its communication of incident reporting. MTA determined the methodology for reporting of, and assumed reporting of, OSHA statistics for the project under OSF. For the period from January 1, 2022, through ***March 2023***, the OSHA statistics are:

- TCIR (Total Case Incident Rate) (Recordable Rate) – MTS and OSF activities:
  - Actual: ***2.65/4.87 (MTS/OSF)***
  - MTA goal: 0.45

  - National average: 2.8 (for heavy civil construction)

- LTIR (Lost Time Injury Rate) (Recordable Rate):
  - Actual: ***2.65/4.87 (MTS/OSF)***
  - MTA goal: 0.00
  - National average: 0.9 (Construction – heavy civil)

MTA had assumed responsibility for safety oversight until MTS assumed control of the project. As of December 2022, MTA reports that MTS needs coaching on expectations for the required reporting of safety statistics. In April 2023, the PMOC noted to MTA that both the LTIR and the TCIR have increased significantly. MTA recognizes the issue and reports that it has scheduled additional safety coordination efforts. ***In May 2023, the PMOC asked MTA for documentation on the additional safety coordination efforts.***

In late October 2022, MTA submitted updated SSMP and SSCP documents in conjunction with the updated PMP. On February 13, 2023, and March 8, 2023, FTA provided review comments to MTA on the SSMP and SSCP, respectively. ***MTA has resubmitted the SSCP but has not yet provided a revised SSMP due to ongoing coordination with other state agencies.***

See the **Project Management Plan and Sub-plans** section of this report, above, for the status of the sub-plans of the PMP related to safety and security. Attachment B of this report includes additional quarterly safety- and security-related information for the Purple Line project.

2.17 Americans with Disabilities Act

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

Accessibility and compliance with the ADA are required as part of the functional requirements for stations and guideway, and as part of the codes and standards for LRVs within the P3 contract (Book 2, Part 2) for the Purple Line project. MTA and its consultants reviewed the design packages prepared by PLTC. Based on project reviews conducted by the PMOC, MTA has confirmed that it included ADA compliance in its QA oversight reviews of PLTC's design packages. A full-time Purple Line project Maintenance of Traffic construction representative also monitors whether temporary pedestrian accommodations during construction continue to comply with ADA requirements. ADA compliance is included in the PMOC's periodic project reviews, during which the PMOC discusses timely project ADA-related items with the project team. Such discussions during the PMOC's most recent reviews identified no current ADA-related issues.

MTA indicates that the project is maintaining ADA accessibility along the project corridor during construction. In addition to planning for ADA accessibility, MTA and MTS respond to public concerns due to construction activities and temporary accessibility features.

2.18 Buy America

MTA understands that Buy America compliance applies not only to the rail vehicles but also to the 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 regulations is contained in MTA's standard clauses for its procurements, and the P3 contract contains explicit Buy America language in its Appendix 16.

Virginkar and Associates, Inc. conducted the Buy America pre-award audit and concluded that there is reasonable certainty that CAF will satisfy the Buy America requirements as stated in 49 Code of Federal Regulations (CFR) 661. MTA's interpretation is that, because the vehicle RFP was advertised before December 4, 2015 (which is the date of passage of the Fixing America's Surface Transportation Act, also known as the FAST Act), the 49 CFR 661 Public Interest Waiver that limits domestic content to a minimum of 60 percent, as opposed to the escalating domestic content requirements of the FAST Act, applies in this case. During the week of October 2, 2017, an intermediate post-award Buy America audit was conducted of CAF's facility in Elmira, New York, for added confidence that the post-delivery audit would not identify issues. CAF targeted 65 percent domestic content in the completed LRVs.

The project's Buy America compliance audit for the LRVs was conducted on November 14, 2022. In January 2023, CAF provided additional documentation requested to assist with evaluation of Buy America compliance. The draft audit report will be available to FTA sometime in ***June 2023***. The draft report indicates that the LRVs will have a U.S. domestic content of 66.74 percent, which satisfies FTA's Buy America requirements.

2.19 Start-up, Commissioning, Testing

TBD

2.20 Before-and-After Study Reporting

TBD

2.21 Lessons Learned

The resolicitation of a D-B contractor has given MTA the opportunity to apply several lessons learned to the new D-B contract documents and to amend the P3 agreement. After the May 2022 risk workshop with MTA and the PMOC, MTA provided an update on opportunities for improvement that MTA had identified during the resolicitation and is incorporating into the project.

2.22 Action Items

Action Items are identified at MTA/FTA Quarterly Progress Review Meetings, at MTA/PMOC Monthly Update Meetings, and at MTA/FTA Biweekly New Starts Progress Conference Calls. Action Items from the most recent biweekly conference call on ***May 30, 2023***, are as follows:

1. MTA will provide updates to the OSF schedule, including construction activities and the final outstanding management plan (the SSMP). OPEN

2. MTA will provide documentation from the schedule mitigation Tiger Team effort when available. OPEN
3. MTA will provide the date on which the results of the police force alternatives study will be made available to FTA. CLOSED
4. MTA will provide a current detailed construction management organizational chart to FTA and the PMOC. OPEN

ATTACHMENT A – LIST OF ACRONYMS

ADA	Americans with Disabilities Act
ARPA	American Rescue Plan Act
ATC	Alternate Technical Concept
BFMP	Bus Fleet Management Plan
BPW	Board of Public Works
CAF	Construcciones y Auxiliar de Ferrocarriles
CEL	Certified Elements List
CFR	Code of Federal Regulations
CIL	Certified Items List
CSCC	Construction Specification Conformance Checklist
CSX	CSX Corporation
D-B	Design-Build
DBE	Disadvantaged Business Enterprise
DCCC	Design Criteria Conformance Checklist
DNR	Maryland Department of Natural Resources
E&S	Erosion and Sedimentation
EAC	Estimate at Completion
FAI	First Article Inspection
FCP	Forest Conservation Plan
FFGA	Full Funding Grant Agreement
FRP	Final Recovery Plan
FTA	Federal Transit Administration
GEC	General Engineering Consultant
IBS	Initial Baseline Schedule
IRP	Interim Recovery Plan
LOD	Limits of Disturbance
LRT	Light Rail Transit
LRV	Light Rail Vehicle
LTIR	Lost Time Injury Rate

MCC	Management Capacity and Capability
MDE	Maryland Department of the Environment
MDOT	Maryland Department of Transportation
MOU	Memorandum of Understanding
MTA	Maryland Transit Administration
MTS	Maryland Transit Solutions
N/A	Not Applicable
NEPA	National Environmental Policy Act
NTP	Notice to Proceed
OCS	Overhead Contact System
OMF	Operation and Maintenance Facility
OP	Oversight Procedure
OSF	Operation Step Forward
OSHA	Occupational Safety and Health Administration
P3	Public-Private Partnership
PEPCO	Potomac Electric Power Company
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 Management Plan
RCMP	Risk and Contingency Management Plan
RFC	Released for Construction
RFP	Request for Proposals
RFQ	Request for Qualifications
ROD	Record of Decision

ROE	Right of Entry
ROW	Right-of-Way
RSA	Revenue Service Availability
RSD	Revenue Service Date
SCC	Standard Cost Category
SEIS	Supplemental Environmental Impact Statement
SSCC	Safety and Security Certification Committee
SSCP	Safety and Security Certification Plan
SSMP	Safety and Security Management Plan
SSOA	State Safety Oversight Agency
SSP	Safety and Security Plan
SSPP	System Safety Program Plan
SSTC	Silver Spring Transit Center
STP	Surface Transportation Program
SWM	Stormwater Management
TBD	To Be Determined
TCE	Temporary Construction Easement
TCIR	Total Case Incident Rate
TIFIA	Transportation Infrastructure Finance and Innovation Act
TPSS	Traction Power Substation
TRO	Temporary Restraining Order
UMD	University of Maryland
USACE	U.S. Army Corps of Engineers
WMATA	Washington Metropolitan Area Transit Authority
WSSC	Washington Suburban Sanitary Commission
YOE	Year of Expenditure

ATTACHMENT B – SAFETY AND SECURITY CHECKLIST

Note: References to the System Safety Program Plan (SSPP), Safety and Security Plan (SSP), and 49 Code of Federal Regulations (CFR) Part 659 as they are contained in the FTA standard checklist form have been retained in the following update. However, it is recognized that Maryland Transit Administration is transitioning to the Public Transportation Agency Safety Plan and 49 CFR Parts 673 and 674.

Refer to the July 2020 PMOC Monitoring Report for the most recent update.

ATTACHMENT C – TOP PROJECT RISKS

An internal risk workshop to support the Interim Recovery Plan (IRP) was held on January 26, 2021. Maryland Transit Administration (MTA) and Purple Line Transit Partners (PLTP) used information from the meeting as they solicited a replacement Design-Build (D-B) contractor. At the time of the workshop, the MTA Risk Management was tracking the following risks identified during development of the IRP:

Procurement/Settlement Risks:

- PLTP solicitation of replacement D-B contractor:
  - Market resolicitation in a compressed time frame
  - Delay in finalizing solicitation
  - Weak bidder interest – two or fewer proposals
- D-B contract and other contract negotiations

Schedule Risks:

- Inability of MTA subcontractors to meet the Operation Step Forward (OSF) schedule dates, causing delay to certain activities to be performed by the replacement D-B contractor
- Unanticipated delay to the replacement D-B contractor "ramp up" of activities, resulting in impacts to the critical path anticipated by MTA

Design and Construction Risks:

- Performance risk assumed by MTA by contracting for and performing work during the replacement D-B contractor resolicitation period (subcontracting risk)
- Quality, commercial, coordination, and unforeseen conditions unknown to MTA at the time of assumption of former Purple Line Transit Constructors subcontracts

A risk workshop was held May 3 through May 5, 2022. After the risk workshop, MTA prepared supplementary or updated documents for review, including an updated Risk Register. FTA provided a risk summary to MTA on June 22, 2022, for MTA's consideration when updating risk, contingency, and other project management plans. MTA provided a response to each of the comments on the risk summary to FTA on July 18, 2022, and provided further clarifications on August 25, 2022. MTA incorporated the FTA comments in the revised Risk and Contingency Management Plan (RCMP) that is a part of the Final Recovery Plan.

On October 7, 2022, MTA submitted RCMP Version 15 to FTA and the PMOC for review. FTA provided review comments to MTA on February 16, 2023, and MTA prepared a revised RCMP and submitted it to FTA on April 21, 2023. On May 22, 2023 FTA accepted the revised RCMP with conditions.

In April 2023, MTA presented the following top project risks:

1. Construction – Exhibit 24 Utility Adjustments – Significant
2. Construction – RCO1 and RCO7 Utility Delays – Significant
3. Design – Temporary Construction Easement Extensions – High

4. Construction – Exhibit 24 Utility Adjustments Verizon – High
5. Construction – Unknown Existing Construction Defects – High
6. Market – Unknown Unknowns – High
7. Construction – Utility Relocation – High
8. CSX Flaggers – High

ATTACHMENT D – AWARDED CONTRACTS

A significant update to awarded contracts is forthcoming due to the transition within the original Public-Private Partnership concessionaire and Maryland Transit Administration's (MTA's) assumption of some, but not all, subcontracts. ***Included below is information that MTA prepared for the May 15, 2023 Quarterly Progress Review Meeting packet. Please note that the total shown in this table for contracts awarded does not reflect the full project value.***

Purple Line
Project #1042
Current Project Status (Dollars in $000s)
Project Manager/RE: Matthew Pollack

Major Contracts:

Company	Vendor Type	Contract No.	Baseline Amount	Change Order Totals	Current Amount	Pending Change Orders
PB/RK&K	Engineers/ Architects	MTA-1054A	$12,000	$1,850	$13,850	
STV/Jacobs	Engineers/ Architects	MTA-1054B	$8,000	$1,300	$9,300	
AECOM/ RK&K/PB	Engineers/ Architects	MTA-1264A	$60,000	$338,500	$398,500	
Gannett Fleming/WRA	Engineers/ Architects	MTA-1265B	$80,000	$71,000	$151,000	
Purple Line Transit Partners	P3 Concession (design build portion only)	PUR16032PP	$1,988,816	$1,341,310	$3,330,126	
Total			**$2,148,816**	**$1,753,960**	**$3,902,776**	**0**

Reason for Change: *Amendment 6 to the Purple Line Transit Partners P3A was not been previously reflected. The amount shown as "Current Amount" represents that portion of the P3A Design-Build contract associated with the New Starts Program.*

ATTACHMENT E – ROLLING STOCK VEHICLE STATUS REPORT

Date: May 30, 2023

Vendor: Construcciones y Auxiliar de Ferrocarriles (CAF)

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

Year: The first vehicle was completed in 2021, and currently 26 vehicles are designated as "Ready for Shipment." Completion of the storage and testing facilities at the Glenridge Operation and Maintenance Facility (OMF) has been delayed, so Maryland Transit Administration (MTA) and CAF negotiated terms for storage of vehicles at the CAF facility in Elmira, New York. The storage agreement has now transferred to the replacement Design-Build (D-B) contractor, Maryland Transit Solutions (MTS).

Quantity: 25 vehicles (130 cars) original contract (Full Funding Grant Agreement [FFGA]). One vehicle (5 cars) was added to the original CAF authorization by MTA, outside of the FFGA.

2 vehicles (10 cars) in July 2021 change order (non-FFGA).

Identification: The original light rail vehicles (LRVs) will be numbered from 101 through 126. The numbering of the two additional LRVs is to be determined.

New Technologies: None planned (all major suppliers have service-proven equipment).

Status and Significant Activities:

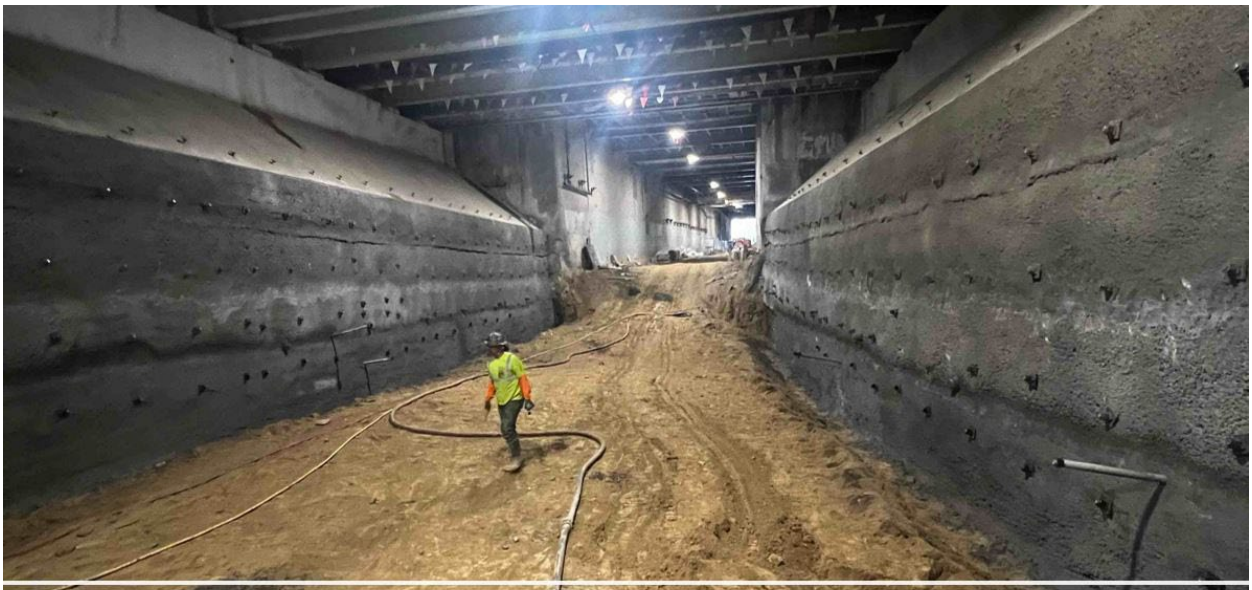
- In total, 130 cars were assembled in Spain, all of which have been delivered to CAF in Elmira, New York. Assembly of the additional 2 vehicles (10 cars) is in progress in Spain. Ultimately these 10 cars will be shipped to Elmira for final assembly and static testing, following the same process as the original 130 cars.
- Delivery of finished vehicles was expected to begin in spring 2021; however, because the Glenridge OMF is not ready to accept railcars, MTA and CAF have negotiated an agreement for CAF to store the completed cars in Elmira.
- Cost risk for delivery of the finished vehicles has been transferred to MTS. If delays in construction cause a delay, then MTS is responsible to CAF for additional storage cost.
- Twenty-six LRVs have passed static testing, have been designated as Ready for Shipment, and have been placed into storage in Elmira. These include vehicle 110, which was returned to Ready for Shipment status after a second period in static testing.
- Delivery of the first of the original 26 vehicles is currently scheduled for fall 2023. Approximately one vehicle per week will be delivered thereafter. The Glenridge OMF will be able to store three or four vehicles on the yard and in the building, so track must be available for additional storage. The Overhead Contact System and Traction Power

Substation (TPSS) Q7 and TPSS QYG must also be completed and installed before delivery of vehicles.

- MTA added two vehicles by change order to CAF's original contract, outside of the MTA/Federal Transit Administration (FTA) FFGA. The additional LRVs will support better operations at Revenue Service Availability. The replacement D-B contractor, MTS, has incorporated these two additional LRVs into its scope of work (in addition to the cost and terms of LRV storage in Elmira). Fabrication of the two additional LRVs at CAF's facility in Spain has begun.
- SNC-Lavalin (now an MTS subcontractor) prepares a monthly quality report documenting safety, production, and quality items at both the Spain and New York production facilities. Many of the same SNC-Lavalin staff who observed the original vehicle fabrication work are overseeing the fabrication of the two additional vehicles in Spain.
- MTA, the Project Management Consultant, and CAF are holding weekly coordination meetings to review all outstanding testing and factory/shop activities, including onsite testing procedures for when the vehicles are delivered to Maryland.
- MTS, which has assumed the CAF contract, is preparing and submitting to MTA reports on LRV maintenance activities required during the storage period.
- The project's Buy America compliance audit for the LRVs was conducted on November 14, 2022. In January 2023, CAF provided additional documentation requested to assist with the evaluation of Buy America compliance. The draft audit report is expected be available in May 2023. Preliminary information from the audit indicates that the percentage of U.S. domestic content meets FTA requirements.
- The resolution of the previously identified quality issue related to the M33 bolt on the LRVs and the associated final report was expected in May 2023, but submittal to FTA has been deferred until June 2023. MTA determined that the issue does not impact safety, and the solution is likely the use of a higher strength bolt. The effort included a significant amount of work to determine whether a bolt failure would cause debris to fall on the track.

ATTACHMENT F – PROJECT MILESTONES/KEY EVENTS

Photos courtesy of Maryland Transit Administration.



CIP Wall 1-002 / 1-003 Shotcrete Install by MTS – Bethesda Enclosed Trainway
Week Ending 04-28-23



S05 Endwall EW-08-02 Stone Installation by MTS – East Golf Cart Underpass
Week Ending 04-28-23


CIP Wall 1-008A Stem form work by MTS – GBT at Pearl St.
Week Ending 05-05-23


Conduit Installation at TBX 17305-2 by MTS – Connecticut Ave. Station
Week Ending 05-05-23



Sand Filter F2-56-01 excavation work by MTS – Wayne Ave.
Week Ending 05-12-23



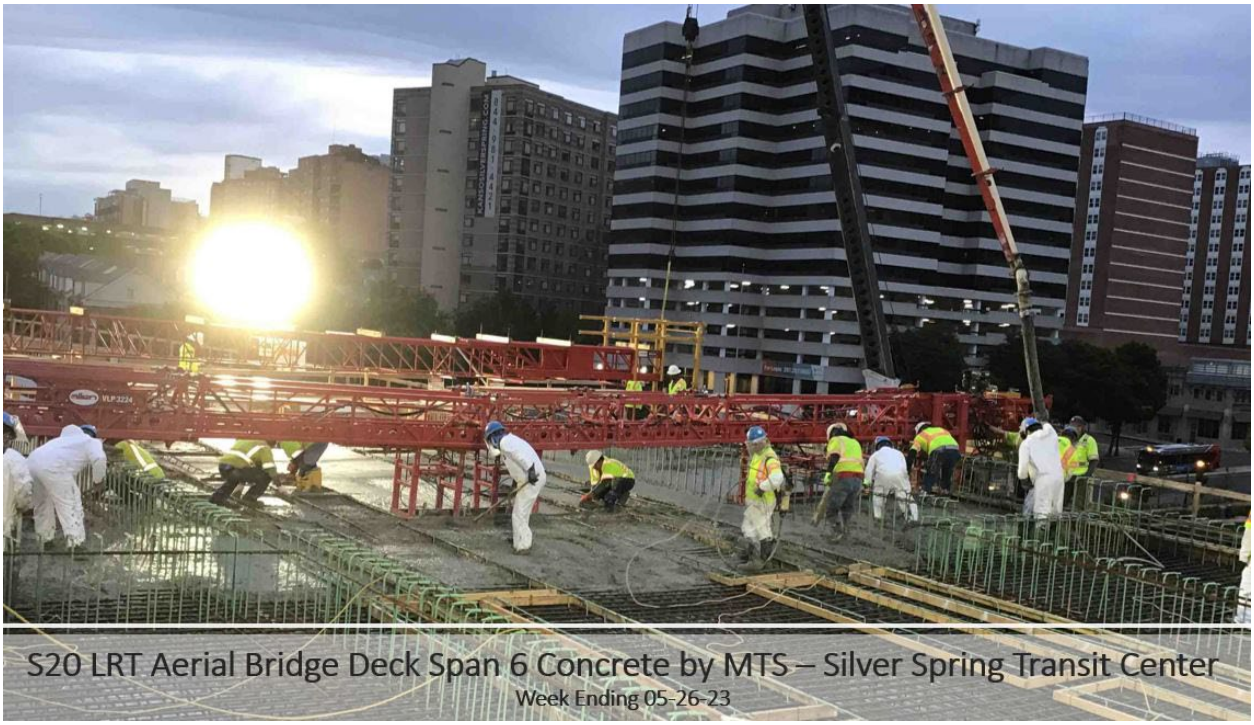
Drainage Chase Formwork by MTS – Plymouth Tunnel
Week Ending 05-12-23



Storm Drain 48-Inch RCP Installation work by MTS – University Blvd
Week Ending 05-19-23



TPSS-Q7 Lighting Circuits Wiring work by MTS – Patterson St.
Week Ending 05-19-23



S20 LRT Aerial Bridge Deck Span 6 Concrete by MTS – Silver Spring Transit Center
Week Ending 05-26-23



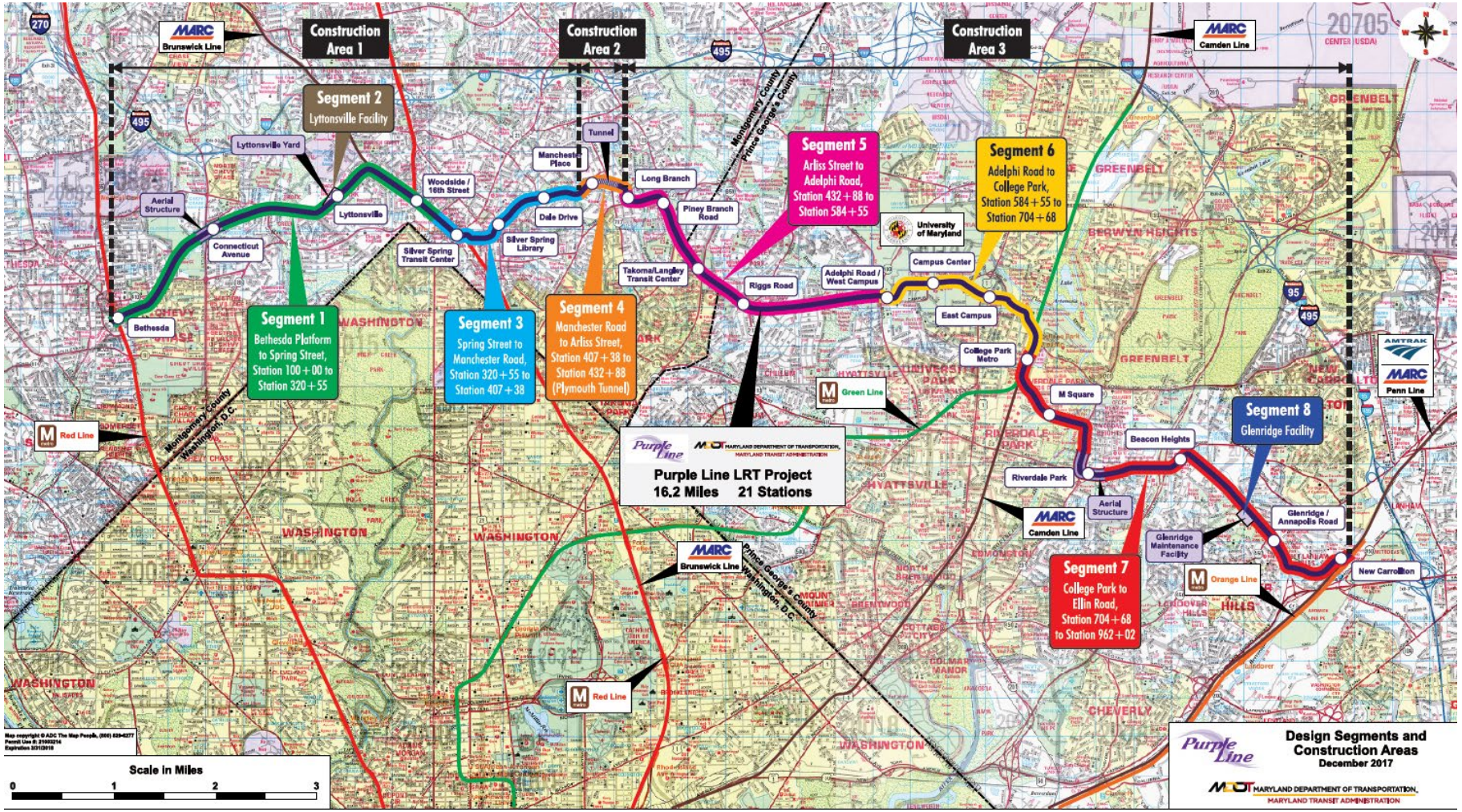
Curb & Gutter Concrete Placement by MTS – Riverdale Rd
Week Ending 05-26-23

ATTACHMENT G – ROADMAP TO REVENUE OPERATIONS

In accordance with Oversight Procedure (OP) 25, the Roadmap to Revenue Operations, prepared from the Project Sponsor's master schedule, is issued quarterly as a separate electronic file. Because the Project Sponsor's master schedule is undergoing a major revision for schedule recovery, the dates currently shown will change.

Per OP 25, this item is issued quarterly "as a separate attachment." Due to the transition to a new Design-Build contractor, quarterly updates will be provided when available. Refer to the July 2020 Project Management Oversight Contractor Monitoring Report for the most recent update.

ATTACHMENT H – PROJECT MAP



PMOC MONITORING REPORT
June 2023

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

Maryland Transit Administration
Baltimore, Maryland
Final

Draft Report Delivered to FTA on ***July 10, 2023***
Final Report Delivered to FTA on ***July 28, 2023***

PMOC Contract No.: 69319519D000016
Task Order No.: 69319520F300095
Project No.: 69319519D000016/69319520F300095
Requisition/Reference No.: FTA-TPM20-20-0106
OPs Referenced: 20, 22, 24, 25, 26
CLINs 0001, 0002, and 0005

David Evans and Associates, Inc.
Pete Hankovszky, Task Order Manager
Voice –720.448.6730; Email – pzh@deainc.com
Time on Project: 05/18/2020 through 05/17/2025

REPORT FORMAT AND FOCUS

This report is submitted in compliance with the terms of the Federal Transit Administration (FTA) Contract #69319519D000016, Task Order #69319520F300095. Its purpose is to provide information and data to assist FTA as it continually monitors the management capacity and capability of the Maryland Transit Administration (MTA) (the Project Sponsor) to execute the project efficiently and effectively, and hence, whether the Project Sponsor continues to be ready to receive federal funds for further project development. This report covers the project management activities on the National Capital Purple Line Light Rail Transit Project managed by MTA as the Project Sponsor and financed by the FTA Full Funding Grant Agreement (FFGA). The cost and schedule information in this report was extracted from MTA's submitted information except where noted. The report is organized to comply with the requirements of updated Oversight Procedure 25 – Recurring Oversight and Related Reports, dated June 2020.

THIRD-PARTY DISCLAIMER

This report and all subsidiary reports are prepared solely for FTA. This report should not be relied upon by any party, except FTA or the Project Sponsor, in accordance with the purposes as described below.

For projects funded through the FTA FFGA program, FTA and its Project Management Oversight Contractor (PMOC) use a risk-based assessment process to review and validate a Project Sponsor's budget and schedule. This risk-based assessment process is a tool for analyzing project development and management. Moreover, the assessment process is iterative in nature; any results of an FTA or PMOC risk-based assessment represent a "snapshot in time" for a particular project under the conditions known at that same point in time. The status of any assessment may be altered at any time by new information, changes in circumstances, or further developments in the project, including any specific measures a Project Sponsor may take to mitigate the risks to project costs, budget, and schedule, or the strategy a Project Sponsor may develop for project execution. Therefore, the information in the monthly reports will change from month to month, based on relevant factors for the month and/or previous months.

TABLE OF CONTENTS

1. EXECUTIVE SUMMARY 1
1.1. Project Description 1
1.2. Project Status 1
1.3. Major Issues and/or Concerns 10
1.4. Status of Key Indicators Dashboard (Post-grant) 11
1.5. Core Accountability Items 13
2. OBSERVATIONS AND FINDINGS 13
2.1. Summary of Monitoring Activities 13
2.2. Oversight Triggers 14
2.3. Project Management Plan and Sub-plans 14
2.4. Management Capacity and Capability 17
2.5. NEPA Process and Environmental Mitigation 18
2.6. Project Delivery Method and Procurement 21
2.7. Design 22
2.8. Real Estate Acquisition and Relocation 24
2.9. Third-party Agreements and Utilities 26
2.10. Construction 27
2.11. Vehicle Technology and Procurement 29
2.12. Project Cost 30
2.13. Project Schedule 32
2.14 Project Risk 37
2.15 Quality Assurance/Quality Control 38
2.16 Safety and Security 38
2.17 Americans with Disabilities Act 41
2.18 Buy America 41
2.19 Start-up, Commissioning, Testing 42
2.20 Before-and-After Study Reporting 42
2.21 Lessons Learned 42
2.22 Action Items 42
ATTACHMENT A – LIST OF ACRONYMS 43
ATTACHMENT B – SAFETY AND SECURITY CHECKLIST 46

ATTACHMENT C – TOP PROJECT RISKS....47
ATTACHMENT D – AWARDED CONTRACTS....49
ATTACHMENT E – ROLLING STOCK VEHICLE STATUS REPORT....50
ATTACHMENT F – PROJECT MILESTONES/KEY EVENTS....52
ATTACHMENT G – ROADMAP TO REVENUE OPERATIONS....57
ATTACHMENT H – PROJECT MAP....58

LIST OF TABLES

Table 1 – MTA Master Schedule Dates....4
Table 2 – Current Major Issues and Concerns....10
Table 3 – Key Indicators Dashboard....11
Table 4 – Core Accountability Items....13
Table 5 – Project Cost Versus Budget....31
Table 6 – Baseline Cost Estimate by Source Funding....32
Table 7 – Key Milestone Dates....35

1. EXECUTIVE SUMMARY

1.1. 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, Maryland, to New Carrollton in Prince George's County, Maryland. The Purple Line will operate largely at street level in a combination of dedicated and semi-exclusive right-of-way (ROW) and 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) service at Bethesda, Silver Spring, College Park, and New Carrollton, Maryland. The project will also connect to all three Maryland Area Regional Commuter rail lines, Amtrak, and local bus routes. The project includes 21 stations, 2 operations control/vehicle storage and maintenance facilities, and 25 light rail vehicles (LRVs). Maryland Transit Administration (MTA) is executing the project using a Public-Private Partnership (P3) method of project delivery. As documented in the Federal Transit Administration (FTA) Full Funding Grant Agreement (FFGA), the original estimated project cost is $2,407,030,289, and the scheduled Revenue Service Availability (RSA) date is December 31, 2022. On January 26, 2022, the Maryland Board of Public Works (BPW) approved significant revisions to the project cost and the RSA date. The Transportation Infrastructure Finance and Innovation Act (TIFIA) loan closed on April 14, 2022, allowing financial close and commercial close on that same day. Financing approvals and subsequent financial close allowed Purple Line Transit Partners (PLTP), the P3 concessionaire, to issue Notice to Proceed (NTP) to the replacement Design-Build (D-B) contractor. Maryland Transit Solutions (MTS) is now the D-B contractor for the project. MTA has prepared a Final Recovery Plan (FRP), which FTA accepted on April 17, 2023. The revised project cost is $5,116,020,380, and the revised Revenue Service Date (RSD) is February 24, 2028. MTA has submitted multiple management plan updates for FTA and Project Management Oversight Contractor (PMOC) review. Several of these management plans have been reviewed and accepted, while several updates remain in progress.

1.2. Project Status

The FFGA was executed on August 22, 2017. The Purple Line project is currently in the construction phase. Due to a contractual dispute, PLTP demobilized the assets/staff and subcontractors of the original D-B contractor, Purple Line Transit Constructors (PLTC), from the project in September 2020.

On November 24, 2020, MTA and PLTP reached a settlement agreement to release PLTC from the P3 consortium and continue the project with the remaining parties. The BPW approved the agreement on December 17, 2020. PLTP agreed to procure a replacement D-B contractor to complete the project and to obtain project financing.

Despite changes within the P3 consortium, MTA intends to complete the full scope of the project as envisioned in the original contract documents, with some minor exceptions such as the addition of three more LRVs. After a procurement process for a replacement D-B contractor, PLTP

selected MTS (a joint venture of Dragados USA and OHL USA) on November 5, 2021. The contract with MTS was executed on April 14, 2022.

MTA submitted a draft Interim Recovery Plan (IRP), dated December 15, 2020, to FTA. The IRP provided additional details related to the settlement agreement and MTA management activities. MTA subsequently prepared and submitted the FRP to FTA. FTA and the PMOC reviewed the Project Management Plan (PMP) and other MTA management plans, along with the FRP. FTA accepted the FRP on April 17, 2023.

MTA made deliberate choices about how to proceed with the major project elements once PLTC was released from the project. MTA's planning criteria included schedule, budget, and the reduction of risk for the replacement D-B contractor. To address budget constraints, some project activities that were identified for completion in the IRP were deferred. MTA and its Project Management Consultant (PMC) added staff to support subcontractor invoicing, payment processes, and other administrative tasks.

MTA has managed and is currently managing a significant number of construction activities, including some utility relocations, particularly work by Verizon and Comcast. Despite the careful planning during MTA's IRP period, called Operation Step Forward (OSF), several activities fell behind schedule. Delays related to third-party utility relocations and other unforeseen issues continue to cause MTA to miss milestone dates included in MTA's revised agreements with PLTP that were executed in April 2022. Evaluation of the impacts on schedule and budget from these missed milestones by MTA, and the related recovery efforts, continue. MTA has resumed the "Tiger Team" process for developing schedule mitigation.

Construction work continues under the management of both MTA and MTS, including activities and elements such as erosion and sediment control maintenance, bridge structures, retaining walls, track installation, the Glenridge Operation and Maintenance Facility (OMF), and utility relocations. The Polk Street Maintenance Facility (for Prince George's County), the Paint Branch stream restoration, and the Ken-Gar wetlands mitigation projects are complete with the exception of warranty periods.

Completion of the Glenridge OMF has been on or near the critical path and continues to be a focus. MTA completed the majority of the OMF building and utilities, but construction of track that accommodates LRV storage and testing was deferred for completion by MTS. There are outstanding OSF items that MTA must complete at the OMF. MTS was scheduled to assume control of the facility in early 2023, but as ***of June 2023,*** the date of the turnover of the facility from MTA to MTS is still being determined. ***There is potentially a dispute between MTA and MTS on the completeness and timing of MTA's work at the OMF.*** MTS is currently installing rail and other features both inside and outside of the building.

Delayed completion of the OMF construction upon PLTC's departure required finding an alternative location to store completed LRVs. MTA reached an agreement with Construcciones y Auxiliar de Ferrocarriles (CAF), the project's LRV manufacturer, to store the LRVs at CAF's Elmira, New York facility until track is ready for acceptance of the LRVs. MTS assumed the storage agreement with CAF upon finalization of the replacement D-B contract.

MTA has revised and submitted the PMP, Risk and Contingency Management Plan (RCMP), Quality Assurance Plan (QAP), project schedule, Safety and Security Management Plan (SSMP), and Safety and Security Certification Plan (SSCP). FTA and the PMOC have reviewed these revised plan documents in conjunction with their review of the FRP. In addition to the FRP, FTA accepted the PMP and RCMP. ***FTA received revisions of the SSMP from MTA on June 28, 2023 that are under review. The SSCP and QAP are pending revision and resubmittal by MTA.***

MTA continues to provide FTA and the PMOC with updates on the progress of MTA and MTS construction activities and twice monthly updates that track project milestones.

- Scope: There have been no significant reductions or changes to project scope. Three LRVs were added to the project scope (non-FFGA) to support improved operations once service commences.
- Schedule:
  - PLTC never developed an approved recovery schedule to address the delayed start of construction caused by the environmental lawsuit (please see the **NEPA Process and Environmental Mitigation** section, below, for a discussion of the environmental lawsuit). In fall 2019, the P3 concessionaire submitted a revised, fully cost-loaded schedule reflecting a phased project opening (with the first phase opening at the end of 2022 and the second phase opening in mid-2023). This schedule was never incorporated into the working master project schedule.
  - In accordance with the IRP, MTA developed a schedule for the period during which the D-B contractor was being replaced. PLTP and MTA identified several milestones and the requirement to establish a full project schedule before the end of the D-B contractor replacement period.
  - The IRP project milestones included:
    - January 6, 2021 – PLTP issued a Request for Qualifications (RFQ) for replacement D-B contractors.
    - March 8, 2021 – PLTP issued a Request for Proposals (RFP) to the short list of replacement D-B contractors based on the RFQ.
    - October 15, 2021 – PLTP received RFP responses.
    - November 5, 2021 – PLTP and Maryland Department of Transportation (MDOT)/MTA selected the replacement D-B contractor firm.
    - January 26, 2022 – BPW approved the replacement D-B contractor (MTS), contract amendments, schedule, cost, and financing.
    - April 14, 2022 – The TIFIA loan closed, allowing financial and commercial close on that same day. MDOT/MTA issued NTP to PLTP, allowing for execution of the MTS contract.
    - September 12, 2022 – MTA approved the Initial Baseline Schedule (IBS).

- October 28, 2022 – MTA submitted the draft FRP to FTA and the PMOC for review.

- A milestone not specifically mentioned in the IRP is the requirement to extend the current RSD. The PMOC therefore added the following milestone to this list:
  - December 31, 2022 – The RSD in the original FFGA is December 31, 2022. MTA requested an extension to the RSD identified in the original FFGA. FTA accepted the FRP that includes a revised RSD of February 24, 2028.

See also the **Significant Project Activities and/or Key Milestones** subsection of this Executive Summary, below.

Table 1 presents MTA's key milestone dates for the project. This table has been updated to show the dates included in the FRP. The schedule in the FRP is considered the baseline schedule for the project. Through the Quantitative Risk Analysis and processes described in MTA's RCMP, a schedule contingency of 16 months was deemed appropriate. However, delays to OSF activities continue to have the potential to further consume the contingency. Utilization of a large portion of the schedule contingency at the early stages of MTS's contract is a concern.

To clarify the schedule terminology that MTA uses: The RSA date is a contractual date critical to the agreement between MTA and PLTP. The RSD is the contractual date tied to FTA FFGA funding and other project approvals.

MTA and MTS made coordinated efforts to mitigate delays related to incomplete OSF activities that MTS identified in late 2022. The mitigation reduced the delays by modifying construction sequencing in critical areas where third-party utility relocations are incomplete. ***Incomplete OSF work has continued to impact the critical path in 2023, and*** MTA and MTS are currently reviewing additional opportunities for schedule recovery**.**

Table 1 – MTA Master Schedule Dates

Activity	Current Approved Master Project Schedule Milestone Date[1]
Original FFGA	August 22, 2017
Financial Close / NTP / Amendment Agreement Effective Date for Revised PLTP Agreement	April 14, 2022
Commencement of Integration Testing	September 2, 2025
Commencement of Trial Running	May 27, 2026
Construction Complete All Segments	November 12, 2026
RSA (includes contingency)	June 30, 2027
FFGA RSD (includes contingency)	February 24, 2028

[1] Dates based on April 3, 2023 Maryland Purple Line Project Recovery Plan.

- Cost:
  - The project's documented expenditures are ***$2,876,520,485 through May 31, 2023***. The current Estimate at Completion (EAC) for the project (construction, management, and LRVs) is $5,116,020,380. This budget has been accepted by FTA, and MTA has adopted it as the project cost.
  - The accepted project cost includes $307,293,174 of unallocated contingency, of which ***$22,174,691 has been used to date to address project changes and implementation of schedule mitigation.***
  - Refer to **Table 4 – Core Accountability Items**, below, for additional project cost information.
  - MTA prepared a summary of actual versus planned expenditures for high-level OSF activities in Standard Cost Category (SCC) format and is updating this summary each month. Through December 31, 2022, MTA forecasted OSF expenditures of $556.15 million, which exceed the original OSF budget by approximately $136 million. A significant portion of the overrun previously had been incorporated into the project budget, but additional contingency may be needed to address the increase of $35 million to $45 million that has occurred since the final recovery budget was developed. MTA states that these overruns are due to labor and material cost inflation as well as the extended duration of the OSF activities. The PMOC recommends that MTA closely monitor these cost overruns. ***The PMOC has requested that MTA provide current information regarding the OSF expenditures and overruns.***
  - The budget includes funds to address nonconforming construction by PLTC. MTA incorporated known defects into the contract with MTS. However, MTA must pay for any defects unknown at the time of execution of the MTS contract. In February 2023, MTA estimated the total cost of these unknown defects to be approximately $10 million. As with the OSF overruns, the PMOC recommends that MTA closely monitor utilization of contingency to cover these costs.
- Significant Project Activities and/or Key Milestones:
  - The COVID-19 pandemic impacted the project in different ways and at different levels. These impacts were primarily related to availability of resources and labor. MTA, PMC, and other project staff followed recommended COVID-19 protocols. On January 30, 2023, MTA stated that COVID-19 protocols for the project had been suspended.
  - The third lawsuit filed by the Friends of the Capital Crescent Trail in January 2019 against U.S. Army Corps of Engineers (USACE) was dismissed in April 2020. The plaintiff subsequently filed an appeal on May 11, 2020. The District Court denied the appeal on May 13, 2021. The decision resolved the last active lawsuit related to the project.

- The original baseline schedule indicated design completion by late fall 2017. The current progress through ***June 22, 2023***, is that 212 of the 218 total planned design packages have been issued as Released for Construction (RFC). The six remaining Civil and Utility packages that remain in design or approval include traffic signal pre-emption, grade crossing safety systems, lighting, signage, stations, and fare collection. Although Systems packages were scheduled to be complete by the end of the first quarter of 2022, those packages remain in prog***ress. The current forecast for final approval of all traffic signal design packages is July 31, 2023.*** MTA expects the Fare Collection package to be completed later in 2023.
- WMATA's comments on design plans for the Silver Spring Transit Center (SSTC) mezzanine connector pedestrian bridge (over CSX Corporation [CSX] ROW) will result in what MTA deems are betterments. Resolution of WMATA comments continues as of ***June 2023*** at the SSTC and at other locations where WMATA and Purple Line stations coincide. MTA reports that the slow resolution of these issues has not impacted critical path activities.
- Storm sewer construction under the CSX railroad is required in several locations. Two jack-and-bore installations of culvert pipes were completed in November 2022. One jack-and-bore installation remains to be completed by MTS as of ***June 2023.***
- MTA and Washington Suburban Sanitary Commission (WSSC) reached agreement on the relocation of the 66-inch water main that was under the Glenridge OMF. Energizing the cathodic protection is the only remaining item as of ***June 2023***. WSSC is currently using the line and is responsible for the cathodic protection.
- PLTC reached resolution on the final remaining Alternate Technical Concept (ATC) identified during the proposal process, which is related to the use of jet fans at the Bethesda Station in lieu of vent shafts. In accordance with the established process, MTA reviewed PLTC's design package for National Environmental Policy Act (NEPA) compliance. Final documentation for the ATC is still pending as of ***June 2023.*** MTA and MTS are coordinating the noise and aesthetic impacts of the fans, and they optimistically predict that the ATC will have no Section 4(f) impacts or other impacts to the project's Record of Decision (ROD).
- MTA has completed most of its non-P3 construction contract activities, as follows:
  - Prince George's County Parks (Parks) Polk Street Maintenance Facility D-B – A substantial completion letter was issued to the contractor on March 30, 2021. Parks has taken possession of the facility, and it is currently in the warranty period.
  - Offsite Wetlands Mitigation (Ken-Gar) – The Design-Bid-Build construction NTP was issued on September 5, 2019. The one-year warranty review occurred on January 9, 2022, and the project is now in quarterly monitoring and annual reporting by MTA that will continue through 2028.

- Offsite Stream Mitigation (Paint Branch) – The Design-Bid-Build construction NTP was issued on September 5, 2019, and the contractor mobilized in late November 2019. Quarterly monitoring and annual reporting by MTA will continue through 2028.

- Building construction at the Glenridge OMF is essentially complete; however, construction of items outside of the building continues, as does final commissioning of systems inside the building. MTS was scheduled to take possession of the Glenridge OMF on December 31, 2022, but that did not occur because MTA had several remaining items to complete. However, MTS is working in the OMF, installing embedded track inside the building and completing other interior features. The turnover letter to transfer possession of the facility from MTA to MTS is in progress as of ***June 2023. There is potentially a dispute between MTA and MTS regarding the completeness and timing of MTA's work at the OMF.***

- Preparation of Traction Power Substations (TPSSs) Q8, QYG, and Q7 continues. As of ***June 2023***, both TPSS Q7 and TPSS QYG have been placed on their foundations, and interior components are being installed and tested. The foundation for TPSS QY8 has been backfilled in preparation for substation installation.

- The following is the status of LRV manufacturing as of ***June 2023:***

  - Assembly of 130 carshell segments in the initial procurement has been completed in Spain, and all have been delivered to CAF's facility in Elmira, New York.

  - All 25 of the vehicles in the FFGA project scope description and one additional vehicle originally ordered are designated as "Ready for Shipment" and are in storage. These vehicles are under a schedule of inspection and maintenance until delivery can occur.

  - MTA has added three vehicles by change order to CAF's contract. The additional LRVs will support better operations at the RSA date. It is important to note that these three additional LRVs are not a part of the FFGA between MTA and FTA. One of the additional vehicles is in storage in Elmira along with the 25 FFGA LRVs, and assembly of the other two vehicles (10 cars) ***has been completed*** in Spain. ***These 10 cars are in the process of being shipped*** to Elmira for final assembly and static testing, following the same process as the other 130 cars.

  - The previously identified quality issue related to the M33 bolt on the LRVs is nearly resolved. MTA determined that the issue does not impact safety, and the solution is likely the use of a higher strength bolt. The final report on this quality issue ***was*** expected in May 2023, ***although the PMOC has not yet received it as of June 30, 2023.***

  - Delivery of vehicles was expected to begin in spring of 2021; however, the location for their delivery was uncertain because the Glenridge OMF is not ready to accept railcars. MTA and CAF negotiated an agreement for CAF to store the

completed cars in Elmira to await delivery. The terms of the agreement became a part of MTS's agreement. Deliveries of LRVs to the Glenridge OMF ***have been delayed to early 2024.***

- MTA has reviewed the systems testing and commissioning management plan and has provided its comments to PLTP.
- The project's Buy America compliance audit for the LRVs was conducted on November 14, 2022. In January 2023, CAF provided additional documentation requested to assist with evaluation of Buy America compliance. The draft audit report was expected be available in May 2023, ***although the PMOC has not received it as of June 30, 2023.*** Preliminary information from the audit indicates that the percentage of U.S. domestic content of the LRVs meets FTA requirements.

- MTA is responsible for providing offsite stormwater mitigation in Montgomery County. To date, MTA has accumulated a credit for more than 10 acres of designed, Maryland Department of the Environment (MDE)-approved, offsite stormwater management (SWM) capacity in its "bank." MTA has determined that there is a need for additional mitigation in Prince George's County, and a project to construct additional mitigation is included in the scope of work for MTS.
- ROW acquisition activities continue for the required 464 private parcels and 137 public parcels (a total of 601 parcels). All of the private parcels related to the original P3 contract Exhibit 9 FFGA scope are in MTA's possession. ***As of June 9, 2023***, ***414*** of the 464 private parcels have completed settlement, and an additional ***6*** parcels have settlements pending.
- MTA has identified 188 small property acquisitions that are required for utility relocations, of which 134 are private and 54 are public. As of April 25, 2023, all 188 of the additional properties were in MTA's possession through Right of Entry (ROE), through options, and/or through agreements. That achievement marked a significant project milestone and allowed the project to retire real estate risks that have been tracked for several years. ***As of June 9, 2023***, MTA estimated that approximately ***$37.2 million*** of exposure remains in the acquisition process. This amount is included in the risk assessment.
- To date, all but one of the 177 required property relocations have been completed. MTA continues to process costs for the completed relocations in accordance with the applicable procedures. As of ***June 9, 2023, there are two additional*** commercial properties that may require relocation.
- MTA estimates that approximately $13 million of risk exposure remains due to necessary extensions of Temporary Construction Easements (TCEs). This amount has been included in the risk assessment.

- Preparation for safety certification is an ongoing process for MTA, including the development of the appropriate checklists for both design and construction. Design Criteria Conformance Checklists (DCCCs) are 98.4 percent validated. Construction Specification Conformance Checklists (CSCCs) are ***21.3 percent*** validated.
- Staffing of management personnel has been adjusted to address the varying activities that MTA is managing and to integrate new team members as needed. On May 25, 2023, MTA communicated the departure of Executive Director Matthew Pollack, Deputy Project Director and Contracting Officer Anita Rodgers, and Director of Communications David Abrams, from the Purple Line project team. Project Director Ray Biggs, Jim Mitchell of the PMC, and MDOT Chief Financial Officer Jaclyn Hartman will lead the project while those vacated positions are being filled. Ken Forsythe's role will change from his current role as Deputy Director to the Interim Director of Communications role.

  MTA is recruiting for a new Executive Director, Contracting Officer, and Director of Communications. MTA has determined a preferred candidate for the Deputy Project Director role and expects to make an offer to the candidate soon.

  The PMOC expressed concern related to MTA's ability to deliver the project considering these significant changes and will continue to monitor MTA's management capacity and capabilities.
- MTA carefully considered a request from Montgomery County to single-track the Purple Line through the Bethesda tunnel. MDOT/MTA determined that it would not be able to accommodate the request.
- MTA and PLTP coordinated to obtain a modified version of the existing TIFIA loan for the project. On April 14, 2022, the TIFIA loan closed, and all bonds were marketed. MTA is required to update the Transportation Investment Program and State Transportation Investment Program plans to reflect changes in the project.
- MTA's Equal Employment Opportunity Officer assigned to the project, Marcques Washington, provides a monthly update and reports on progress toward meeting the Purple Line project's Disadvantaged Business Enterprise (DBE)/Minority Business Enterprise (MBE) goals. In May 2023, the PMOC recommended that MTA report not only the current values for DBE/MBE participation, but also the projected values at the end of the project to allow for a better evaluation of progress toward meeting the goals.
- MTA hired a consultant team that is analyzing alternatives for providing security and fare enforcement services for the Purple Line. MTA does not currently have existing facilities or staff that can adequately provide these services because the distance from their location to the Purple Line light rail facilities is too far. In late April 2023, MTA provided FTA with the alternatives study for review. The study indicates that the preferred alternative is the development of a Southern District of the MTA Police Department and recommends several next steps toward implementation of the new

district, including hiring a commander, developing operating procedures, working on Memorandums of Understanding (MOUs) with other local jurisdictions, and developing a facility to house the district. ***In June 2023, MTA reported that it has identified the initial steps toward implementing the preferred alternative.***

- MTA continues to conduct public outreach to interested groups by providing general and specific project updates at meetings, the project newsletter, and social media channels.

1.3. Major Issues and/or Concerns

Table 2 discusses any major issues or concerns impacting the project's scope, schedule, cost, risks, quality, safety, etc.

Table 2 – Current Major Issues and Concerns

Issue/Concern	Continuation of the project without PLTC has been a significant challenge for the project. MTA's IRP, the permanent replacement of the D-B contractor, and the management of interim design/construction activities have been significant MTA priorities. The replacement D-B contractor, MTS, has now been under contract to PLTP for more than one year.
Date Identified	September 2020.
Status	The IRP was approved in January 2021, and an update was approved in July 2021. Implementation is nearly complete. MTA has now completed the FRP, which FTA reviewed and accepted in April 2023.
Project Sponsor Action	Management of a transition plan and support of PLTP in the replacement of the D-B contractor was the focus of the Project Sponsor. Another focus was the management of MTA's contractors to continue key activities that maintained the integrity of the schedule under OSF. MTA now has an accepted FRP.
PMOC Recommendation	The PMOC recommends that MTA ensure that sufficient staff is dedicated to completing OSF project activities and assessing the remaining potential impacts to the MTS schedule. In addition, now that MTS is under contract, MTA and the PMC should emphasize their oversight of PLTP and MTS.
Issue/Concern	According to the PMP, the master project schedule should be updated monthly.
Date Identified	2022.
Status	Ongoing.
Project Sponsor Action	MTA reports that the June 2023 master project schedule will incorporate schedule recovery efforts that have been coordinated with MTS to date. ***MTA has issued a change order to MTS that includes mitigation and compensation to reduce delays incurred to date. However, several OMF activities that are on the critical path have recently been finished behind schedule, which increases the potential for additional delays.*** MTA recognizes that delays caused by OSF activities will consume significant schedule contingency.
PMOC Recommendation	The PMOC recommends that MTA track all schedule elements according to the FRP and report status to FTA and the PMOC each month. MTA should employ additional methods of evaluating schedule progression and performance, including earned-value metrics, to identify issues as soon as possible. The PMOC recommends that MTA develop a procedure to monitor the OSF schedule more closely, because those delayed OSF activities appear to have significant impacts on the schedule contingency.
Issue/Concern	Changes in the project have significantly impacted the project cost, as reflected in the original FFGA. The April 2023 FRP includes a revised project cost estimate and a reasonable cost contingency to address remaining project risks.
Date Identified	September 2020.

Status	Ongoing.
Project Sponsor Action	MTA should continue to monitor project progress against the total project cost estimate.
PMOC Recommendation	The PMOC recommends that MTA continuously monitor project cost and utilization of project contingencies. The budget contingency must reflect potential additional costs required to address potential schedule delays and support a realistic EAC.
Issue/Concern	MTA does not have a police force located in proximity to the Purple Line.
Date Identified	September 2022.
Status	As of May 2023, MTA has determined a preferred alternative for providing security and fare enforcement, and has identified several next steps for implementation.
Project Sponsor Action	MTA's preferred security alternative includes the creation of a new Southern District of the MTA Police Department and will require associated staff, operating procedures, and a facility.
PMOC Recommendation	Although the currently forecasted RSD is in 2028, the PMOC recommends that MTA promptly move toward implementation of the preferred alternative. MTA should identify the parties responsible for implementing the preferred alternative and determine a detailed schedule and budget. The PMOC also recommends that the State Safety Oversight Agency (SSOA) be included in the review and comment process for security and fare enforcement.
Issue/Concern	Lost Time Injury and Total Case Incident Rates have increased significantly in recent months. The current rates are significantly higher than the stated project goals.
Date Identified	April 2023.
Project Sponsor Action	MTA has increased coordination with MTS through additional biweekly coordination meetings.
PMOC Recommendation	The PMOC recommends that MTA and MTS review the safety procedures and the implementation of those procedures to identify opportunities for improvement. ***As of June 2023, the PMOC continues to make this recommendation.***

1.4. Status of Key Indicators Dashboard (Post-grant)

Table 3 shows the project Key Indicators Dashboard after the FFGA was awarded.

Table 3 – Key Indicators Dashboard

Project Sponsor:				Maryland Transit Administration	
Project Name:				MTA National Capital Purple Line Light Rail Transit Project	
Date:				***June 30, 2023***	
Project Detail					
Oversight Frequency:				**Monthly**	
Element	**Status**			**Prior Status**	**Issue or Concern**
	●	●	●		
	G	**Y**	**R**		
Project Management Plan			●	●	MTA has developed an updated PMP that reflects revised project conditions, and in October 2022, MTA submitted a revised PMP to the PMOC and FTA for review. On February 1, 2023, FTA provided its review comments on the PMP, and on April 28, 2023, MTA submitted the second revision of the PMP to FTA. In May 2023, MTA announced significant changes to the Purple Line leadership staff, which now has vacancies in the Executive Director and Deputy Project Director positions. The PMOC recommends that MTA create a documented transition plan that includes an expedited process, requirements, and resources for replacing these

					key positions. This concern also applies to the Management Capacity and Capability (MCC) element below.
Management Capacity and Capability			●	●	Recent staff departures magnify the need for MTA to focus on MCC issues. A revised organizational chart, along with MTA's ability to demonstrate MCC, was approved with the IRP. Evaluation of staffing requirements for both MTA and its PMC support team occurred in conjunction with review of the revised PMP and the FRP.
Cost		●		●	MTA has developed a revised cost estimate that reflects new project conditions. Based on PMOC and FTA review comments and a revised MTA Quantitative Risk Analysis, MTA has established a budget contingency that appears appropriate at this stage of the project. ***Given that more than four years of construction remains, early use of the cost contingency is a concern of the PMOC.*** The PMOC recommends that MTA track project status according to the FRP and the updated PMP and management plans.
Schedule			●	●	A revised project schedule that incorporates the current project status is in place. However, MTS's schedule updates include significant delays caused by MTA-managed OSF activities that are behind schedule. MTA indicates that the RSD has not yet slipped, but available schedule contingency is being depleted, which is a cause for concern.
Quality		●		●	Quality continues to be acceptable, although the reporting to the PMOC requires refinement in order to meet FTA requirements. In October 2022, MTA submitted to FTA and the PMOC an updated QAP for review in conjunction with their review of the FRP and other management plans. FTA and the PMOC provided review comments on the QAP to MTA in March 2023, and MTA provided a response in April 2023. ***In June 2023, FTA and the PMOC requested that MTA revise the latest QAP to more fully respond to comments that FTA/the PMOC had previously provided.***
Safety		●		●	Safety continues to be acceptable, although with an increase of MTS activities, recordable incidents are increasing. In October 2022, MTA submitted to FTA and the PMOC Version 13 of the SSMP and Version 5 of the SSCP for review in conjunction with their review of the FRP. FTA and the PMOC have provided their review comments to MTA for incorporation into the safety plans. In April 2023, the PMOC noted to MTA that both the Lost Time Injury Rate and the Total Case Incident Rate have significantly increased. MTA recognizes the issue and reports that it has scheduled additional safety coordination efforts. ***In June 2023, the MTA provided documentation of these additional efforts, although it appears that incidents continue to occur at rates that are higher than the goals.***
Risk		●		●	MTA updated the RCMP and the Risk Register to reflect the changes related to interim MTA management and construction delivery. In October 2022, MTA submitted to FTA and the PMOC Version 15 of the RCMP for review in conjunction with their review of the FRP and other management plans. FTA and the PMOC provided comments on the revised RCMP to support MTA's development of budget and schedule contingency, to which MTA responded with plan revisions in April 2023. In May 2023, FTA accepted the RCMP but also noted additional comments that MTA should address in future updates to the plan.

Legend	
Green	Satisfactory: No Corrective Action necessary.
Yellow	Caution: Risk/Issues exist. Corrective Action may be necessary.

Red	Elevated for immediate Corrective Action: Significant risk to the health of the project.

1.5. Core Accountability Items

Table 4 shows the core accountability items for the project, including the current status of the project and the major issues and how they are being addressed.

Table 4 – Core Accountability Items

		Original (Grant)	Current Forecast	PMOC Assessment of Current Forecast
Cost	Capital Cost Estimate	$2,407,030,289	$5,116,020,380	Acceptable
Contingency	Unallocated Contingency	$90,535,748	***$285,118,483***	Acceptable
	Allocated Contingency	$59,500,464	$0	Acceptable
	Total Contingency	$150,036,212	$285,118,483	Acceptable
Schedule	Revenue Service Date	12/31/2022	02/24/2028	Acceptable

Project Progress		**Amount ($)**	**Percent of Total**
Total Expenditures	Actual cost of all eligible expenditures completed to date	***$2,876,520,485***	***56.2%***
Planned Value to Date[1]	Estimated value of work planned to date	Not Applicable (N/A)	N/A
Actual Value to Date[1]	Actual value of work completed to date	N/A	N/A

Contract Status		**Amount ($)**	**Percent of Total**
Total Contracts Awarded	Value of all contracts (design, support, construction, equipment) awarded; % of total value to be awarded	To Be Determined (TBD)	TBD
Construction Contracts Awarded	Value of construction contracts awarded; % of total construction value to be awarded	TBD	TBD
Physical Construction Completed	Value of physical construction (infrastructure) completed; % of total construction value completed	***$886,284,838***	***47.4%***

Rolling Stock Vehicle Status	**Date Awarded**	**No. Ordered**	**No. Delivered**
28 total car sets[2]	First 26 LRVs: 2016 Additional 2 LRVs: January 2022	28 car sets	0

Next Quarterly Progress Review Meeting Date:	August 9, 2023

[1]Earned value information is not available.
[2]The original FFGA includes a total of 25 LRVs.

2. OBSERVATIONS AND FINDINGS

2.1. Summary of Monitoring Activities

The PMOC received an update from the Purple Line project team during ***the June 22, 2023, monthly meeting with MTA, the PMC, and the PMOC.*** Information from the FTA/MTA/PMOC Biweekly Progress Conference Call held on ***June 13, 2023,*** also contributes to this report. ***On June 16, 2023, the PMOC reviewed monthly MTS cost tracking processes with MTA staff, and on June 20, 2023, the PMOC attended the Quarterly Purple Line Risk Management Committee***

Meeting via MS Teams. In addition, MTA provided supplementary information before the PMOC monthly meeting. Monitoring activities include review of MTA-provided scope, schedule, risk, financial, construction, safety and security, and real estate information.

After the U.S. Court of Appeals reversed the vacation of the ROD in July 2017 (refer to the **NEPA Process and Environmental Mitigation** section, below, for details), the FFGA was executed on August 22, 2017, approximately one year later than planned. In September 2020, the construction (D-B) contractor, PLTC, left the project, and a new project delivery plan was developed, including replacement of the D-B contractor. During the period when the replacement D-B contractor was being solicited, MTA managed specific construction and design activities (OSF activities) in order to reduce uncertainty and support the project schedule. On November 5, 2021, MTS was selected as the replacement D-B contractor, and financial and commercial close occurred on April 14, 2022. MTA continues to manage OSF construction activities. MTS is performing construction activities throughout the entire project corridor.

MTA and MTS held initial partnering activities during which they developed relationships, general project priorities for teamwork, and an understanding of key issues for different stakeholders. MTA provided partnering process information to FTA and the PMOC on March 29, 2023.

2.2. Oversight Triggers

The oversight triggers most applicable to the project are the Oversight Procedure (OP) 25 cost and schedule triggers. The project did not have a mutually agreed-upon baseline schedule between March 2017 and September 2022. Significant schedule delays and a significant increase in project cost keep the project eligible for rigorous oversight. Project schedule delays typically impact project cost, another significant indicator of project health. MTA has developed a revised project EAC in conjunction with development of the project's schedule and FRP.

2.3. Project Management Plan and Sub-plans

2.3.1. Project Management Plan

The PMOC reviewed the Purple Line PMP Version 10 in accordance with OP 20 for a PMP at the FFGA execution stage of a project. In October 2022, MTA provided an updated PMP (Version 14) to FTA and the PMOC for review, and FTA and the PMOC provided comments on PMP Version 14 to MTA. On April 27, 2023, MTA provided PMP Version 15 to FTA. ***On June 21, 2023, FTA accepted Version 15, with comments and recommendations.***

2.3.2. Safety and Security Management Plan

In February 2016, the PMOC reviewed the project's SSMP Version 6, dated October 22, 2014, in accordance with OP 22 for a project at the FFGA execution stage. The PMOC review found that the SSMP was compliant with FTA content requirements for execution of the FFGA, but the PMOC requested that MTA resubmit the SSMP after execution of the FFGA and address the comments in the PMOC report with updated information from the P3 concessionaire. Subsequently, FTA and the PMOC reviewed SSMP Versions 7 through 11 over the next four years. MDOT, which is the State Safety Oversight Agency (SSOA) for the project, also reviewed

SSMP Versions 8 through 11. On January 13, 2022, FTA provided comments on SSMP Version 12 to MTA. MTA submitted SSMP Version 13 as well as Version 5 of the Purple Line SSCP to FTA and the PMOC for review in October 2022. FTA and the PMOC reviewed the SSCP and SSMP updates and provided their comments to MTA in February 2023, ***as well as a second round of comments on the SSCP in June 2023. MTA submitted a revised SSMP in June 2023 and has indicated it will provide a revised SSCP in July 2023.***

2.3.3. Quality Assurance Plan

In October 2022, MTA submitted QAP Version 10 to FTA and the PMOC for review, and on March 8, 2023, FTA provided review comments on QAP Version 10 to MTA. MTA then provided a revised QAP to FTA in May 2023, ***and FTA provided further review comments (and requested a resubmittal) on June 21, 2023.***

MTA meets with PLTP, the PMC, and the General Engineering Consultant (GEC) monthly to review quality status. ***In June 2023,*** MTA reported the following quality management activities that took place ***in May 2023***:

- Field inspections Quality Control (QC) for OSF activities
- Meetings to coordinate closure of outstanding PLTC Non-conformance Reports
- Processing of Quality Oversight Assessment Reports (QOARs)
- Field audits of the Quality Assurance (QA) materials laboratory QC manual and the precast concrete quality plan
- Field inspections of MTS QA activities
- Offsite inspections of structural steel, special trackwork, and steel Overhead Contact System (OCS) poles
- Interdisciplinary Design Reviews
- Quality Control Reviews
- Design Submittal Reviews
- Design Services During Construction coordination with Atkins
- Reviews of asphalt, concrete, and earthwork sample and in-situ test results
- Monthly QC review meeting

MTS did not meet its cleaning incentive metric for March 2023. The monthly report states, "MTS received an 'F' rating for the month of March." MTA reported in May 2023 that MTS has improved its performance in this area, and received an "A" rating for its cleaning metric in April 2023.

During OSF, MTA provided notes from monthly CAF and SNC-Lavalin LRV manufacturing quality meetings for PMOC review. The information provided a summary of issues and corrective actions, and upcoming quality audits. MTS is now responsible for preparing these notes.

One manufacturing quality issue, the recurring failure of a bolt in multiple vehicles, has not been resolved. MTA determined that the issue does not impact safety, and the solution is likely the use of a higher strength bolt. The final report on this issue has been delayed to ***July 2023.***

2.3.4. Real Estate Acquisition Management Plan

The PMOC reviewed the project's Real Estate Acquisition Management Plan (RAMP) Versions 10, 11, and 12. The PMOC reviewed the plans with respect to the guidelines in OP 23 for a project in the construction phase. MTA submitted an updated RAMP Version 13 to FTA and the PMOC in October 2022. FTA provided review comments on RAMP Version 13 to MTA on February 27, 2023, and accepted RAMP Version 13 with comments.

2.3.5. Fleet Management Plans

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 on March 4, 2016, issued its final OP 37 BFMP review report, concluding that the BFMP met the requirements of OP 37 for the execution of an FFGA for the Purple Line project.

2.3.6. Risk and Contingency Management Plan

In early 2020, MTA commenced another update to the RCMP to incorporate the results of the latest Quantitative Risk Analysis that, in turn, incorporated the results of the replacement D-B contractor resolicitation and the revised project implementation details. MTA held a risk management workshop that focused on the interim period on January 26, 2021.

MTA provided a comprehensive Risk Register and risk mitigation activities in conjunction with the draft FRP. In preparation for a risk analysis, MTA held risk assessment interviews with individual risk owners to review existing risk items and identify new risks. In December 2021, MTA prepared an updated Risk Register that includes over 100 risk items, including PLTP and MTS risks.

At a risk workshop held the week of May 2, 2022, the PMOC and FTA participated in an OP 40 risk and contingency review that evaluated cost, schedule, and project contingency. MTA confirmed and finalized the Risk Register, and prepared the Quantitative Risk Analysis and an update of the RCMP. The PMOC developed a draft summary of the risk and contingency review results. FTA provided a risk summary to MTA on June 22, 2022, for MTA's consideration while it was updating the RCMP. MTA provided responses to FTA's comments on the risk summary on July 15, 2022, and provided further clarification on August 25, 2022. MTA submitted RCMP Version 15 to FTA and the PMOC for review in October 2022. In February 2023, FTA and the PMOC provided comments on the revised RCMP, which supported MTA's development of the project's budget and schedule contingency. MTA subsequently submitted the revised RCMP Version 16, dated April 21, 2023, and FTA accepted it on May 22, 2023.

2.3.7. Safety and Security Certification Plan

Version 3 of the Purple Line SSCP is dated November 4, 2014. The PMOC review found that the SSCP Version 3 met the FTA requirements in support of the FFGA application. MTA submitted SSCP Version 4 on February 3, 2020, in conjunction with the updated SSMP submittal (see the **Safety and Security Management Plan** subsection, above). The SSOA completed its review of

SSCP Version 4 and discussed its comments with the PMOC. MTA decided that the new emergency management working group would be a subcommittee to the Fire Life Safety and Security Committee, and this decision would be reflected in the next revisions of the SSMP and the SSCP, which were planned for after the replacement D-B contractor was in place. MTA submitted SSMP Version 13 and SSCP Version 5 to FTA and the PMOC in October 2022. In February 2023, FTA and the PMOC completed their reviews and provided comments on these plan documents to MTA. MTA provided a response to the SSCP review comments to FTA and the PMOC in May 2023, ***and on June 23, 2023, FTA provided comments to MTA along with a request to revise and resubmit the SSCP. MTA reports that it will submit the SSCP in July 2023.***

2.4. Management Capacity and Capability

MTA continues to identify and assign sufficient Management Capacity and Capability (MCC), as needed, to complete the project in compliance with applicable FTA requirements. These efforts have included bringing staff, either MTA or MDOT personnel or consultants, onto the project to manage the current needs, such as planning, P3 procurement and contracting, real estate acquisition, and construction.

In November 2021, MTA's quality lead for the Purple Line project, Rene Schroeder, retired. It was proposed that Roland Carroll, the Purple Line systems safety and construction safety lead, add the quality lead role to his other Purple Line roles. In February 2022, MTA provided a white paper outlining Mr. Carroll's experience, his recent training, and the proposed supporting staff related to the new quality management role. The PMOC has evaluated this change as a part of the PMP review and will continue to monitor management capacity for this function and all positions through ongoing oversight activities.

In June 2023, MTA provided additional detail on the construction management and oversight organizational chart to allow for the PMOC's review of MTA, PMC, and other staff classifications and headcount.

In March 2023, MTA hired John Donovan in the role of Construction Manager. MTA also announced the formation of a commercial project controls team and that Anita Rodgers would assume the role of Contracting Officer. These changes were in response to: (1) the near completion of OSF and (2) the need to support the management of MTS's increasing amount of work.

On May 25, 2023, MTA communicated the departure of Executive Director Matthew Pollack, Deputy Project Director and Contracting Officer Anita Rodgers, and Director of Communications David Abrams from the Purple Line project staff. Project Director Ray Biggs, Jim Mitchell with the PMC, and MDOT Chief Financial Officer Jaclyn Hartman will lead the project while those vacated positions are being filled. Ken Forsythe's role will change from his current role as Deputy Director to the Director of Communications role.

MTA is recruiting for a new Executive Director, Contracting Officer, and Director of Communications. The Executive Director role will be redefined and is expected to include overseeing other projects in addition to the Purple Line project. MTA has determined a

preferred candidate for the Deputy Project Director role and expects to make an offer to the candidate soon.

The PMOC expressed concerns related to MTA's capacity to deliver the project with limited staff and is monitoring MTA's succession planning efforts.

2.5. NEPA Process and Environmental Mitigation

2.5.1. NEPA Process

FTA issued a ROD on March 19, 2014. The National Park Service issued its ROD on July 16, 2014.

MTA has continued to submit environmental re-evaluations as required based on design advancement and other causes. To date, PLTC (before it left the project) 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. The most recent status ***(as of June 2023)*** of NEPA items is:

- All formally submitted LOD cases have been approved. MTA currently expects one additional LOD case and is preparing a submittal for review by FTA. MTA intends to submit the new LOD to FTA ***after MTA has obtained all applicable information from MTS. This additional LOD case submittal has been delayed, because MTA is awaiting necessary clarification from MTS.***
- The ATC for the Bethesda Station jet fan has been vetted, and final documentation is being prepared for submittal to FTA for concurrence that the ATC meets project requirements. Final documentation is still pending as of ***June 2023, but MTA states that this ATC documentation is not a time-critical item***. MTA and MTS are coordinating to address the noise and aesthetic impacts of the fans, and they optimistically predict that the fans will not have Section 4(f) impacts or other impacts to the ROD**.**

On August 3, 2016, in response to the lawsuit filed by the Friends of the Capital Crescent Trail against FTA, a federal judge filed his Order and accompanying Memorandum Opinion. In those documents, it was ordered that the ROD for the Purple Line project be 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 whether 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 in 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 U.S. Court of Appeals issued its ruling on December 19, 2017, in which the judges ruled in favor of FTA and the project, and ruled that the transit agencies would

not have to conduct a new environmental study to examine other potential routes for the Purple Line.

The Friends of the Capital Crescent Trail filed a second lawsuit after the FFGA signing and after the groundbreaking ceremony was held on August 28, 2017. The September 19, 2017, Preliminary Hearing for this suit resulted in no temporary injunctions or restraining orders, and project construction proceeded as the case progressed 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 FTA.

The Friends of the Capital Crescent Trail filed a third lawsuit in January 2019, this time against USACE. The USACE legal staff and the Office of the Attorney General provided the defense. 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 USACE. In October 2019, USACE filed for a Summary Judgment to Dismiss the case, and the plaintiffs filed their response; a hearing date was set for March 23, 2020. However, in late February 2020, the assigned judge recused himself from the case, and the scheduled hearing was canceled. In mid-April 2020, the District Court ruled in favor of the USACE/MTA motion for a Summary Judgement to Dismiss, and the case was dismissed. The plaintiff subsequently filed an appeal on May 11, 2020, and the case continued in the legal process. Oral arguments related to the appeal occurred on March 11, 2021. The District Court denied the appeal on May 13, 2021. The decision resolved the last remaining lawsuit related to the project.

2.5.2. Environmental Mitigation

The project achieved the required mitigation for reforestation through the purchase of 82.5 acres of offsite credits (combined, in both Montgomery County and Prince George's County). This amount of offsite credits is expected to be more than needed, and the P3 concessionaire will monitor that this remains the case. PLTP's Forest Conservation Plan (FCP), which documented a need of 75.73 acres, 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. In Maryland, need is based on land disturbance rather than only forest removal. MTA's tracking of additional disturbance due to the progress of design and construction indicated that the total need is still within the amount of available offsite credits.

The Joint Permit Application for Wetlands and Stream Mitigation was formally submitted to USACE and 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, because time had passed since the permit was drafted, MDE updated and issued the finalized permit the first week of April 2018. USACE completed its NEPA and conditions review as well as its 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 the longer construction periods resulting from construction moratoriums for forests and streams. The project received approval from MDE during the week of December 3, 2018, and received the USACE approval letter in mid-June 2019.

The project team has been addressing the environmental mitigation for wetlands through the development of the offsite Ken-Gar location, which is implemented through 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 the bids underwent MTA Procurement Department review. The BPW approval of the award was received on September 4, 2019. As of June 2021, the Ken-Gar wetlands mitigation project was complete and had completed its one-year warranty period. See the **Construction** section of this report, below, for further discussion of the status of this Ken-Gar Wetlands Mitigation construction contract.

The project team has addressed the environmental mitigation for streams through the development of the offsite Paint Branch location, which is implemented through 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 the award was received on September 4, 2019. The Paint Branch stream restoration is complete, and warranty corrections (partial replanting) occurred in December 2022. See the **Construction** section of this report, below, for further discussion of the status of this contract.

The project has plans to address stormwater mitigation, beyond what can be mitigated on the project site, through retrofitting offsite locations in both Montgomery County and Prince George's County. On November 12, 2021, MTA determined that there is a need for additional stormwater mitigation in Prince George's County. A project to construct additional stormwater mitigation is included in the scope of work for MTS.

The joint MTA and University of Maryland (UMD) technical board resumed meetings in December 2021 to coordinate efforts related to the mitigation of noise, vibration, and electromagnetic interference at the UMD facilities. Following this meeting, the members of the joint technical board voted to approve the outstanding design packages. This action effectively ended the activities of the technical board until the LRT is in trial running.

The Purple Line project team submits quarterly Environmental Mitigation Monitoring Reports for the project. MTA managed the environmental mitigation and monitoring activities as the project transitioned to the replacement D-B contractor, MTS. Because MTS is now performing construction, MTA will monitor the environmental activities performed by MTS. On April 27, 2023, MTA provided the First Quarter 2023 Environmental Commitment and Mitigation Monitoring Program Report. The report conveys the status of progress toward meeting commitments in the ROD that was issued in March 2014 and any pending actions required. In the

first quarter report, MTA notes that "no problems, gaps, nonconformances, or NEPA issues of any sort were found during this quarterly assessment."

2.6. Project Delivery Method and Procurement

The majority of the capital cost of the Purple Line project has been packaged into a Design-Build-Finance-Operate-Maintain 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") in which appropriate risks and benefits are allocated in a cost-effective manner between the contractual partners. The P3 concessionaire is intended to perform some functions normally undertaken by the transit agency, but MTA remains ultimately accountable for the Purple Line project 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 PLTP had been selected as the P3 concessionaire. Commercial close of the P3 contract occurred on April 7, 2016, and financial close occurred on June 17, 2016.

In late April 2020, PLTC notified PLTP that due to PLTC's forecasted schedule delays on the project (which did not receive agreement from MTA), PLTC intended to exercise the clause that allowed it to terminate its contract with PLTP for the design and construction services under the P3 contract if delays exceed 365 days. MTA sent a formal request to PLTP for a response that would include a definitive path forward. On the response due date of May 14, 2020, PLTP submitted its response, which stated that PLTP intended to continue to negotiate with PLTC to retain PLTC as part of the P3 concessionaire team. On June 23, 2020, PLTP sent a formal Notice of Unconditional Election to Terminate the P3 Agreement to MTA, although PLTP indicated a willingness to negotiate a settlement. On June 24, 2020, MTA sent a Formal Notice of Concessionaire Default. This notice essentially refuted the validity of the PLTP delay claims and stated that if PLTP fails to perform, MTA has a number of options related to the P3 Agreement. Through July 2020, construction activities continued at the levels previously planned and were not affected by the dispute.

In early August 2020, PLTC and subcontractors demobilized equipment, materials, and personnel. In response, the Maryland Attorney General filed a motion for a Temporary Restraining Order (TRO) that prevented PLTP from abandoning the work or demobilizing. Upon issuance of the TRO, the contractor and subcontractors remobilized some equipment and restarted many construction activities. A hearing to uphold or rescind the TRO occurred before the expiration of the TRO on September 14, 2020, and the court rescinded the TRO, allowing PLTP to leave the project. If the TRO had been upheld, PLTP would have been required to continue working until the contractual dispute resolution procedures were followed.

When an agreement was not reached, the bond holder firms had the first right to take over the project. However, MTA planned an alternate path forward based on its exercise of step-in rights. To that end, MTA assumed the contracts of over 100 subcontractors, indicating MTA's intent to continue the project. MTA adjusted staffing for construction management, resident engineers, and inspectors to move forward with the project.

On November 24, 2020, MTA and the P3 concessionaire, PLTP, reached a settlement agreement to release the project's D-B contractor from the P3 consortium and continue the project with the remaining parties. The state's BPW approved the settlement agreement on December 17, 2020. Activities set out in the agreement and the IRP have proceeded with multiple modifications to milestone dates as needed.

The agreement included the following key aspects, as MTA communicated to the PMOC:

- PLTP agreed to procure a replacement D-B contractor to complete the project and to obtain project financing. The selection of the preferred replacement D-B contractor, MTS, occurred on November 5, 2021. The TIFIA loan for the project closed on April 14, 2022, allowing financial close and commercial close on that same day. MTS is now the D-B contractor for the project.
- The settlement agreement provided a mutual release from all disputed and undisputed amounts (incurred before September 28, 2020) for PLTP, PLTC, and subcontractors. The agreement also released outstanding litigation among the parties.

2.7. Design

2.7.1. MTA Design

MTA's GEC completed the project design to approximately the 30 percent design level in fall of 2013 and provided incremental enhancements through late 2015. This design formed the basis of the RFP for the P3 contract. See the **P3 Design** subsection, below, for a discussion of the advancement of this design by PLTC, the former PLTP partner that was responsible for the design and construction of the capital project, and continued design under MTA.

MTA was responsible for the design and construction contracts under a Design-Bid-Build delivery method (separate from the P3 scope) for the following projects:

- Stream mitigation – MTA completed the 100 percent design packages in June 2017 and received approval from MDE in May 2018. Construction of the stream mitigation is now complete. See the **Environmental Mitigation** subsection of this report, above, for additional details.
- Wetlands mitigation – MTA completed the 100 percent design packages in June 2017. Several design adjustments were subsequently made based on MDE and Montgomery County comments. The construction contract was advertised on May 3, 2019. Construction of the original wetlands mitigation is now complete. See the **Environmental Mitigation** subsection of this report, above, for additional details.
- Offsite SWM sites – MTA completed design and obtained MDE approval of more than the P3 contract-required 5 acres of offsite mitigation in Montgomery County on May 29, 2018. In late October 2019, MTA received MDE approvals for the next 5 acres to be added to the mitigation credit "bank," thus satisfying the contract requirements for 2019. MTA has determined that there is a need for additional mitigation in Prince George's

County, and a project to construct additional mitigation is included in the scope of work for MTS.

- See the **Environmental Mitigation** subsection of this report, above, for the current requirements.

MTA also completed the design to support a D-B contract for the replacement of the existing Parks Maintenance Facility with a facility on Polk Street. Construction of the facility is now complete. See the **Real Estate Acquisition and Relocation** and the **Construction** (MTA Scope) sections of this report for further details.

2.7.2. P3 Design

PLTC's design progress was forecasted to achieve substantial design completion for Civil packages in August 2020, substantial design completion for Systems packages (except for Fare Collection) in September 2020, and completion of the Fare Collection design package in 2021. The original baseline schedule anticipated design completion by late fall 2017. As of August 2020, the number of planned Civil, Systems, and Utility design packages was 218.

Upon the departure of PLTC, MTA contracted with the engineer of record, Atkins, to continue to advance the design of limited aspects of the project.

The current progress through ***June 22, 2023,*** is that 212 of the 218 total planned design packages have been issued as RFC. Civil and Utility packages that remain in design or approval include traffic signal pre-emption, grade crossing safety systems, lighting, signage, and stations. Although Systems packages were scheduled to be complete by the end of the first quarter of 2022, ***the current forecast for final approval of all traffic signal design packages is July 31, 2023.*** The Fare Collection package is expected to be completed later in 2023.

PLTC reached resolution on the final remaining ATC identified during the proposal process. The ATC is related to the use of jet fans at the Bethesda Station in lieu of vent shafts. See Item 2.5.1 above for additional information.

MTA and CSX worked to resolve issues related to the applicable design criteria and which project areas were affected until, in July 2019, a mutually agreeable path forward was defined for all areas. 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 SSTC 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 May 2020, CSX indicated that the final design is acceptable. Revised documents that provided some minor clarifications related to ROW were submitted to CSX on September 8, 2020, and ultimately CSX approved the design. The revised documents were submitted to WMATA several times in early 2021.
- WMATA's comments on design plans for the SSTC mezzanine connector pedestrian bridge (over CSX ROW) will result in what MTA deems are betterments. Resolution of

WMATA's comments ***continues.*** MTA reports that the slow resolution of these issues has not impacted critical path activities.

- An encroachment into the CSX vertical clearance was discovered upon installation of girders at SSTC. Although the designer believed the loading of the bridge deck might alleviate the issue, shimming was discussed as a potential solution. Shimming was not MTA's preferred solution; therefore, an exception was requested from CSX to allow the ¾-inch encroachment to remain. CSX denied the exception. MTA and the designer prepared for a contractor to jack and shim the structure to create the required clearance. Construction of this work was completed in August 2021.
- CSX provided review comments disallowing revised drainage networks, related to the Capital Crescent Trail work, which would connect to CSX's existing drainage culverts. The work on the Capital Crescent Trail is not part of the FFGA and is separately funded by Montgomery County. As a result of work with Montgomery County, the connections were relocated from CSX property to Montgomery County property and therefore are no longer a CSX issue. To fully accomplish this approach, two connections required resolution. Montgomery County acquired two parcels of land from CSX (not FFGA-funded) and then accepted responsibility for one connection currently under the responsibility of CSX. Storm sewer construction under the CSX railroad was required in several locations. Two jack-and-bore installations of culvert pipes were completed in November 2022. Completion of another 72-inch-diameter culvert ***is pending construction by MTS.***

2.8. Real Estate Acquisition and Relocation

As of ***June 9, 2023,*** the total number of planned property acquisitions is 601, including 464 privately owned properties and 137 public acquisitions. For the private properties, to date, a total of 476 offers were made, including for parcels that were subsequently eliminated, and 234 offers were accepted. All of the original Exhibit 9 FFGA-scope private parcels in the P3 contract are in MTA's possession, some of which are properties that continue in condemnation under the State Highway Administration process. To date, ***414*** of the original 464 private properties have completed settlement, ***8*** additional properties (not part of the original 464 private properties) are pending settlement, and ***50*** condemnations remain to be settled.

All required public properties have been available for construction when needed. Several public property rights transfers are currently being coordinated to accommodate sidewalk changes, utility easements, and ROW exchanges.

As the project has progressed and new utility relocation needs have been identified, additional small parcel acquisitions have been added to the total as utility down-guys. In December 2017, PLTC initially submitted a list of approximately 280 such parcels related to utility relocations and subsequently added to that list. MTA resolved that it would acquire these properties, rather than execute amendments to the utility agreement that would have the utility companies perform this function. MTA has been able to perform appraisals in house for these parcels or to waive appraisals for low-value, uncomplicated parcels, and thus has expedited the process somewhat.

As of June 9, 2023, the list of additional acquisitions totals 188 parcels, and several more acquisitions potentially may be needed for stormwater facilities. Of these parcels, 54 are public property and will be acquired by agreement, and 134 are private acquisitions. MTA is tracking the additional parcels (approximately 98 percent are for utility relocations) separately in its ROW tracking system to best manage changes to parcels already acquired or in the process of acquisition. Sixty-six of the 188 properties are filed for condemnation (***of which 25 remain to be closed***), excluding those that were subsequently optioned or settled, and 92 are settled. MTA estimates that approximately $37 million of exposure remains in the acquisition process.

The project required a total of 177 relocations, of which 57 were residential and 120 were businesses. To date, all 177 of those identified relocations have been completed in accordance with the applicable procedures, and no active claims remain to be settled. Also, MTA is monitoring terms of agreement of the property acquisitions discussed above that have not yet completed settlement, because some of them could potentially result in the need for additional relocations. As of October 2022, there were two new relocations related to commercial properties that potentially will be needed.

On April 25, 2023, MTA reported that BPW has approved the last of seven critical project acquisitions. These acquisitions were required to allow MTS access to construction areas that include activities on or near the critical path. In May 2023, MTS indicated that there may be an outstanding acquisition that is limiting construction access. MTA is discussing the issue with MTS.

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 MTA shares this information with the PMOC. Based on actual settlement amounts and projected amounts for those not yet closed, settlement/condemnation values are ***55.2 percent higher*** than the original 2014 SCC budget for ROW. Settlements have not yet been reached for a significant number of properties. Currently, with 134 properties that still need to be settled, the total ROW budget is likely to continue to increase. MTA included these ROW cost projections in its development of a FRP project cost estimate (see the **Project Cost** section of this report, below).

Due to the extended project duration, some agreements will expire before the expected RSA date. MTA and MTS have started the process of identifying the end dates now needed for the agreements and will begin the process of obtaining extensions. MTA has evaluated the risks, estimated the cost of the extensions, and included those costs in a budget contingency. MTA estimates that approximately $13 million of risk exposure remains due to necessary extensions of TCEs.

The relocation of the existing Parks Maintenance Facility to make way for the siting of the new Purple Line Glenridge OMF was implemented as a negotiated/functional replacement. MTA's Procurement Department led the D-B contract solicitation for the Prince George's County facility. The replacement facility is complete and has been turned over to Prince George's County Parks.

2.9. Third-party Agreements and Utilities

All major third-party agreements (specifically, those agreements with Washington Gas, Verizon, Potomac Electric Power Company [PEPCO], CSX, UMD, Montgomery County Parks, Prince George's County Parks, WMATA, 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 lines that are currently overhead be placed underground when they cross the light rail alignment. To minimize the total cost impact of this change, MTA and Verizon reduced the number of locations where Verizon lines cross the alignment to 34. MTA is of the opinion that this reduction 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 for placing 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 upon in early March 2019. MTA had planned to negotiate the cost responsibility with PLTC and Verizon after all major Verizon relocations were completed. However, since the departure of PLTC, MTA carries this cost as a betterment outside of the FFGA scope.

In early June 2018, MTA and PLTP completed the negotiation of all remaining third-party agreements with the smaller utility and telecommunications (telecom) 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 to existing executed agreements continues to be evaluated. The significant items include:

- To date, the design differences with CSX, as discussed earlier in this report, have been adequately resolved through design review and concurrences, and have not resulted in the need to amend the CSX agreement.
- WSSC proposed that the project relocate a 66-inch underground water main that runs through the Glenridge OMF site. In March 2020, MTA and WSSC agreed on a water main alignment primarily in the median of Veterans Parkway, as well as a strategy for completing the relocation. The original Purple Line project GEC performed the design; WSSC provided the material; and MTA separately contracted for the construction, thus avoiding impact to the P3 concessionaire's scope of work. On May 21, 2021, WSSC authorized work, and mobilization began August 9, 2021. Energizing of the cathodic protection is the only remaining item of this relocation as of May 2023. WSSC is currently using the line and is responsible for the cathodic protection.
- In late July 2022, MTA and MDOT held a summit with the many utility providers that experience relocations related to transportation projects to discuss best practices and improvements to the utility relocation process. As of May 2023, some of the utility providers are experiencing staff shortages that limit construction production rates. These

staff shortages present an ongoing challenge for both MTA's OSF work and MTS's scope of work.

The project has been addressing its interface with 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 MOU with the Montgomery County Schools system, which was approved by the School Board and signed by the School Superintendent, Montgomery County, and MTA. A similar MOU was negotiated between MTA and the Rosemary Hills School and was approved at the School Board meeting on February 12, 2019. MTA submitted a draft second MOU to Montgomery County Schools on November 3, 2022, and currently is awaiting a response from Montgomery County Schools. Work will continue under ROE agreements with these parties through 2024.

As MTS commenced construction work, coordination meetings were held to ensure that MTS would follow the prior agreements with third parties (utility companies and others). It is MTA's position that the transfer of third-party agreements from PLTC to MTA and now to MTS should not allow for a change in the terms of the agreements.

2.10. Construction

2.10.1. 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 replacement Parks Maintenance Facility (which is part of the real estate effort and budget), wetlands mitigation, stream mitigation, and possibly some offsite SWM sites. MTA has accomplished forest mitigation without the need for additional construction. The following discussion presents the current status of the MTA construction contracts:

- **Prince George's County Parks Polk Street Replacement Maintenance Facility** – This D-B contract was awarded after the BPW approved the construction contract award on March 20, 2019. Forrester Construction Company completed construction, and Parks has taken possession of the facility.
- **Offsite Wetlands Mitigation (Ken-Gar)** – The Wetlands Mitigation construction contract was awarded after the BPW approved the award on September 4, 2019, and NTP was issued to Environmental Quality Resources, LLC on September 5, 2019. The contractor mobilized in December 2019 and completed site surveys and the installation of Erosion and Sedimentation (E&S) controls. Clearing and grubbing began in February 2020. Prince George's County took partial acceptance of the entire project on March 3, 2021. Acceptable growth of vegetation has been achieved, allowing for closure of this project. The one-year warranty review occurred on January 9, 2022, and now the project requires MTA quarterly monitoring until closeout in 2028.
- **Offsite Stream Mitigation (Paint Branch)** – The Stream Mitigation construction contract was awarded after the BPW approved the award on September 4, 2019, 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. The one-year warranty inspection occurred on August 4, 2022, and 1,700 plants were replaced in November 2022.

2.10.2. P3 Scope

Highlights of construction activities ***through June 2023*** throughout the alignment include*:*

- General: As a result of the dispute with PLTC (see the **Project Delivery Method and Procurement** section, above), all project activities slowed in the fall of 2020. In early August 2020, contractor forces, equipment, and materials were demobilized, and work in some areas ceased. Upon legal action from MTA, partial remobilization occurred. Following the court's rescission of the TRO, demobilization and safe-up activities in the construction area began in earnest in mid-September 2020 and continued into October 2020. Following PLTC's exit, MTA engaged a number of former PLTC subcontractors to continue select project activities. This work has been progressing under MTA management with a goal of advancing critical path activities and reducing risk for the replacement D-B contractor.
- Status of ongoing P3 construction items that MTA manages:
  - Utility installations of all types are underway, including construction by the electric provider, PEPCO, and the communications company, Verizon. Water, storm sewer, sanitary sewer, and gas lines are also being constructed.
  - TPSS QYG is in place, and testing and commissioning are in progress. TPSS Q8 is on its foundation, and equipment is being installed. Site preparation for the installation of TPSSs QY7 and QYP continues.
  - In April and May 2021, 29,000 concrete railroad ties were delivered to an onsite storage location for future use by the replacement D-B contractor. As a part of OSF, MTA ordered rail, ties, special trackwork, and turnouts to mitigate supply chain risks. MTA has received and stockpiled some of this material. As of August 2022, materials were received at the Glenridge OMF, and MTS unloaded and placed them in storage for installation by MTS.
  - Building construction at the Glenridge OMF is essentially complete; however, construction of civil items outside of the building continues, as does final commissioning of systems inside the building. MTS was scheduled to assume control of the facility in early 2023***; however, as of June 2023,*** the date of the turnover of the facility from MTA to MTS is still being determined. MTS is currently installing rail and other features both inside and outside of the building. MTA is still responsible for completing six remaining items that it cannot yet complete because of long lead times for necessary replacement parts. MTS will assume control of the facility with those items outstanding, and MTA will complete the items when feasible. MTS then will maintain the facility until it is turned over to PLTP. MTS will complete the tracks for storage and testing of LRVs.

- Based on the status of construction, MTA determined which items would be completed before mobilization of the replacement D-B contractor. MTA reports that it is coordinating with MTS to address construction items that have fallen behind the OSF schedule. OSF construction activities were expected to be completed before September 1, 2022, but previous schedules provided by MTA indicated completion in mid-2023 of most OSF activities, including Verizon relocations. ***OSF utility relocations that are behind schedule continue to cause impacts to MTS's work, and delays have occurred as a result. The most recent information the PMOC has received indicates that there are delays to activities on the critical path and that MTS's work is being further delayed. MTA has mobilized the Tiger Team to develop schedule mitigation alternatives.***
- MTS has taken responsibility for traffic control, E&S controls, security, and other housekeeping activities.
- MTA's Equal Employment Opportunity Officer assigned to the project is Marcques Washington, and he is supporting MTS in its hiring program. The former contractor, PLTC, left the project with a shortfall in meeting the requirements of its DBE program, and MTS is required to address this shortfall of approximately $12 million in contract value. In March 2023, MTA reported that the design portion and the nationally targeted worker program of the P3 contract had exceeded the DBE program goal. The percentage DBE participation for general construction is below the goal; however, in April 2023, Mr. Washington reported that the DBE participation statistics are improving as construction continues. In May 2023, the PMOC recommended that MTA report the projected values for these goals at the end of the project in addition to the current achieved values to allow for a better evaluation of progress toward meeting the goals. Also, MTA has been performing 20 audits per month in 2023 to monitor the Davis Bacon prevailing wage requirements.

2.11. Vehicle Technology and Procurement

The LRVs are five-car vehicles consisting of 136-foot-long, articulated units. Twenty-five vehicles (22 in operation and 3 spares) will be provided under the FFGA for the opening year. PLTP executed the LRV contract with CAF on June 17, 2016, and issued NTP to CAF on July 5, 2016 for the 25 FFGA vehicles. NTP to CAF also included one LRV outside of the FFGA.

Later, MTA added two additional vehicles (outside of the FFGA) by change order to CAF's contract, for a total of 28 vehicles to be supplied by CAF. The two additional LRVs will support better operations. MTS has incorporated these two additional LRVs into its scope of work (in addition to the cost and terms of LRV storage in Elmira, New York). One of the additional vehicles is in storage in Elmira along with the 25 FFGA LRVs, and assembly of the other two vehicles (10 cars) ***has been completed in Spain. These 10 cars are in the process of being shipped to Elmira, following the same process as the other 130 cars.***

Vehicle carshell manufacturing activities, which are coordinated with design progress, occurred until the facility in Spain was shut down in late March 2020 due to supply chain issues and to limit

the spread of COVID-19. The final assembly facility in Elmira was shut down in early April 2020 due to New York State restrictions related to COVID-19 and reopened on May 18, 2020, at 50 percent of its workforce capacity. As of early August 2020, both the Spain facility and the Elmira facility were back to 100 percent staffing levels.

The final assembly of vehicles is being performed in CAF's facility in Elmira. MTA, its PMC, and SNC-Lavalin are meeting weekly with CAF to resolve all open items for design, testing, and manufacturing activities. First Article Inspections (FAIs) for Interior and Cab were completed on March 18, 2021, and FAIs for Exterior, Roof, and Undercar were completed on April 2, 2021.

Shipment of the first vehicle to the project site was expected in late spring of 2021. The lack of available storage at the yet-to-be-completed Glenridge OMF requires use of an offsite storage facility where vehicles can be stored, occasionally powered, and occasionally "exercised" or moved on tracks. MTA and CAF negotiated an agreement for CAF to store the completed LRVs in Elmira. That storage agreement subsequently transferred to MTS, and its terms are part of MTS's agreement. Twenty-six LRVs have been designated as Ready for Shipment and have been placed into storage in Elmira. MTS's proposed construction schedule establishes when the test tracks will be available for acceptance of the railcars at the Glenridge OMF. Currently, the schedule indicates that initial deliveries of LRVs ***have slipped to early 2024.***

The status of the LRV manufacturing as of ***June 22, 2023,*** is:

- To date, 130 carshell segments have been assembled in Spain.
- All 130 carshells have been delivered to CAF's facility in Elmira, New York.
- All 25 full LRVs in the FFGA are designated as Ready for Shipment and are in storage at CAF's Elmira facility. One additional LRV (outside of the FFGA) is also Ready for Shipment and in storage.
- Two additional LRVs are under contract. These LRVs are not a part of the FFGA, but rather an addition to the contract by MTA to support rail operations. ***CAF has completed the assembly of the two additional vehicles in Spain, and those vehicles are currently in the process of being shipped to the United States.***

2.12. Project Cost

Table 5 summarizes the project's current actual expenditures and EAC, and compares them to the project budget as reported in MTA's SCC Workbook dated June 1, 2016, which is the basis of the project's FFGA. The project's documented expenditures total ***$2,876,520,485 through May 31, 2023.*** Refer also to **Table 4 – FFGA Core Accountability Items** in the **Executive Summary** section of this report for details on the project's planned and actual expenditures. The following table shows project budgets, actual expenditures, and forecast at completion amounts through ***May 31, 2023***, compared with the project budget as reported in MTA's SCC Workbook dated June 1, 2016, and MTA's current working budget.

Table 5 – Project Cost Versus Budget

SCC	Cost Category	Budget (June 1, 2016 Original FFGA)	Working Budget[1] (April 3, 2023 Final Recovery Plan)	Expenditures *(as of May 31, 2023)*	Forecast at Completion[1]
10	Guideway and Track	$280,620,726	$371,508,682	***$179,510,194***	$371,508,682
20	Stations	$114,857,016	$161,159,923	***$14,013,498***	$161,159,923
30	Maintenance Facility	$94,155,591	$93,454,387	***$85,008,822***	$93,329,787
40	Sitework	$521,968,990	$796,081,289	***$476,177,518***	$737,092,913
50	Systems	$263,887,313	$517,256,196	***$131,574,805***	$506,216,467
	Subtotal 10–50	$1,275,489,636	$1,939,460,477	***$886,284,838***	$1,869,307,772
60	Right-of-Way	$229,600,000	$329,126,214	***$289,269,986***	$329,126,214
70	Vehicles	$212,940,927	$292,780,600	***$147,565,702***	$292,780,600
80	Professional Services (total)	$571,658,114	$2,247,359,915	***$1,531,225,267***	$2,339,687,312
80.01	Project Development	$87,149,878	$85,469,312	$85,469,312	$85,469,312
80.02	Engineering	$139,766,036	$196,722,013	***$204,886,969***	$219,893,880
80.03	Project Management for Design and Construction	$148,555,323	$655,185,988	***$330,508,682***	$640,202,588
80.04	Construction Administration and Management	$83,269,280	$734,209,735	***$475,615,520***	$821,735,385
80.05	Professional Liability; Other Non-construction Insurance	$34,534,796	$85,701,891	***$78,563,602***	$78,280,490
80.06	Legal; Permits; Review Fees by Other Agencies, Cities, etc.	$5,805,117	$341,013,320	***$301,736,538***	$338,965,512
80.07	Surveys, Testing, Investigation, Inspection	$15,164,346	$92,504,023	***$49,663,110***	***$100,461,902***
80.08	Startup	$57,413,338	$56,553,635	***$4,781,535***	$54,678,235
	Subtotal 10–80	$2,289,688,678	$4,808,727,206	***$2,854,556,104***	$4,830,901,897
90	Unallocated Contingency	$90,535,748	$307,293,174	$22,174,691	$285,118,483
100	Finance Charges	$0	$0	$0	$0
	Total	$2,407,030,288	$5,116,020,381	***$2,876,520,485***	$5,116,020,380

[1]***The Purple Line project Working Budget and Forecast at Completion are based on the accepted FRP dated April 3, 2023.***

MTA developed the unallocated contingency amount of $307,293,174 through the use of a Quantitative Risk Analysis, and the RCMP dated April 21, 2023, recommended that amount for unallocated contingency.

On July 15, 2021, the PMOC first requested that MTA provide revised budget tracking information that accurately reflected the combined IRP and OSF expenditures. MTA submitted the latest version of the summary that provides information through December 2022. MTA forecasted OSF expenditures of $556.15 million, which exceed the original OSF budget by approximately $136 million. MTA has incorporated a significant portion of the overrun into the FRP budget, but additional contingency may be needed to address the increase in overruns of $35 million to $45 million that has occurred since the FRP budget was developed. MTA states that these overruns

are due to labor and material cost inflation as well as the extended duration of OSF. The PMOC recommends that MTA closely monitor these cost overruns and the potential need for contingency. ***The PMOC has requested that MTA provide current information regarding the OSF expenditures and overruns.***

2.12.1. Project Funding

The funding for the project, as reflected in Attachment 3 of the FFGA, is shown in Table 6.

Table 6 – Baseline Cost Estimate by Source Funding

Initial New Starts Project Cost	Total FFGA Cost in Year of Expenditure (YOE) Dollars	Federal 5309 New Starts in YOE Dollars	Federal 5307 in YOE Dollars	Federal American Rescue Plan Act (ARPA) in YOE Dollars	Federal Surface Transportation Program (STP) in YOE Dollars	Local in YOE Dollars
10 Guideway & Track Elements	$280,620,726	$106,464,907	$0	$0	$0	$174,155,819
20 Stations, Stops, Terminals, Intermodal	$114,857,016	$43,747,594	$0	$0	$0	$71,109,422
30 Support Facilities, Yards, Shops, Admin. Bldgs.	$94,155,591	$35,721,760	$0	$0	$0	$58,433,831
40 Sitework & Special Conditions	$521,968,989	$197,858,301	$0	$0	$0	$324,110,688
50 Systems	$263,887,313	$100,116,405	$0	$0	$0	$163,770,908
60 ROW, Land, Existing Improvements	$229,600,000	$87,108,116	$0	$0	$0	$142,491,884
70 Vehicles	$212,940,927	$80,787,818	$0	$0	$0	$132,153,109
80 Professionals Services	$571,658,113	$216,881,800	$36,000,000	$0	$0	$318,776,313
90 Unallocated Contingency	$90,535,748	$31,313,299	$0	$0	$0	$59,222,449
100 Finance Charges	$26,805,863	$0	$0	$0	$0	$26,805,863
Total Project Cost (10-100)	**$2,407,030,286**	**$900,000,000**	**$36,000,000**	**$0**	**$0**	**$1,471,030,286**

Source: Maryland Purple Line Project Recovery Plan dated April 3, 2023.

2.13. Project Schedule

The March 15, 2017 progress update of the master project schedule was approved, as noted, in May 2017 and served as the only approved version of the schedule until September 2022. Numerous submissions of schedule updates from PLTC were not approved for various reasons, but the primary reason was the inability of MTA and the P3 concessionaire to agree on the schedule impacts of the approximately one-year delay in the execution of the FFGA. In response to a letter that FTA issued to MTA in early August 2018 expressing concerns about the amount of time that the project had advanced without an approved schedule, MTA prepared a working schedule update of the master project schedule. The working schedule update was based on the negotiations of the P3 contract schedule occurring at the time, but the update was not based on a mutually agreed-upon P3 contract schedule.

In late April 2020, PLTC notified PLTP that, based on its forecasting of schedule delays on the project (which were not mutually agreed upon), PLTC intended to exercise the clause in its P3 contract with PLTP that allows it to terminate the contract for design and construction services under the P3 contract if delays exceed 365 days. MTA sent a formal request to PLTP for a response

that included a definitive path forward for PLTP's intended management of the P3 contract. On May 14, 2020 (the date the response to the formal request was due), PLTP submitted its response, which stated that PLTP intended to continue to negotiate with PLTC to retain PLTC as part of the P3 concessionaire team. On June 23, 2020, PLTP sent a formal Notice of Unconditional Election to Terminate the P3 Agreement, although PLTP indicated a willingness to negotiate a settlement. On June 24, 2020, MTA sent a Formal Notice of Concessionaire Default. This notice essentially refuted the validity of the PLTP delay claims and stated that if PLTP failed to perform, MTA had a number of options related to the agreement. Through late July 2020, construction activities continued at the level previously planned, and construction progress was not affected.

In early August 2020, PLTC and subcontractors demobilized equipment, materials, and personnel. In response, the Maryland Attorney General filed a motion for a TRO that prevented PLTP from abandoning the work or demobilizing. Upon issuance of the TRO, the contractor and subcontractors remobilized some equipment and restarted many construction activities. A hearing to uphold or rescind the TRO was held on September 14, 2020. The court rescinded the TRO, allowing PLTP to leave the project. Through negotiation, it was determined that PLTP would remain on the project, although PLTC would not.

MTA contracted with numerous subcontractors to continue the project. MTA developed organizational options with respect to construction management, resident engineers, inspectors, and other staff needed to move forward select project activities.

It was certain that the project schedule as reflected in the FFGA would be negatively affected, and a Recovery Plan for the project, including a revised project schedule with adequate schedule contingency to address remaining project risks, would be required. MTA submitted its draft IRP to FTA in December 2020, and FTA approved the IRP on January 12, 2021. A schedule for the period during which the D-B contractor was to be replaced was developed, and MTA monitored project progress against the schedule. On November 5, 2021, PLTP announced the selection of the preferred replacement D-B contractor, MTS.

PLTP and MTA continued to coordinate during the financial process and State of Maryland approvals for the replacement D-B contractor. In addition, MTA successfully coordinated other key issues that needed to be resolved before PLTP could execute the contract with MTS.

The following is a summary of IRP milestones:

- January 6, 2021 – PLTP issued an RFQ for replacement D-B contractors.
- March 8, 2021 – PLTP issued an RFP to the short list of replacement D-B contractors based on the RFQ.
- October 15, 2021 – PLTP received RFP responses.
- November 5, 2021 – PLTP and MDOT/MTA selected the replacement D-B contractor firm (MTS).
- January 26, 2022 – BPW approved the replacement D-B contractor, contract amendments, schedule, cost, and financing.

- April 14, 2022 – The TIFIA loan closed, allowing financial and commercial close on that same day. MDOT/MTA issued NTP to PLTP, allowing for execution of the MTS contract.
- September 12, 2022 – MTA approved the IBS.
- October 14, 2022 – MTS was required to have commenced action on the 11 critical elements that are specified in the D-B contract. At the December 2022 PMOC meeting, MTA confirmed that MTS had missed the 180-day window to commence action on 3 of the 11 critical elements. MTA and MTS are coordinating these specific activities and generally agree that a delayed start for each is logical based on construction sequencing. These three elements are not currently on the critical path.
- October 28, 2022 – MTA was required to have submitted a draft FRP to FTA and the PMOC for review and comment. On October 4, 2022, MTA submitted the draft FRP to FTA and the PMOC for review.

A milestone not specifically mentioned in the IRP is the requirement to extend the current RSD. The PMOC therefore adds the following milestone to this list:

- December 31, 2022 – The RSD in the original FFGA is December 31, 2022. MTA requested an extension to the RSD identified in the original FFGA. FTA has now accepted the FRP, which indicates a revised RSD of February 24, 2028.

MTA reports that MTS's IBS included a proposed sequence and duration of activities that have zero float and a completion date in October 2026.

The schedule included in the FRP is considered to be the new baseline schedule. The next update to the master schedule will incorporate the schedule recovery developed by MTA and MTS. By implementing Maintenance of Traffic and construction activity resequencing, at a cost of $21,343,588, they were able to reduce schedule delays from 218 days to 81 days. ***As a result of mitigation efforts and the resulting change order, the schedule recovery allows for an RSA date of January 4, 2027.*** The schedule delays are a result of OSF utility adjustments that fell behind schedule. MTS has indicated that delays continue as a result of the MTA-managed OSF work that is on the critical path. MTA has resumed the Tiger Team process to develop schedule mitigation alternatives.

MTA used MTS's approved IBS to develop a master schedule that incorporates operational readiness activities and schedule contingency (float). ***As of June 2023, known delays have begun to make use of the schedule contingency.***

2.13.1 Key Milestones

Table 7 shows the current key milestone dates for the project for the prior approved (March 15, 2017) progress update of the master project schedule and the MTA master schedule incorporated in the FRP dated April 3, 2023. Issuance of NTP to PLTP on April 14, 2022, triggered the contract requirement for an MTA-approved MTS IBS for the full project to be in place within 120 days of financial close (by August 14, 2022). In January 2022, MTA submitted a draft version of the

master schedule for FTA and PMOC review, and FTA and the PMOC transmitted their review comments to MTA in April 2022. MTS submitted its IBS, and on September 12, 2022, MTA approved it. MTS submitted the 120-day mobilization schedule, which MTA also approved.

In August 2022, MTA and the PMOC discussed the current state of the baseline schedule, particularly the inclusion of adequate float to address schedule risk. The P65 date that MTA proposed before the risk workshop held in May 2022 included approximately seven months of float and an RSA date in October 2026. After MTA performed the Quantitative Risk Analysis for the updated RCMP, MTA added additional float to address known and unknown schedule risk. The RSD proposed in the FRP is now February 24, 2028, which includes 16 months of float as of April 3, 2023.

The PMOC recommends that MTA closely monitor schedule contingency and the corresponding budget contingency when evaluating the RSA date/RSD and the EAC that have been incorporated into the FRP. The information in Table 7 will be updated once the schedule reviews and approvals are complete.

Table 7 – Key Milestone Dates

Activity	Prior Approved Master Project Schedule (March 15, 2017)	MTA Master Schedule (FRP dated April 3, 2023) (working baseline)	PLTP Schedule Update 13 (Not Approved by MTA) dated June 14, 2023
Locally Preferred Alternative Approval Date	08/04/2009 (A)	---	---
FTA Approval to Enter Preliminary Engineering	10/07/2011 (A)	---	---
FTA ROD	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 through 03/02/2016 (A)	---	---
BPW Approval of P3	04/06/2016 (A)	---	---
P3 Commercial Close	04/07/2016 (A)	---	---
Limited NTP for P3 Engineering	04/07/2016 (A)	---	---
MTA Submit FFGA Application	05/24/2016 (A)	---	---
P3 Financial Close	06/17/2016 (A)	---	---
FFGA Signed	08/22/2017 (A)	---	---
Start of First Major Construction Activity	08/28/2017 (A)	---	
All Significant ROW Acquisition and Relocation	As needed by construction	---	---
Commencement of Contract Work for Replacement D-B Contractor (MTS)	---	04/14/2022 (A)	---

Activity	Prior Approved Master Project Schedule (March 15, 2017)	MTA Master Schedule (FRP dated April 3, 2023) (working baseline)	PLTP Schedule Update 13 (Not Approved by MTA) dated June 14, 2023
Commencement of Integration Testing	---	07/28/2025	11/13/2025
All Segments Complete Construction (with Contingency)	---	02/19/2027	03/12/2027
Revenue Service Availability per P3 Amendment (with Contingency)	---	05/03/2027	07/05/2027
FFGA RSD Date (includes contingency)	12/31/2022	02/24/2028	---

(A) = Actual.

2.13.2 90-day Look-ahead

The critical 90-day (***July 2023 through September 2023***) look-ahead includes activities that MTA highlighted in the recent monthly PMOC meeting. MTA and MTS also are preparing four-week look-ahead schedules to manage interim activities. Key activities that MTA has identified for the short term are:

- Retaining wall, OCS foundation, and bridge structure construction in multiple locations.
- Water, sanitary sewer, and storm sewer construction in multiple locations.
- Overhead electrical line, communications line, and buried gas line relocations.
- TPSS installation and commissioning.
- MTA's closeout of Glenridge OMF punch lists and turnover of the facility to MTS.
- Summer work on the UMD campus.
- Activities related to the replacement D-B contractor, including the continuation of required activities by MTS on the key structures and other elements on the critical path.
- Blasting at the Bethesda shaft. Construction of the Bethesda Enclosed Trainway grade beam.
- Track construction at the Glenridge OMF.
- ***Major traffic pattern and Maintenance of Traffic change at Segment 7.***

2.13.3 Critical Path Activities

In the MTA master schedule update dated March 12, 2023, the critical path runs through the activities in Segments 7 and 8 of installation of Civil and Systems packages, and then train testing. ***MTS's Schedule Update 13 (through May 2023) indicates that the critical path is still through Segment 7, although Segment 8 (the Glenridge OMF) is listed with zero float. Critical activities in both of these segments must be completed before LRV testing can occur.***

2.14 Project Risk

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

During the approximately one-year period during 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 or Quantitative Risk Analyses, and did not perform formal updates of the Risk Register. However, the Purple Line project management team did assess and respond to the risks associated with the unforeseen chain of events related to the lawsuit.

The project team resumed formal Risk Management Committee 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 in draft form in January 2018. The Risk Register was updated further and reissued in March 2018. As an ongoing process, MTA currently is performing updates of the Risk Register periodically, though somewhat less frequently than bimonthly (the frequency established in its RCMP). The current status of the RCMP is discussed in the **Project Management Plan and Sub-plans** section of this report, above.

MTA provides copies of significant updates of the Risk Register to FTA and the 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; the project's top five project risks are included as Attachment C of this report and are updated quarterly. A risk management workshop was held on January 26, 2021, at which the PMOC and FTA participated. The workshop focused on the resolicitation period for the replacement D-B contractor (January through October 2021).

Now that the replacement D-B contractor is under contract, risk updates have been prepared. The project held a risk workshop the week of May 2, 2022, at which the PMOC and FTA participated in an OP 40 risk and contingency review that evaluated cost, schedule, and project contingency. Confirmation and finalization of the Risk Register, the Quantitative Risk Analysis, and an update of the RCMP are components of the FRP. FTA provided a summary of the risk workshop to MTA on June 22, 2022, for MTA's consideration and incorporation into its management plans and contingency evaluation. MTA provided responses to FTA comments on the risk workshop summary on July 15, 2022, and clarification on August 25, 2022. In October 2022, MTA submitted RCMP Version 15 to FTA and the PMOC for review. In February 2023, FTA and the PMOC provided comments on RCMP Version 15 to support MTA's development of the project's budget contingency and schedule contingency. On April 21, 2023, MTA provided a revised RCMP to FTA and the PMOC for review, and on May 22, 2023, FTA accepted the revised RCMP with comments.

2.15 Quality Assurance/Quality Control

The project's QA/QC is addressed in Section 10 of the PMP, the Quality Program Plan, and the updated MTA QAP Revision 8.0, which incorporates the quality plans prepared by PLTC. The **Project Management Plan and Sub-plans** section of this report, above, discusses the most current versions of the PMP and the QAP. After MTA had reviewed and approved the package of inter-related quality plans prepared by the P3 concessionaire, MTA also submitted the package to FTA.

MTA obtained and used PLTP's quality logs and other applicable documents and procedures during the transition to the replacement D-B contractor. Several former subcontractors are now under contract with MTA and conducted QA/QC activities during the replacement D-B contractor solicitation period. The budget to address nonconforming construction by PLTC is a concern. MTA incorporated known defects at the time into the MTS contract; however, MTA has not clarified the specific budget that will be used to rectify defects found since the contract with MTS was executed. MTA estimates that the potential magnitude of the budget impact of these defects will be no more than $10 million.

In October 2022, MTA submitted QAP Version 10 to FTA and the PMOC for review, and on March 8, 2023, FTA provided review comments on the QAP to MTA. MTA provided a revised QAP to FTA and the PMOC in May 2023.

The project has continued to conduct monthly QA/QC activities, including the design and construction performed as a part of OSF. MTA provides to FTA both a QA summary prepared by the PMC and the quality portion of MTS's Monthly Progress Report. These documents contain a summary of the significant current QA/QC activities and events, including safety, work plan, and field process quality audits. ***In May 2023,*** quality management activities included the ***audit of the Comprehensive Environmental Protection Plan and the rail welding process. Offsite inspections performed by MTS included more than eight different items, including the fabrication of structural steel, special trackwork, and OCS materials. MTS reports that it has more than 60 full-time quality staff on the QA/QC team.***

In November 2021, MTA's quality lead for the Purple Line project, Rene Schroeder, retired. Roland Carroll, the Purple Line systems and construction safety lead, added the quality lead role to his other Purple Line roles. In February 2022, MTA provided a white paper outlining Mr. Carroll's experience, his recent training, and the proposed supporting staff related to his new quality management role. The PMOC has evaluated this change as a part of the PMP review and will continue to monitor MTA's management capacity for this function and all positions through ongoing oversight activities.

2.16 Safety and Security

PLTP has conducted 44 Preliminary Hazards Analysis (PHA) workshop sessions to date. These workshops were held to resolve MTA's comments on the PHAs completed to date.

To support the ultimate Safety and Security Certification of the Purple Line project, the PLTP System Safety team completed development of its first DCCC in May 2017 and submitted it to

MTA for approval. MTA (assisted by the PMC) reviews the DCCCs as part of the Final Design package, according to the established submittal review process. According to PLTP, the DCCCs were being verified before the issuance of RFC packages. To date, an estimated ***98.4*** percent of the DCCCs have been verified. All previous comments on PLTP's Certified Elements List (CEL), which includes operations and maintenance and system integration testing elements, have been resolved, and CEL Revision 2 was accepted in March 2020. The Certified Items List (CIL) Revision 1 has been accepted. The next revision of the CIL is expected after MTS completes the design. MTA will provide the revised CIL to FTA and the PMOC as soon as it is completed. Approximately ***21.3 percent*** of the CSCCs have been verified to date.

MTA chairs a Safety and Security Certification Committee (SSCC) that reviews, comments on, and approves any PLTP hazard management and safety and security certification issues. The first meeting of the MTA SSCC was conducted on March 20, 2018. Since July 11, 2018, the SSCC meeting has been held regularly and will continue as a monthly meeting until the level of activity requires more frequent meetings. ***As of June 2023,*** monthly SSCC meetings continue.

PLTC submitted a Threat and Vulnerability Assessment, and on July 15, 2019, MTA accepted and verified the comment responses and approved PLTC's Threat and Vulnerability Assessment. PLTC then completed its Threat and Vulnerability Assessment process.

MTA continues to conduct bimonthly Fire/Life Safety meetings with Montgomery County and Prince George's County. The meetings provide a basis for the counties' emergency responders to understand the features of the Purple Line systems and to resolve any concerns. Topics of discussion include: Police Department MOUs; Fire Department connection and hydrant locations; access, signage, and station naming conventions; MOUs for training; the PHA at the Glenridge OMF maintenance gate; station names; and addresses/emergency phone numbers for locations along the corridor. Other topics of discussion have included closed circuit television cameras and Mobile Emergency Vehicle Response access. It is the opinion of the PMOC that MTA should emphasize resolving the project's outstanding Fire/Life Safety issues, because progress on the resolution of these issues is not apparent.

MTA police continue coordinating MOUs with local safety agencies and developing MOUs with police jurisdictions (such as the Maryland National Capital Park Police) along the Purple Line. These MOUs are related to training the existing police agencies on how to respond to transit situations. During the September 2022 MTA/PMOC meeting, a larger related issue was discussed at length. The SSOA staff participated in this discussion as well. The crux of the issue is that MTA does not have a police force located in proximity to the Purple Line. MTA hired a consultant team to analyze alternatives for providing security and fare enforcement services for the Purple Line. Alternatives included: expanding MTA's enforcement services geographically, bringing on a third party to provide these services through a contract, or sharing police services with another party. In late April 2023, MTA provided FTA with the alternatives study for review. The study indicates that the preferred alternative is the development of a new Southern District of the MTA Police Department and recommends several next steps toward implementation of the new district, including hiring a commander, developing operating procedures, working on MOUs with other

local jurisdictions, and developing a facility to house the district. ***In June 2023, MTA reported that it has identified the initial steps toward implementing the preferred alternative.***

As required by the P3 contract, PLTP was responsible for directly implementing many of the safety and security requirements for the project, including those for construction safety and the collection and maintenance of the Occupational Safety and Health Administration (OSHA) safety statistics for the project. PLTC performed this work until its departure from the project, at which time MTA assumed responsibility. MTS later transitioned into the safety and security role that PLTC had held. MTS and MTA are holding regular safety and security coordination meetings.

Safety continues to be acceptable, although with an increase of MTS activities, recordable incidents are increasing. Also, MTS appears to be having difficulties in its communication of incident reporting. MTA determined the methodology for reporting of, and assumed reporting of, OSHA statistics for the project under OSF. For the period from January 1, 2023, through ***April 2023***, the OSHA statistics are:

- TCIR (Total Case Incident Rate) (Recordable Rate) – MTS and OSF activities:
  - Actual: ***2.84/5.78*** (MTS/OSF)
  - MTS goal: 1.68
- LTIR (Lost Time Injury Rate) (Recordable Rate):
  - Actual: ***2.84/5.78*** *(MTS/OSF)*
  - MTS goal: 0.64

MTA had assumed responsibility for safety oversight until MTS assumed control of the project. As of December 2022, MTA reports that MTS needs coaching on expectations for the required reporting of safety statistics. In April 2023, the PMOC noted to MTA that both the LTIR and the TCIR have increased significantly. MTA recognizes the issue and reports that it has scheduled additional safety coordination efforts. In May 2023, the PMOC asked MTA for documentation on the additional safety coordination efforts. ***In June 2023, the MTA provided documentation of these additional efforts, although it appears that incidents are still occurring at a rate higher than the goals.***

In late October 2022, MTA submitted updated SSMP and SSCP documents in conjunction with the updated PMP. On February 13, 2023, and March 8, 2023, FTA provided review comments to MTA on the SSMP and SSCP, respectively. MTA has since resubmitted the SSCP***, and FTA and the PMOC provided additional comments on the SSCP to MTA in June 2023. MTA has not yet provided a revised SSMP due to ongoing coordination with state agencies.***

See the **Project Management Plan and Sub-plans** section of this report, above, for the status of the sub-plans of the PMP related to safety and security. Attachment B of this report includes additional quarterly safety- and security-related information for the Purple Line project.

2.17 Americans with Disabilities Act

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

Accessibility and compliance with the ADA are required as part of the functional requirements for stations and guideway, and as part of the codes and standards for LRVs within the P3 contract (Book 2, Part 2) for the Purple Line project. MTA and its consultants reviewed the design packages prepared by PLTC. Based on project reviews conducted by the PMOC, MTA has confirmed that it included ADA compliance in its QA oversight reviews of PLTC's design packages. A full-time Purple Line project Maintenance of Traffic construction representative also monitors whether temporary pedestrian accommodations during construction continue to comply with ADA requirements. ADA compliance is included in the PMOC's periodic project reviews, during which the PMOC discusses timely project ADA-related items with the project team. Such discussions during the PMOC's most recent reviews identified no current ADA-related issues.

MTA indicates that the project is maintaining ADA accessibility along the project corridor during construction. In addition to planning for ADA accessibility, MTA and MTS respond to public concerns due to construction activities and temporary accessibility features.

2.18 Buy America

MTA understands that Buy America compliance applies not only to the rail vehicles but also to the 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 regulations is contained in MTA's standard clauses for its procurements, and the P3 contract contains explicit Buy America language in its Appendix 16.

Virginkar and Associates, Inc. conducted the Buy America pre-award audit and concluded that there is reasonable certainty that CAF will satisfy the Buy America requirements as stated in 49 Code of Federal Regulations (CFR) 661. MTA's interpretation is that, because the vehicle RFP was advertised before December 4, 2015 (which is the date of passage of the Fixing America's Surface Transportation Act, also known as the FAST Act), the 49 CFR 661 Public Interest Waiver that limits domestic content to a minimum of 60 percent, as opposed to the escalating domestic content requirements of the FAST Act, applies in this case. During the week of October 2, 2017, an intermediate post-award Buy America audit was conducted of CAF's facility in Elmira, New York, for added confidence that the post-delivery audit would not identify issues. CAF targeted 65 percent domestic content in the completed LRVs.

The project's Buy America compliance audit for the LRVs was conducted on November 14, 2022. In January 2023, CAF provided additional documentation requested to assist with evaluation of Buy America compliance. MTA had indicated that the draft audit report would be made available to FTA in ***June 2023, but transmittal of the report did not occur. The PMOC again requested a copy of the report during the June 2023 MTA/PMOC Monthly Update Meeting.*** MTA has stated

that the draft report indicates that the LRVs will have a U.S. domestic content of 66.74 percent, which satisfies FTA's Buy America requirements.

2.19 Start-up, Commissioning, Testing

TBD

2.20 Before-and-After Study Reporting

TBD

2.21 Lessons Learned

The resolicitation of a D-B contractor has given MTA the opportunity to apply several lessons learned to the new D-B contract documents and to amend the P3 agreement. After the May 2022 risk workshop with MTA and the PMOC, MTA provided an update on opportunities for improvement that MTA had identified during the resolicitation and is incorporating into the project.

2.22 Action Items

Action Items are identified at MTA/FTA Quarterly Progress Review Meetings, at MTA/PMOC Monthly Update Meetings, and at MTA/FTA Biweekly New Starts Progress Conference Calls. Action Items from the most recent biweekly conference call on ***June 13, 2023***, have been closed. Other open Action Items include:

1. ***MTA to provide current information regarding the OSF expenditures and overruns.***
2. ***MTA to provide the final report on the M33 bolt issue.***
3. ***MTA to provide the LRV Buy America compliance audit report.***
4. ***The PMOC recommends that MTA include not only the current actual MBE/DBE data, but also the projected MBE/DBE goal achievement, in its reporting at the August 2023 Quarterly Progress Review Meeting.***
5. ***MTA to revise and resubmit the SSCP and the QAP.***

ATTACHMENT A – LIST OF ACRONYMS

ADA	Americans with Disabilities Act
ARPA	American Rescue Plan Act
ATC	Alternate Technical Concept
BFMP	Bus Fleet Management Plan
BPW	Board of Public Works
CAF	Construcciones y Auxiliar de Ferrocarriles
CEL	Certified Elements List
CFR	Code of Federal Regulations
CIL	Certified Items List
CSCC	Construction Specification Conformance Checklist
CSX	CSX Corporation
D-B	Design-Build
DBE	Disadvantaged Business Enterprise
DCCC	Design Criteria Conformance Checklist
DNR	Maryland Department of Natural Resources
E&S	Erosion and Sedimentation
EAC	Estimate at Completion
FAI	First Article Inspection
FCP	Forest Conservation Plan
FFGA	Full Funding Grant Agreement
FRP	Final Recovery Plan
FTA	Federal Transit Administration
GEC	General Engineering Consultant
IBS	Initial Baseline Schedule
IRP	Interim Recovery Plan
LOD	Limits of Disturbance
LRT	Light Rail Transit
LRV	Light Rail Vehicle
LTIR	Lost Time Injury Rate

MBE	Minority Business Enterprise
MCC	Management Capacity and Capability
MDE	Maryland Department of the Environment
MDOT	Maryland Department of Transportation
MOU	Memorandum of Understanding
MTA	Maryland Transit Administration
MTS	Maryland Transit Solutions
N/A	Not Applicable
NEPA	National Environmental Policy Act
NTP	Notice to Proceed
OCS	Overhead Contact System
OMF	Operation and Maintenance Facility
OP	Oversight Procedure
OSF	Operation Step Forward
OSHA	Occupational Safety and Health Administration
P3	Public-Private Partnership
PEPCO	Potomac Electric Power Company
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 Management Plan
RCMP	Risk and Contingency Management Plan
RFC	Released for Construction
RFP	Request for Proposals
RFQ	Request for Qualifications

ROD	Record of Decision
ROE	Right of Entry
ROW	Right-of-Way
RSA	Revenue Service Availability
RSD	Revenue Service Date
SCC	Standard Cost Category
SEIS	Supplemental Environmental Impact Statement
SSCC	Safety and Security Certification Committee
SSCP	Safety and Security Certification Plan
SSMP	Safety and Security Management Plan
SSOA	State Safety Oversight Agency
SSP	Safety and Security Plan
SSPP	System Safety Program Plan
SSTC	Silver Spring Transit Center
STP	Surface Transportation Program
SWM	Stormwater Management
TBD	To Be Determined
TCE	Temporary Construction Easement
TCIR	Total Case Incident Rate
TIFIA	Transportation Infrastructure Finance and Innovation Act
TPSS	Traction Power Substation
TRO	Temporary Restraining Order
UMD	University of Maryland
USACE	U.S. Army Corps of Engineers
WMATA	Washington Metropolitan Area Transit Authority
WSSC	Washington Suburban Sanitary Commission
YOE	Year of Expenditure

ATTACHMENT B – SAFETY AND SECURITY CHECKLIST

Note: References to the System Safety Program Plan (SSPP), Safety and Security Plan (SSP), and 49 Code of Federal Regulations (CFR) Part 659 as they are contained in the FTA standard checklist form have been retained in the following update. However, it is recognized that Maryland Transit Administration is transitioning to the Public Transportation Agency Safety Plan and 49 CFR Parts 673 and 674.

Refer to the July 2020 PMOC Monitoring Report for the most recent update.

ATTACHMENT C – TOP PROJECT RISKS

An internal risk workshop to support the Interim Recovery Plan (IRP) was held on January 26, 2021. Maryland Transit Administration (MTA) and Purple Line Transit Partners (PLTP) used information from the meeting as they solicited a replacement Design-Build (D-B) contractor. At the time of the workshop, the MTA Risk Management was tracking the following risks identified during development of the IRP:

Procurement/Settlement Risks:

- PLTP solicitation of replacement D-B contractor:
  - Market resolicitation in a compressed time frame
  - Delay in finalizing solicitation
  - Weak bidder interest – two or fewer proposals
- D-B contract and other contract negotiations

Schedule Risks:

- Inability of MTA subcontractors to meet the Operation Step Forward (OSF) schedule dates, causing delay to certain activities to be performed by the replacement D-B contractor
- Unanticipated delay to the replacement D-B contractor "ramp up" of activities, resulting in impacts to the critical path anticipated by MTA

Design and Construction Risks:

- Performance risk assumed by MTA by contracting for and performing work during the replacement D-B contractor resolicitation period (subcontracting risk)
- Quality, commercial, coordination, and unforeseen conditions unknown to MTA at the time of assumption of former Purple Line Transit Constructors subcontracts

A risk workshop was held May 3 through May 5, 2022. After the risk workshop, MTA prepared supplementary or updated documents for review, including an updated Risk Register. FTA provided a risk summary to MTA on June 22, 2022, for MTA's consideration when updating risk, contingency, and other project management plans. MTA provided a response to each of the comments on the risk summary to FTA on July 18, 2022, and provided further clarifications on August 25, 2022. MTA incorporated the FTA comments in the revised Risk and Contingency Management Plan (RCMP) that is a part of the Final Recovery Plan.

On October 7, 2022, MTA submitted RCMP Version 15 to FTA and the PMOC for review. FTA provided review comments to MTA on February 16, 2023, and MTA prepared a revised RCMP and submitted it to FTA on April 21, 2023. On May 22, 2023 FTA accepted the revised RCMP with comments.

In ***June 2023***, MTA presented the following top project risks (as taken from the Risk Register):

1. Construction – Exhibit 24 Utility Adjustments – Significant
2. Construction – RCO1 and RCO7 Utility Delays – Significant
3. Design – Temporary Construction Easement Extensions – High

4. Construction – Unknown Existing Construction Defects – High
5. Market – Unknown Unknowns – High
6. Construction – Utility Relocation Execution by Third Parties – High
7. CSX Flagger Availability – High

ATTACHMENT D – AWARDED CONTRACTS

A significant update to awarded contracts is forthcoming due to the transition within the original Public-Private Partnership concessionaire and Maryland Transit Administration's (MTA's) assumption of some, but not all, subcontracts. Included below is information that MTA prepared for the May 15, 2023 Quarterly Progress Review Meeting packet. Please note that the total shown in this table for contracts awarded does not reflect the full project value.

Purple Line
Project #1042
Current Project Status (Dollars in $000s)
Project Manager/RE: Matthew Pollack

Major Contracts:

Company	Vendor Type	Contract No.	Baseline Amount	Change Order Totals	Current Amount	Pending Change Orders
PB/RK&K	Engineers/ Architects	MTA-1054A	$12,000	$1,850	$13,850	
STV/Jacobs	Engineers/ Architects	MTA-1054B	$8,000	$1,300	$9,300	
AECOM/ RK&K/PB	Engineers/ Architects	MTA-1264A	$60,000	$338,500	$398,500	
Gannett Fleming/WRA	Engineers/ Architects	MTA-1265B	$80,000	$71,000	$151,000	
Purple Line Transit Partners	P3 Concession (design build portion only)	PUR16032PP	$1,988,816	$1,341,310	$3,330,126	
Total			**$2,148,816**	**$1,753,960**	**$3,902,776**	**0**

Reason for Change: *Amendment 6 to the Purple Line Transit Partners P3A was not been previously reflected. The amount shown as "Current Amount" represents that portion of the P3A Design-Build contract associated with the New Starts Program.*

ATTACHMENT E – ROLLING STOCK VEHICLE STATUS REPORT

Date: June 30, 2023

Vendor: Construcciones y Auxiliar de Ferrocarriles (CAF)

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

Year: The first vehicle was completed in 2021, and currently 26 vehicles are designated as "Ready for Shipment." Completion of the storage and testing facilities at the Glenridge Operation and Maintenance Facility (OMF) has been delayed, so Maryland Transit Administration (MTA) and CAF negotiated terms for storage of vehicles at the CAF facility in Elmira, New York. The storage agreement has now transferred to the replacement Design-Build (D-B) contractor, Maryland Transit Solutions (MTS).

Quantity: 25 vehicles (130 cars) original contract (Full Funding Grant Agreement [FFGA]). One vehicle (5 cars) was added to the original CAF authorization by MTA, outside of the FFGA.

2 vehicles (10 cars) in July 2021 change order (non-FFGA).

Identification: The original light rail vehicles (LRVs) will be numbered from 101 through 126. The numbering of the two additional LRVs is to be determined.

New Technologies: None planned (all major suppliers have service-proven equipment).

Status and Significant Activities:

- In total, 130 cars were assembled in Spain, all of which have been delivered to CAF in Elmira, New York. Assembly of the additional 2 vehicles (10 cars) has been completed in Spain. These 10 cars are in the process of being shipped to Elmira for final assembly and static testing, following the same process as the original 130 cars.
- Delivery of finished vehicles was expected to begin in spring 2021; however, because the Glenridge OMF is not ready to accept railcars, MTA and CAF have negotiated an agreement for CAF to store the completed cars in Elmira.
- Cost risk for delivery of the finished vehicles has been transferred to MTS. If delays in construction cause a delay, then MTS is responsible to CAF for additional storage cost.
- Twenty-six LRVs have passed static testing, have been designated as Ready for Shipment, and have been placed into storage in Elmira. These include vehicle 110, which was returned to Ready for Shipment status after a second period in static testing.
- Delivery of the first of the original 26 vehicles is currently scheduled for early 2024. Approximately one vehicle per week will be delivered thereafter. The Glenridge OMF will be able to store three or four vehicles on the yard and in the building, so track must be available for additional storage. The Overhead Contact System and Traction Power

Substation (TPSS) Q7 and TPSS QYG must also be completed and installed before delivery of vehicles.

- MTA added two vehicles by change order to CAF's original contract, outside of the MTA/Federal Transit Administration (FTA) FFGA. The additional LRVs will support better operations at Revenue Service Availability. The replacement D-B contractor, MTS, has incorporated these two additional LRVs into its scope of work (in addition to the cost and terms of LRV storage in Elmira). Initial fabrication of the two additional LRVs at CAF's facility in Spain is complete.
- SNC-Lavalin (now an MTS subcontractor) prepares a monthly quality report documenting safety, production, and quality items at both the Spain and New York production facilities. Many of the same SNC-Lavalin staff who observed the original vehicle fabrication work are overseeing the fabrication of the two additional vehicles in Spain.
- MTA, the Project Management Consultant, and CAF are holding weekly coordination meetings to review all outstanding testing and factory/shop activities, including onsite testing procedures for when the vehicles are delivered to Maryland.
- MTS, which has assumed the CAF contract, is preparing and submitting to MTA reports on LRV maintenance activities required during the storage period.
- The project's Buy America compliance audit for the LRVs was conducted on November 14, 2022. In January 2023, CAF provided additional documentation requested to assist with the evaluation of Buy America compliance. The draft audit report is expected be available in May 2023. Preliminary information from the audit indicates that the percentage of U.S. domestic content meets FTA requirements.
- The resolution of a previously identified quality issue related to the M33 bolt on the LRVs and the associated final report were expected in May 2023, but submittal of the final report to FTA has been deferred until July 2023. MTA determined that the issue does not impact safety, and the solution is likely the use of a higher strength bolt. The effort included a significant amount of work to determine whether a bolt failure would cause debris to fall on the track.

ATTACHMENT F – PROJECT MILESTONES/KEY EVENTS

Photos courtesy of Maryland Transit Administration.



Steel Beam Installation work by MTS – Bethesda Station
Week Ending 06-02-23



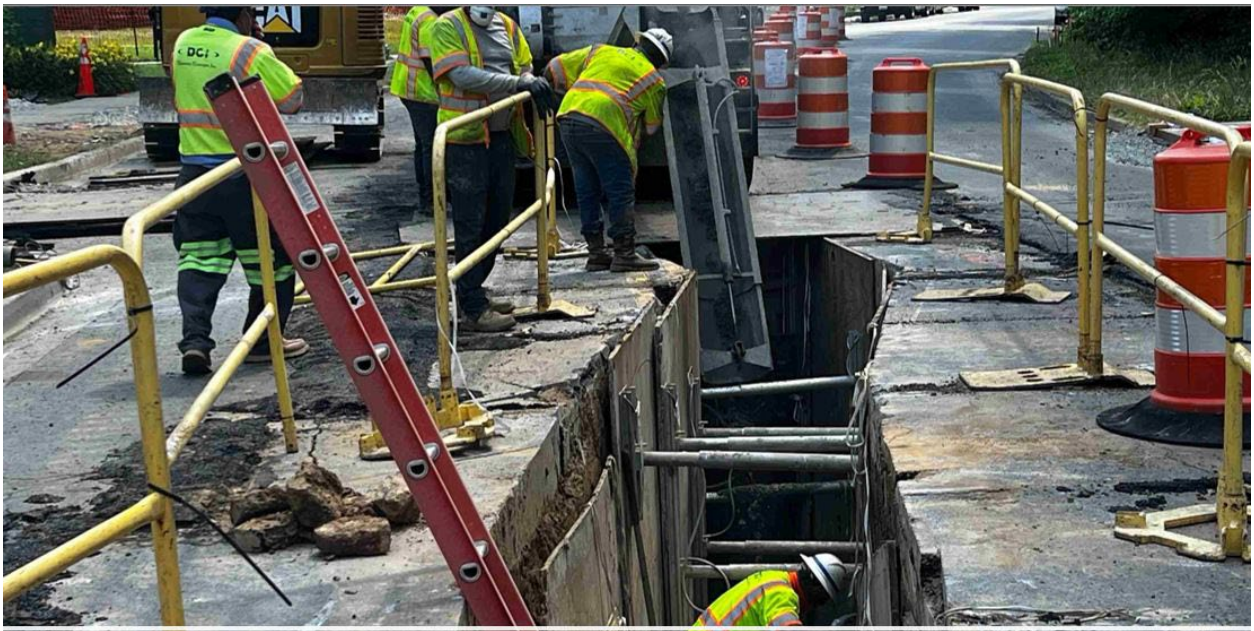
Noise Barrier Wall 1-N03 Panel Installation work by MTS – GBT at East West Hwy
Week Ending 06-02-23



S13 LRT Bridge Abutment A Approach Slab Rebar work by MTS – Rock Creek
Week Ending 06-09-23



Wall 1-088 Backfilling work by MTS – GBT at 4th Ave.
Week Ending 06-09-23



U103 Pepco / Verizon Underground Duct Bank work by MTS – Chevy Chase Lake Dr.
Week Ending 06-16-23



Embedded Track No. 2 Installation work by MTS – M-Circle UMD
Week Ending 06-16-23



Roof View Looking West work Progress by MTS – Glenridge OMF
Week Ending 06-23-23



Storm Drain 24-Inch RCP Installation work by MTS – Riverdale Road
Week Ending 06-24-23



Mud Mat Wall Formwork by MTS – Campus Drive UMD Station
Week Ending 06-30-23



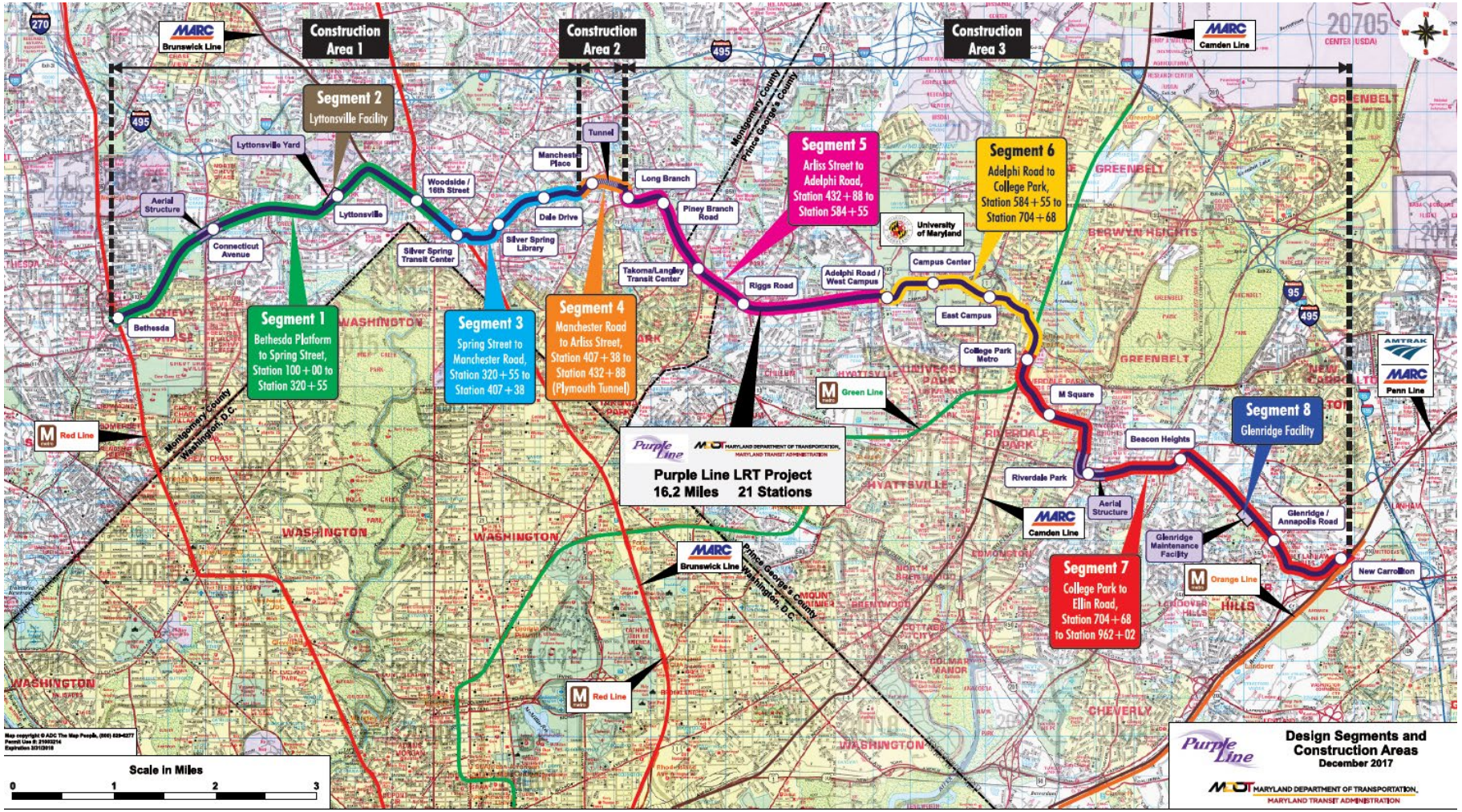
POI-14 Tunnel Bore Machine Installation by MTS – Chevy Chase Lake Dr.
Week Ending 06-30-23

ATTACHMENT G – ROADMAP TO REVENUE OPERATIONS

In accordance with Oversight Procedure (OP) 25, the Roadmap to Revenue Operations, prepared from the Project Sponsor's master schedule, is issued quarterly as a separate electronic file. Because the Project Sponsor's master schedule is undergoing a major revision for schedule recovery, the dates currently shown will change.

Per OP 25, this item is issued quarterly "as a separate attachment." Due to the transition to a new Design-Build contractor, quarterly updates will be provided when available. Refer to the July 2020 Project Management Oversight Contractor Monitoring Report for the most recent update.

ATTACHMENT H – PROJECT MAP



PMOC MONITORING REPORT
July 2023

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

Maryland Transit Administration
Baltimore, Maryland
Final

Draft Report Delivered to FTA on ***August 7, 2023***
Final Report Delivered to FTA on ***August 15, 2023***

PMOC Contract No.: 69319519D000016
Task Order No.: 69319520F300095
Project No.: 69319519D000016/69319520F300095
Requisition/Reference No.: FTA-TPM20-20-0106
OPs Referenced: 20, 22, 23, 24, 25, 26, 37, 40
CLINs 0001, 0002, and 0005

David Evans and Associates, Inc.
Pete Hankovszky, Task Order Manager
Voice –720.448.6730; Email – pzh@deainc.com
Time on Project: 05/18/2020 through 05/17/2025

REPORT FORMAT AND FOCUS

This report is submitted in compliance with the terms of the Federal Transit Administration (FTA) Contract #69319519D000016, Task Order #69319520F300095. Its purpose is to provide information and data to assist FTA as it continually monitors the management capacity and capability of the Maryland Transit Administration (MTA) (the Project Sponsor) to execute the project efficiently and effectively, and hence, whether the Project Sponsor continues to be ready to receive federal funds for further project development. This report covers the project management activities on the National Capital Purple Line Light Rail Transit Project managed by MTA as the Project Sponsor and financed by the FTA Full Funding Grant Agreement (FFGA). The cost and schedule information in this report was extracted from MTA's submitted information except where noted. The report is organized to comply with the requirements of updated Oversight Procedure 25 – Recurring Oversight and Related Reports, dated June 2020.

THIRD-PARTY DISCLAIMER

This report and all subsidiary reports are prepared solely for FTA. This report should not be relied upon by any party, except FTA or the Project Sponsor, in accordance with the purposes as described below.

For projects funded through the FTA FFGA program, FTA and its Project Management Oversight Contractor (PMOC) use a risk-based assessment process to review and validate a Project Sponsor's budget and schedule. This risk-based assessment process is a tool for analyzing project development and management. Moreover, the assessment process is iterative in nature; any results of an FTA or PMOC risk-based assessment represent a "snapshot in time" for a particular project under the conditions known at that same point in time. The status of any assessment may be altered at any time by new information, changes in circumstances, or further developments in the project, including any specific measures a Project Sponsor may take to mitigate the risks to project costs, budget, and schedule, or the strategy a Project Sponsor may develop for project execution. Therefore, the information in the monthly reports will change from month to month, based on relevant factors for the month and/or previous months.

TABLE OF CONTENTS

1. EXECUTIVE SUMMARY 1
1.1. Project Description 1
1.2. Project Status 1
1.3. Major Issues and/or Concerns 11
1.4. Status of Key Indicators Dashboard (Post-grant) 12
1.5. Core Accountability Items 13
2. OBSERVATIONS AND FINDINGS 14
2.1. Summary of Monitoring Activities 14
2.2. Oversight Triggers 15
2.3. Project Management Plan and Sub-plans 15
2.4. Management Capacity and Capability 18
2.5. NEPA Process and Environmental Mitigation 19
2.6. Project Delivery Method and Procurement 21
2.7. Design 23
2.8. Real Estate Acquisition and Relocation 25
2.9. Third-party Agreements and Utilities 26
2.10. Construction 28
2.11. Vehicle Technology and Procurement 30
2.12. Project Cost 31
2.13. Project Schedule 33
2.14 Project Risk 37
2.15 Quality Assurance/Quality Control 38
2.16 Safety and Security 39
2.17 Americans with Disabilities Act 42
2.18 Buy America 42
2.19 Start-up, Commissioning, Testing 43
2.20 Before-and-After Study Reporting 43
2.21 Lessons Learned 43
2.22 Action Items 43
ATTACHMENT A – LIST OF ACRONYMS 44
ATTACHMENT B – SAFETY AND SECURITY CHECKLIST 47

ATTACHMENT C – TOP PROJECT RISKS....48
ATTACHMENT D – AWARDED CONTRACTS....50
ATTACHMENT E – ROLLING STOCK VEHICLE STATUS REPORT....51
ATTACHMENT F – PROJECT MILESTONES/KEY EVENTS....53
ATTACHMENT G – ROADMAP TO REVENUE OPERATIONS....57
ATTACHMENT H – PROJECT MAP....58

LIST OF TABLES

Table 1 – MTA Master Project Schedule Dates....5
Table 2 – Current Major Issues and Concerns....11
Table 3 – Key Indicators Dashboard....12
Table 4 – Core Accountability Items....14
Table 5 – Project Cost Versus Budget....31
Table 6 – Baseline Cost Estimate by Source Funding....33
Table 7 – Key Milestone Dates....36

1. EXECUTIVE SUMMARY

1.1. 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, Maryland, to New Carrollton in Prince George's County, Maryland. The Purple Line will operate largely at street level in a combination of dedicated and semi-exclusive right-of-way (ROW) and 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) service at Bethesda, Silver Spring, College Park, and New Carrollton, Maryland. The project will also connect to all three Maryland Area Regional Commuter rail lines, Amtrak, and local bus routes. The project includes 21 stations, 2 operations control/vehicle storage and maintenance facilities, and 25 light rail vehicles (LRVs). Maryland Transit Administration (MTA) is executing the project using a Public-Private Partnership (P3) method of project delivery. As documented in the Federal Transit Administration (FTA) Full Funding Grant Agreement (FFGA), the original estimated project cost is $2,407,030,289, and the scheduled Revenue Service Availability (RSA) date is December 31, 2022. On January 26, 2022, the Maryland Board of Public Works (BPW) approved significant revisions to the project cost and the RSA date. On April 11, 2022, private activity bonds went to market, and there was sufficient demand to sell all of the bonds. The Transportation Infrastructure Finance and Innovation Act (TIFIA) loan closed on April 14, 2022, allowing financial close and commercial close on that same day. Financing approvals and subsequent financial close allowed Purple Line Transit Partners (PLTP), the P3 concessionaire, to issue Notice to Proceed (NTP) to the replacement Design-Build (D-B) contractor. Maryland Transit Solutions (MTS) is now the D-B contractor for the project. MTA has prepared a Final Recovery Plan (FRP), which FTA accepted on April 17, 2023. The revised project cost is $5,116,020,380, and the revised Revenue Service Date (RSD) is February 24, 2028. MTA has submitted multiple management plan updates for FTA and Project Management Oversight Contractor (PMOC) review. Several of these management plans have been reviewed and accepted, while several updates remain in progress.

1.2. Project Status

The FFGA was executed on August 22, 2017. The Purple Line project is currently in the construction phase. Due to a contractual dispute, PLTP demobilized the assets/staff and subcontractors of the original D-B contractor, Purple Line Transit Constructors (PLTC), from the project in September 2020.

On November 24, 2020, MTA and PLTP reached a settlement agreement to release PLTC from the P3 consortium and continue the project with the remaining parties. The BPW approved the agreement on December 17, 2020. PLTP agreed to procure a replacement D-B contractor to complete the project and to obtain project financing.

Despite changes within the P3 consortium, MTA intends to complete the full scope of the project as envisioned in the original contract documents, with some minor exceptions such as the addition

of three more LRVs. After a procurement process for a replacement D-B contractor, PLTP selected MTS (a joint venture of Dragados USA and OHL USA) on November 5, 2021. The contract with MTS was executed on April 14, 2022.

MTA submitted a draft Interim Recovery Plan (IRP), dated December 15, 2020, to FTA. The IRP provided additional details related to the settlement agreement and MTA management activities. MTA subsequently prepared and submitted the FRP to FTA. FTA and the PMOC have reviewed the Project Management Plan (PMP) and other MTA management plans, along with the FRP. FTA accepted the FRP on April 17, 2023.

MTA made deliberate choices about how to proceed with the major project elements once PLTC was released from the project. MTA's planning criteria included schedule, budget, and the reduction of risk for the replacement D-B contractor. To address budget constraints, some project activities that were identified for completion in the IRP were deferred. MTA and its Project Management Consultant (PMC) added staff to support subcontractor invoicing, payment processes, and other administrative tasks.

MTA is currently managing a significant number of construction activities that were scheduled for completion in mid-2023, including some utility relocations, particularly work by Verizon and Comcast. Despite the careful planning during MTA's IRP period, called Operation Step Forward (OSF), several activities fell behind schedule. Delays related to third-party utility relocations and other unforeseen issues continue to cause MTA to miss milestone dates included in MTA's revised agreements with PLTP that were executed in April 2022. Evaluation and recovery of the impacts on schedule and budget from these missed milestones by MTA continue, and MTA has resumed the Tiger Team process for developing schedule mitigation. ***To date, MTA has executed two change orders caused by delays in OSF activities, and until all OSF activities are complete, there is potential for additional cost and schedule claims from MTS related to OSF.***

Construction work also continues under the management of both MTA and MTS, including activities and elements such as erosion and sediment control maintenance, bridge structures, retaining walls, the Glenridge Operation and Maintenance Facility (OMF), and utility relocations. The Polk Street Maintenance Facility (for Prince George's County Parks), the Paint Branch stream restoration, and the Ken-Gar wetlands mitigation projects are complete with the exception of warranty periods.

Completion of the Glenridge OMF has been on or near the critical path and continues to be a focus. MTA completed the majority of the OMF building and utilities, but construction of track that accommodates LRV storage and testing was deferred for completion by MTS. ***Currently, a dispute over the completeness of the OMF is delaying turnover of the facility from MTA to MTS.*** MTS was scheduled to assume control of the facility in early 2023, but as ***of July 2023, the precise date of the turnover of the facility from MTA to MTS is still being determined.*** MTS is currently installing rail and other features both inside and outside of the building.

Delayed completion of the OMF construction upon PLTC's departure required finding an alternative location to store completed LRVs. MTA reached an agreement with Construcciones y Auxiliar de Ferrocarriles (CAF) to store the LRVs at CAF's Elmira, New York facility until track

is ready for acceptance of the LRVs. MTS assumed the storage agreement with CAF upon finalization of the replacement D-B contract.

MTA has revised and submitted the PMP, Risk and Contingency Management Plan (RCMP), Quality Assurance Plan (QAP), project schedule, Safety and Security Management Plan (SSMP), and Safety and Security Certification Plan (SSCP). FTA and the PMOC have reviewed these revised plan documents in conjunction with their review of the FRP. ***As of July 2023, FTA and the PMOC continue to review the SSMP, SSCP, and QAP.***

MTA continues to provide FTA and the PMOC with updates on the progress of MTA and MTS construction activities and twice monthly updates that track project milestones.

- Scope: There have been no significant reductions or changes to project scope. Three LRVs were added to the project scope (non-FFGA) to support improved operations once service commences.
- Schedule:
    - PLTC never developed an approved recovery schedule to address the delayed start of construction caused by the environmental lawsuit (please see the **NEPA Process and Environmental Mitigation** section, below, for a discussion of the environmental lawsuit). In fall 2019, the P3 concessionaire submitted a revised, fully cost-loaded

- schedule reflecting a phased project opening (with the first phase opening at the end of 2022 and the second phase opening in mid-2023). This schedule was never incorporated into the working master project schedule.
- In accordance with the IRP, MTA developed a schedule for the period during which the D-B contractor was being replaced. PLTP and MTA identified several milestones and the requirement to establish a full project schedule before the end of the D-B contractor replacement period.
- The IRP project milestones, with dates as provided by MTA, include:
  - January 6, 2021 – PLTP issued a Request for Qualifications (RFQ) for replacement D-B contractors.
  - March 8, 2021 – PLTP issued a Request for Proposals (RFP) to the short list of replacement D-B contractors based on the RFQ.
  - October 15, 2021 – PLTP received RFP responses.
  - November 5, 2021 – PLTP and Maryland Department of Transportation (MDOT)/MTA selected the replacement D-B contractor firm.
  - January 26, 2022 – BPW approved the replacement D-B contractor (MTS), contract amendments, schedule, cost, and financing.
  - April 14, 2022 – The TIFIA loan closed, allowing financial and commercial close on that same day. MDOT/MTA issued NTP to PLTP, allowing for execution of the MTS contract.
  - September 12, 2022 – MTA approved the Initial Baseline Schedule (IBS).
  - October 28, 2022 – MTA submitted the draft FRP to FTA and the PMOC for review.
- A milestone not specifically mentioned in the IRP is the requirement to extend the current RSD. The PMOC therefore added the following milestone to this list:
  - December 31, 2022 – The RSD in the original FFGA is December 31, 2022. MTA requested an extension to the current RSD identified in the original FFGA. FTA accepted the FRP that includes a revised RSD of February 24, 2028.

  See also the **Significant Project Activities and/or Key Milestones** subsection of this Executive Summary, below.

  Table 1 presents MTA's key milestone dates for the project. This table has been updated to show the dates included in the FRP. The schedule in the FRP is considered the baseline schedule for the project. Through the Quantitative Risk Analysis and processes described in MTA's RCMP, a schedule contingency of 16 months was deemed appropriate. However, delays to OSF activities continue to have the potential to further consume the contingency. The utilization of a large portion of the schedule contingency at the early stages of MTS's contract is a concern.

To clarify schedule terminology used by MTA: The RSA date is a contractual date critical to the agreement between MTA and PLTP. The RSD is the contractual date tied to FTA FFGA funding and other project approvals.

MTA and MTS coordinated efforts to mitigate delays related to incomplete OSF activities that MTS identified in late 2022. The mitigation reduced the delays by modifying construction sequencing in critical areas where third-party utility relocations are incomplete. MTA and MTS are currently reviewing additional potential delays and opportunities for schedule recovery.

Table 1 – MTA Master Project Schedule Dates

Activity	***Current Approved Master Project Schedule Milestone Date***[1]
Original FFGA	August 22, 2017
Financial Close / NTP / Amendment Agreement Effective Date for Revised PLTP Agreement	April 14, 2022
Commencement of Integration Testing	September 2, 2025
Commencement of Trial Running	May 27, 2026
Construction Complete All Segments	November 12, 2026
RSA	***May 24, 2027***
FFGA RSD (includes contingency)	February 24, 2028

[1] Dates based on the Maryland Purple Line Project Recovery Plan dated April 3, 2023.

- Cost:
  - The project's documented expenditures are ***$2,937,626,166 through June 30, 2023***. The current Estimate at Completion (EAC) for the project (construction, management, and LRVs) is $5,116,020,380. This budget has been accepted by FTA, and MTA has adopted it as the project cost.
  - The accepted project cost includes $307,293,174 of unallocated contingency, ***of which nearly 50 percent has been committed through change orders (although not yet expended)***.
  - Refer to **Table 4 – Core Accountability Items**, in Section 1.5 below, for additional project cost information.
  - MTA prepared a summary of actual versus planned expenditures for high-level OSF activities in Standard Cost Category (SCC) format and is updating this summary each month. Through December 31, 2022, MTA forecasted OSF expenditures of $556.15 million, which exceeds the original OSF budget by approximately $136 million. A significant portion of the overrun previously had been incorporated into the project budget, but additional contingency may be needed to address the increase of $35 million to $45 million that has occurred since the final recovery budget was developed. MTA states that these overruns are due to labor and material cost inflation as well as the extended duration of the OSF activities. The PMOC

recommends that MTA closely monitor these cost overruns. ***As of July 2023, the PMOC has requested an update on the OSF expenditures. MTA indicates that it will prepare a revised EAC and provide it to FTA and the PMOC.***

- The budget includes funds to address nonconforming construction by PLTC. MTA incorporated known defects into the contract with MTS. However, MTA must pay for any defects unknown at the time of execution of the MTS contract. In February 2023, MTA estimated the total cost of these unknown defects to be approximately $10 million. As with the OSF overruns, the PMOC recommends that MTA closely monitor utilization of contingency to cover these costs. ***PLTC nonconforming construction/defects have been discovered. Also, as of July 2023, there is a dispute between MTA and MTS over the availability of MTA-supplied materials. Both items are included in the Risk Register, and the parties are negotiating a resolution of the disputes.***

- Significant Project Activities and/or Key Milestones:

  The COVID-19 pandemic impacted the project in different ways and at different levels. These impacts were primarily related to availability of resources and labor. MTA, PMC, and other project staff followed recommended COVID-19 protocols. On January 30, 2023, MTA stated that COVID-19 protocols for the project had been suspended.

  - The third lawsuit filed by the Friends of the Capital Crescent Trail in January 2019 against U.S. Army Corps of Engineers (USACE) was dismissed in April 2020. The plaintiff subsequently filed an appeal on May 11, 2020. The District Court denied the appeal on May 13, 2021. The decision resolved the last active lawsuit related to the project.
  - The original baseline schedule indicated design completion by late fall 2017. The current progress through ***July 25, 2023***, is that 212 of the 218 total planned design packages have been issued as Released for Construction (RFC). The six remaining Civil and Utility packages that remain in design or approval include traffic signal pre-emption, grade crossing safety systems, lighting, signage, stations, and fare collection. Although Systems packages were scheduled to be complete by the end of the first quarter of 2022, those packages remain in progress. ***There is a dispute pending related to the cost of design changes that were made after execution of the agreement with MTS. MTA's estimating team estimates that the disputed amount is approximately $15 million. The Design Review Board will consider the dispute.***
  - WMATA's comments on design plans for the Silver Spring Transit Center (SSTC) mezzanine connector pedestrian bridge (over CSX Corporation [CSX] ROW) will result in what MTA deems are betterments. Resolution of WMATA comments continues ***as of July 2023 at the SSTC and at other locations where WMATA and Purple Line stations coincide.*** MTA reports that the slow resolution of these issues has not impacted critical path activities.

- Storm sewer construction under the CSX railroad is required in several locations. Two jack-and-bore installations of culvert pipes were completed in November 2022. One jack-and-bore installation remains to be completed by MTS ***as of July 2023.***
- ***Proposed construction near the SSTC will require significant coordination with both WMATA and CSX. Track protection (flagging) and planning of a shutdown of the railroads to allow Purple Line activities near the SSTC in 2024 have been identified as schedule risk items.***
- MTA and Washington Suburban Sanitary Commission (WSSC) reached agreement on the relocation of the 66-inch water main that was under the Glenridge OMF. Energizing the cathodic protection is the only remaining item as of ***July 2023***. WSSC is currently using the line and is responsible for the cathodic protection.
- PLTC reached resolution on the final remaining Alternate Technical Concept (ATC) identified during the proposal process, which is related to the use of jet fans at the Bethesda Station in lieu of vent shafts. In accordance with the established process, MTA reviewed PLTC's design package for National Environmental Policy Act (NEPA) compliance. Final documentation for the ATC is still ***pending as of July 2023. MTA will schedule a review of the documentation with FTA as soon as it is complete.*** MTA and MTS optimistically predict that the ATC will have no Section 4(f) impacts or other impacts to the project's Record of Decision (ROD).
- MTA has completed its non-P3 construction contract activities, as follows:
  - Prince George's County Parks (Parks) Polk Street Maintenance Facility D-B – A substantial completion letter was issued to the contractor on March 30, 2021. Parks has taken possession of the facility, and it is currently in the warranty period.
  - Offsite Wetlands Mitigation (Ken-Gar) – The Design-Bid-Build construction NTP was issued on September 5, 2019. The one-year warranty review occurred on January 9, 2022, and the project is now in quarterly monitoring and annual reporting by MTA that will continue through 2028.
  - Offsite Stream Mitigation (Paint Branch) – The Design-Bid-Build construction NTP was issued on September 5, 2019, and the contractor mobilized in late November 2019. Quarterly monitoring and annual reporting by MTA will continue through 2028.
- Building construction at the Glenridge OMF is essentially complete; however, construction of items outside of the building continues, as does final commissioning of systems inside the building. MTS was scheduled to take possession of the Glenridge OMF on December 31, 2022, but that did not occur because MTA had several remaining items to complete. However, MTS is working in the OMF, installing track and conduit outside the building, and completing other interior features. The turnover letter to transfer possession of the facility from MTA to MTS

is ***on hold as of July 2023, pending resolution of disputes, as mentioned previously in this report.***

- Preparation of Traction Power Substations (TPSSs) Q8, QYG, and Q7 continues. As of ***July 2023***, both TPSS Q7 and TPSS QYG have been placed on their foundations, and interior components are being installed and tested. The foundation for TPSS QY8 has been backfilled in preparation for substation installation.
- The following is the status of LRV manufacturing as of ***July 25, 2023:***
  - Assembly of 130 carshell segments in the initial procurement has been completed in Spain, and all have been delivered to CAF's facility in Elmira, New York.
  - All 25 of the vehicles in the FFGA project scope description and one additional vehicle originally ordered are designated as "Ready for Shipment" and are in storage. These vehicles are under a schedule of inspection and maintenance until delivery can occur.
  - MTA has added three vehicles by change order to CAF's contract. The additional LRVs will support better operations at the RSA date. It is important to note that these three additional LRVs are not a part of the FFGA between MTA and FTA. One of the three additional vehicles is in storage in Elmira along with the 25 FFGA LRVs. ***As of July 2023, six of the ten railcars that make up the two remaining vehicles have been transported to Elmira for final assembly. The remaining four railcars are at the Port of Baltimore, Maryland.***
  - The previously identified quality issue related to the M33 bolt on the LRVs is nearly resolved. MTA determined that the issue does not impact safety, and the solution is likely the use of a higher strength bolt. The final report on this was expected in May 2023, although the PMOC has not yet received it. ***MTA has stated that it will provide the report to FTA provided that CAF's confidentiality requirements are met.***
  - Delivery of vehicles was expected to begin in spring of 2021; however, the location for their delivery was uncertain because the Glenridge OMF is not ready to accept railcars. MTA and CAF negotiated an agreement for CAF to store the completed railcars in Elmira to await delivery. The terms of the agreement became a part of MTS's agreement. Deliveries of LRVs to the Glenridge OMF have been delayed to early 2024.
  - MTA has reviewed the systems testing and commissioning management plan and has provided its comments to PLTP.
  - The project's Buy America compliance audit for the LRVs was conducted on November 14, 2022. In January, CAF provided additional documentation requested to assist with evaluation of Buy America compliance. ***On July 11, 2023, MTA committed to providing the compliance audit report to FTA.***

Preliminary information from the audit indicates that the percentage of U.S. domestic content of the LRVs meets FTA requirements.

- MTA is responsible for providing offsite stormwater mitigation in Montgomery County. To date, MTA has accumulated a credit for more than 10 acres of designed, Maryland Department of the Environment (MDE)-approved, offsite stormwater management (SWM) capacity in its "bank." MTA has determined that there is a need for additional mitigation in Prince George's County, and a project to construct additional mitigation is included in the scope of work for MTS.
- ROW acquisition activities continue for the required 464 private parcels and 137 public parcels (a total of 601 parcels). All of the private parcels related to the original P3 contract Exhibit 9 FFGA scope are in MTA's possession. ***As of July 12, 2023***, ***416*** of the 464 private parcels have completed settlement, and an additional *7* parcels have settlements pending.
- MTA has identified 188 small property acquisitions that are required for utility relocations, of which 134 are private and 54 are public. As of April 25, 2023, all 188 of the additional properties were in MTA's possession through Right of Entry (ROE), through options, and/or through agreements. This achievement marks a significant project milestone and allows the project to retire real estate risks that have been tracked for several years. ***As of July 12, 2023***, MTA estimated that approximately ***$36.2 million*** of exposure remains in the acquisition process. This amount is included in the risk assessment.
- To date, all 177 required property relocations have been completed. Costs for the completed relocations continue to be processed in accordance with the applicable procedures. ***As of July 12, 2023, there are two additional commercial properties that may require relocation.***
- MTA estimates that approximately $13 million of risk exposure remains due to necessary extensions of Temporary Construction Easements (TCEs). This amount has been included in the risk assessment.
- Preparation for safety certification is an ongoing process for MTA, including the development of the appropriate checklists for both design and construction. Design Criteria Conformance Checklists (DCCCs) are more than 98 percent validated. Construction Specification Conformance Checklists (CSCCs) are ***25 percent*** validated.
- MTA has adjusted staffing of management personnel to address the varying activities that MTA is managing and to integrate new team members as needed. On May 25, 2023, MTA communicated the departure of Executive Director Matthew Pollack, Deputy Project Director and Contracting Officer Anita Rodgers, and Director of Communications David Abrams, from the Purple Line project team. Project Director Ray Biggs, Jim Mitchell of the PMC, and MDOT Chief Financial Officer Jaclyn Hartman ***have been leading*** the project while those vacated positions are being filled.

Ken Forsythe's role will change from his current role as Deputy Director to the interim Director of Communications role. ***A new Deputy Project Director, Alexa Heidrich, started with the Purple Line project team on July 26, 2023, and in July MTA interviewed candidates for the replacement Director of Communications. A search for a new MTA Transit Development and Delivery (TDD) Executive Director is in progress.*** The PMOC expressed concern related to MTA's ability to deliver the project considering these significant changes and will continue to monitor MTA's management capacity and capabilities.

- MTA carefully considered a request from Montgomery County to single-track the Purple Line through the Bethesda tunnel. MDOT/MTA determined that it would not be able to accommodate the request.
- MTA and PLTP coordinated to obtain a modified version of the existing TIFIA loan for the project. On April 14, 2022, the TIFIA loan closed, and all bonds were marketed. MTA is required to update the Transportation Investment Program and State Transportation Investment Program plans to reflect changes in the project.
- MTA's Equal Employment Opportunity Officer assigned to the project is Marcques Washington. He is supporting MTS in its hiring program and monitoring project adherence to hiring of specific companies and personnel. As MTS ramps up construction, it is making significant progress toward achieving the project's hiring, wage, and Disadvantaged Business Enterprise (DBE) goals. ***In July 2023, the PMOC continues to recommend*** that MTA report the projected values for these goals at the end of the project in addition to the current values to allow for a better evaluation of progress toward meeting the goals.
- MTA hired a consultant team that is analyzing alternatives for providing security and fare enforcement services for the Purple Line. MTA does not currently have existing facilities or staff that can adequately provide these services because the distance from their location to the Purple Line light rail facilities is too far. In late April 2023, MTA provided FTA with the alternatives study for review. The study indicates that the preferred alternative is the development of a Southern District of the MTA Police Department and recommends several next steps toward implementation of the new district, including hiring a commander, developing operating procedures, working on Memorandums of Understanding (MOUs) with other local jurisdictions, and developing a facility to house the district. ***The PMOC recommends that MTA develop a written implementation plan that includes schedule milestones and a budget.***
- ***In July 2023,*** MTA continues to conduct public outreach to interested groups by providing general and specific project updates***. MTA has begun planning for Community Advisory Team meetings that are scheduled for October 2023.***

1.3. Major Issues and/or Concerns

Table 2 discusses any major issues or concerns impacting the project's scope, schedule, cost, risks, quality, safety, etc.

Table 2 – Current Major Issues and Concerns

Issue/Concern	Continuation of the project after PLTC's departure has been a significant challenge for the project. MTA's IRP, the permanent replacement of the D-B contractor, and the management of interim design/construction activities have been significant MTA priorities. The replacement D-B contractor, MTS, has now been under contract to PLTP for more than one year.
Date Identified	September 2020.
Status	The IRP was approved in January 2021, and an update was approved in July 2021. Implementation is nearly complete. MTA has now completed the FRP, which FTA reviewed and accepted in April 2023.
Project Sponsor Action	Management of a transition plan and support of PLTP in the replacement of the D-B contractor was the focus of the Project Sponsor. Another focus was the management of MTA's contractors to continue key activities that maintained the integrity of the schedule under OSF. MTA now has an accepted FRP.
PMOC Recommendation	The PMOC recommends that MTA ensure that sufficient staff is dedicated to completing OSF project activities and assessing the remaining potential impacts to the MTS schedule. In addition, now that MTS is under contract, MTA and the PMC should emphasize their oversight of PLTP and MTS.
Issue/Concern	According to the PMP, the master project schedule should be updated monthly.
Date Identified	2022.
Status	Ongoing.
Project Sponsor Action	FTA accepted the FRP schedule in April 2023 as the new project baseline schedule. ***As of July 2023, two significant change orders, both of which are based on delays to OSF activities, have caused a substantial utilization of the schedule contingency outlined in the FRP.***
PMOC Recommendation	The PMOC recommends that MTA track all schedule elements according to the FRP and report status to FTA and the PMOC each month. MTA should employ additional methods of evaluating schedule progression and performance, including earned-value metrics, to identify issues as soon as possible. The PMOC recommends that MTA develop a procedure to monitor the OSF schedule more closely, because those delayed OSF activities appear to be causing significant utilization of the schedule contingency.
Issue/Concern	Changes in the project have significantly impacted the project cost as reflected in the original FFGA. The April 2023 FRP includes a revised project cost estimate and a reasonable cost contingency to address remaining project risks.
Date Identified	September 2020.
Status	Ongoing.
Project Sponsor Action	MTA should continue to monitor project progress against the total project cost estimate. ***As of July 2023, two significant change orders, both of which are based on delays to OSF activities, have caused a substantial utilization of the cost contingency outlined in the FRP. Other disputes between MTA and MTS also could impact contingencies.***
PMOC Recommendation	The PMOC recommends that MTA continuously monitor project cost and utilization of project contingencies. The budget contingency must reflect potential additional costs required to address potential schedule delays and support a realistic EAC.
Issue/Concern	MTA does not have a police force located in proximity to the Purple Line.
Date Identified	September 2022.
Status	As of May 2023, MTA has determined a preferred alternative for providing security and fare enforcement, and has identified several next steps for implementation.

Project Sponsor Action	MTA's preferred security alternative includes the creation of a new Southern District of the MTA Police Department and will require associated staff, operating procedures, and a facility.
PMOC Recommendation	Although the currently forecasted RSA date is in 2027, the PMOC recommends that MTA promptly move toward implementation of the preferred alternative. MTA should identify the parties responsible for implementing the preferred alternative and determine a detailed schedule and budget ***in a written plan.*** The PMOC also recommends that the State Safety Oversight Agency be included in the review and comment process for security and fare enforcement.
Issue/Concern	Lost Time Injury and Total Case Incident Rates have increased significantly in recent months. The current rates are significantly higher than the stated project goals.
Date Identified	April 2023.
Project Sponsor Action	MTA has increased coordination with MTS through additional biweekly coordination meetings. ***MTA has acknowledged the need for safety process improvements.***
PMOC Recommendation	The PMOC recommends that MTA and MTS review the safety procedures and the implementation of those procedures to identify opportunities for improvement. ***The PMOC also recommends that MTA and MTS complete the safety process review as soon as practical and that MTA prepare a written summary. The summary should include the action items and the responsible parties for each.***

1.4. Status of Key Indicators Dashboard (Post-grant)

Table 3 shows the project Key Indicators Dashboard after the FFGA was awarded.

Table 3 – Key Indicators Dashboard

Project Sponsor:				Maryland Transit Administration	
Project Name:				MTA National Capital Purple Line Light Rail Transit Project	
Date:				***July 31, 2023***	
Project Detail					
Oversight Frequency:				**Monthly**	
Element	**Status**			**Prior Status**	**Issue or Concern**
	● **G**	● **Y**	● **R**		
Project Management Plan		●		●	MTA has developed an updated PMP that reflects revised project conditions, and in October 2022, MTA submitted a revised PMP to the PMOC and FTA for review. On February 1, 2023, FTA provided its review comments on the PMP, and on April 28, 2023, MTA submitted the second revision of the PMP to FTA. In May 2023, MTA announced significant changes to the Purple Line leadership staff, which now has vacancies in the Executive Director and Deputy Project Director positions. This concern also applies to the Management Capacity and Capability (MCC) element below. ***As of July 2023, MTA has made progress toward filling the vacant leadership positions.***
Management Capacity and Capability			●	●	Recent staff departures, ***along with significant change orders driven by MTA-managed construction***, have magnified the need for MTA to focus on MCC issues. ***See also Safety, below.***
Cost*		●		●	MTA has developed a revised cost estimate that reflects new project conditions. Based on PMOC and FTA review comments and a revised MTA Quantitative Risk Analysis, MTA has established a budget contingency that appears appropriate at this stage of the project. MTA should track project status according to the FRP and the updated PMP and management plans.

Schedule			●	●	A revised project schedule that incorporates the current project status is in place. ***Despite execution of several change orders with significant contract extensions, there has not been a mutually agreed-to construction schedule since the IBS in September 2022. MTA has rejected MTS's schedule updates each month, citing technical issues. The current master project schedule does not appear to be a useful management tool.***
Quality		●		●	Quality continues to be acceptable, although the reporting to the PMOC requires refinement in order to meet FTA requirements. In October 2022, MTA submitted to FTA and the PMOC an updated QAP for review in conjunction with their review of the FRP and other management plans. FTA and the PMOC provided review comments on the QAP to MTA in March 2023, and MTA provided a response in April 2023. ***MTA has committed to submitting an updated QAP to FTA and the PMOC in August 2023.***
Safety			●	●	In April 2023, the PMOC noted to MTA that both the Lost Time Injury Rate and the Total Case Incident Rate have significantly increased, ***particularly for the MTA managed OSF activities. In addition to incident rates, there is an apparent lack of tracking and reporting of safety issues.*** MTA recognizes the issue and reports that it has scheduled additional safety coordination efforts. In May 2023, the PMOC requested documentation on these additional efforts, ***and in July 2023, the PMOC questioned the effectiveness of the efforts. MTA acknowledges the need for safety process improvement. It is the opinion of the PMOC that there may be a lack of emphasis on safety or MCC issues that are affecting safety.*** ***As of July 2023, FTA and the PMOC continue to review the SSMP, SSCP, and QAP.***
Risk		●		●	MTA updated the RCMP and the Risk Register to reflect the changes related to interim MTA management and construction delivery. In October 2022, MTA submitted to FTA and the PMOC Version 15 of the RCMP for review in conjunction with their review of the FRP and other management plans. FTA and the PMOC provided comments on the revised RCMP to support MTA's development of budget and schedule contingency, to which MTA responded with plan revisions in April 2023. In May 2023, FTA accepted the RCMP but also noted additional comments that MTA should address in future updates to the plan.

Legend	
Green	Satisfactory: No Corrective Action necessary.
Yellow	Caution: Risk/Issues exist. Corrective Action may be necessary.
Red	Elevated for immediate Corrective Action: Significant risk to the health of the project.

*Note: With regard to cost, the colors indicate the following status:
Yellow – Forecast cost exceeds the project budget by up to 3%.
Red – Forecast cost exceeds the project budget by more than 5%.

1.5. Core Accountability Items

Table 4 shows the core accountability items for the project, including the current status of the project and the major issues and how they are being addressed.

Table 4 – Core Accountability Items

		Original (Grant)	Current Forecast	PMOC Assessment of Current Forecast
Cost	Capital Cost Estimate	$2,407,030,289	$5,116,020,380	Acceptable
Contingency	Unallocated Contingency	$90,535,748	$307,293,174	Acceptable
	Allocated Contingency	$59,500,464	$0	Acceptable
	Total Contingency	$150,036,212	$307,293,174	Acceptable
Schedule	Revenue Service Date	12/31/2022	02/24/2028	Acceptable

Project Progress		**Amount ($)**	**Percent of Total**
Total Expenditures	Actual cost of all eligible expenditures completed to date	***$2,937,626,166***	***57.4%***
Planned Value to Date[1]	Estimated value of work planned to date	Not Applicable (N/A)	N/A
Actual Value to Date[1]	Actual value of work completed to date	N/A	N/A

Contract Status		**Amount ($)**	**Percent of Total**
Total Contracts Awarded	Value of all contracts (design, support, construction, equipment) awarded; % of total value to be awarded	To Be Determined (TBD)	TBD
Construction Contracts Awarded	Value of construction contracts awarded; % of total construction value to be awarded	TBD	TBD
Physical Construction Completed	Value of physical construction (infrastructure) completed; % of total construction value completed	***$909,575,031***	***48.3%***

Rolling Stock Vehicle Status	**Date Awarded**	**No. Ordered**	**No. Delivered**
28 total car sets[2]	First 26 LRVs: 2016 Additional 2 LRVs: January 2022	28 car sets	0

Next Quarterly Progress Review Meeting Date:	***August 9, 2023***

[1]Earned value information is not available.
[2]The approved FFGA includes a total of 25 LRVs.

2. OBSERVATIONS AND FINDINGS

2.1. Summary of Monitoring Activities

The PMOC received an update from the Purple Line project team during ***the July 24, 2023, monthly meeting with MTA, the PMC, and the PMOC.*** Information from the FTA/MTA/PMOC Biweekly Progress Conference Calls held on ***July 11 and July 25, 2023,*** also contributes to this report. ***On July 12, 2023, the PMOC and MTA held a call to review PMOC/FTA comments on the SSCP.*** In addition, MTA provides supplementary information before the PMOC monthly meeting. Monitoring activities include review of MTA-provided scope, schedule, risk, financial, construction, safety and security, and real estate information.

After the U.S. Court of Appeals reversed the vacation of the ROD in July 2017 (refer to the **NEPA Process and Environmental Mitigation** section, below, for details), the FFGA was executed on August 22, 2017, approximately one year later than planned. In September 2020, the construction

(D-B) contractor, PLTC, left the project, and a new project delivery plan was developed, including replacement of the D-B contractor. During the period when the replacement D-B contractor was being solicited, MTA managed specific construction and design activities (OSF activities) in order to reduce uncertainty and support the project schedule. On November 5, 2021, MTS was selected as the replacement D-B contractor, and financial and commercial close occurred on April 14, 2022. MTA continues to manage OSF construction and design activities. MTS has mobilized and started work on activities throughout the entire project corridor.

MTA and MTS held initial partnering activities during which they developed relationships, general project priorities for teamwork, and an understanding of key issues for different stakeholders. MTA provided partnering process information to FTA and the PMOC on March 29, 2023.

2.2. Oversight Triggers

The oversight triggers most applicable to the project are the Oversight Procedure (OP) 25 cost and schedule triggers. The project did not have a mutually agreed-upon baseline schedule between March 2017 and September 2022. Significant schedule delays and a significant increase in project cost keep the project eligible for rigorous oversight. Project schedule delays typically impact project cost, another significant indicator of project health. MTA has developed a revised project EAC in conjunction with development of the project's schedule and FRP.

2.3. Project Management Plan and Sub-plans

2.3.1. Project Management Plan

The PMOC reviewed the Purple Line PMP Version 10 in accordance with OP 20 for a PMP at the FFGA execution stage of a project. Subsequently, FTA and the PMOC reviewed PMP Versions 11, 12, and 13. Due to significant project team changes since those versions, another update to the PMP was required. In October 2022, MTA provided an updated PMP (Version 14) to FTA and the PMOC for review, and FTA and the PMOC provided comments on PMP Version 14 to MTA. On April 27, 2023, MTA provided PMP Version 15 to FTA.

2.3.2. Safety and Security Management Plan

In February 2016, the PMOC reviewed the project's SSMP Version 6, dated October 22, 2014, in accordance with OP 22 for a project at the FFGA execution stage. The PMOC review found that the SSMP was compliant with FTA content requirements for execution of the FFGA, but the PMOC requested that MTA resubmit the SSMP after execution of the FFGA and address the comments in the PMOC report with updated information from the P3 concessionaire. Subsequently, FTA and the PMOC reviewed SSMP Versions 7 through 11 over the next four years. MDOT, which is the State Safety Oversight Agency (SSOA) for the project, also reviewed SSMP Versions 8 through 11. On January 13, 2022, FTA provided comments on SSMP Version 12 to MTA. MTA submitted SSMP Version 13 as well as Version 5 of the Purple Line SSCP to FTA and the PMOC for review in October 2022. FTA and the PMOC reviewed the SSCP and SSMP updates and provided their comments to MTA in February 2023. ***MTA submitted a revised***

SSMP to FTA on June 28, 2023, and indicates that it will submit a revised SSCP by August 8, 2023.

2.3.3. Quality Assurance Plan

In October 2022, MTA submitted QAP Version 10 to FTA and the PMOC for review, and on March 8, 2023, FTA provided review comments on QAP Version 10 to MTA. ***MTA then submitted a revised QAP to FTA for review in May 2023, and FTA and the PMOC provided comments to MTA in June 2023. In July 2023, MTA provided a response to each specific comment and committed to submitting a revised QAP in August 2023.***

MTA meets with PLTP, the PMC, and the General Engineering Consultant (GEC) monthly to review quality status. ***In July 2023,*** MTA reported the following quality management activities by MTA, PMC, or GEC staff took place ***in June 2023***:

- ***Field inspections of OSF activities to verify compliance and close outstanding Nonconformance Reports and Deficiency Notices.***
- ***Witnessing of subcontractors' testing procedures.***
- ***Validation of the calibration of measuring and testing equipment.***
- ***Participation in MTA/MTS Quality Meetings.***

MTS also performs significant Quality Assurance/Quality Control (QA/QC) activities and reports having more than 60 full-time quality staff assigned to the project. In June 2023, those QA/QC activities by MTS included:

- ***Offsite inspections of structural steel girders and canopies, Overhead Contact System (OCS) poles and hardware, special trackwork, and other items.***
- ***22 Design Services During Construction reviews and 25 design submittal reviews.***
- ***Approximately 750 materials tests.***
- ***Approximately 1,000 material samples.***

During OSF, MTA provided notes from monthly CAF and SNC-Lavalin LRV manufacturing quality meetings for PMOC review. The information provided a summary of issues and corrective actions, and upcoming quality audits. MTS is now responsible for preparing these notes.

One manufacturing quality issue, the recurring failure of a bolt in multiple vehicles, has not been resolved. MTA determined that the issue does not impact safety, and the solution is likely the use of a higher strength bolt. The final report on this issue was expected in May 2023, although the PMOC has not yet received it. ***MTA has stated that it will provide the report to FTA and the PMOC provided that CAF's confidentiality requirements are met.***

2.3.4. Real Estate Acquisition Management Plan

The PMOC reviewed the project's Real Estate Acquisition Management Plan (RAMP) Versions 10, 11, and 12. The PMOC reviewed the plans with respect to the guidelines in OP 23 for a project in the construction phase. MTA submitted an updated RAMP Version 13 to FTA and the PMOC in October 2022. FTA provided review comments on RAMP Version 13 to MTA on February 27, 2023, and accepted RAMP Version 13 with comments.

2.3.5. Fleet Management Plans

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 on March 4, 2016, issued its final OP 37 BFMP review report, concluding that the BFMP met the requirements of OP 37 for the execution of an FFGA for the Purple Line project.

2.3.6. Risk and Contingency Management Plan

In early 2020, MTA commenced another update to the RCMP to incorporate the results of the latest Quantitative Risk Analysis that, in turn, incorporated the results of the replacement D-B contractor resolicitation and the revised project implementation details. MTA held a risk management workshop on January 26, 2021, that focused on the interim period.

MTA provided a comprehensive Risk Register and risk mitigation activities in conjunction with the draft FRP. In preparation for a risk analysis, MTA held risk assessment interviews with individual risk owners to review existing risk items and identify new risks. In December 2021, MTA prepared an updated Risk Register that includes over 100 risk items, including PLTP and MTS risks.

At a risk workshop held the week of May 2, 2022, the PMOC and FTA participated in an OP 40 risk and contingency review that evaluated cost, schedule, and project contingency. MTA confirmed and finalized the Risk Register, and prepared the Quantitative Risk Analysis and an update of the RCMP. The PMOC developed a draft summary of the risk and contingency review results. FTA provided a risk summary to MTA on June 22, 2022, for MTA's consideration while it was updating the RCMP. MTA provided responses to FTA's comments on the risk summary on July 15, 2022, and provided further clarification on August 25, 2022. MTA submitted RCMP Version 15 to FTA and the PMOC for review in October 2022. In February 2023, FTA and the PMOC provided comments on the revised RCMP, which supported MTA's development of the project's budget and schedule contingency. MTA subsequently submitted the revised RCMP Version 16, dated April 21, 2023, and FTA accepted it on May 22, 2023.

2.3.7. Safety and Security Certification Plan

Version 3 of the Purple Line SSCP is dated November 4, 2014. The PMOC review found that the SSCP Version 3 met the FTA requirements in support of the FFGA application. MTA submitted SSCP Version 4 on February 3, 2020, in conjunction with the updated SSMP submittal (see the **Safety and Security Management Plan** subsection, above). The SSOA completed its review of SSCP Version 4 and discussed its comments with the PMOC. MTA decided that the new emergency management working group would be a subcommittee to the Fire Life Safety and Security Committee, and this decision would be reflected in the next revisions of the SSMP and the SSCP, which were planned for after the replacement D-B contractor was in place. MTA submitted SSMP Version 13 and SSCP Version 5 to FTA and the PMOC in October 2022. In February 2023, FTA and the PMOC completed their reviews and provided comments on these plan documents to MTA. ***MTA provided a response to the SSCP review comments to FTA and***

the PMOC in May 2023. On July 12, 2023, the PMOC and MTA held a call to review and reconcile PMOC/FTA comments on the SSCP.

2.4. Management Capacity and Capability

MTA continues to identify and assign sufficient Management Capacity and Capability (MCC), as needed, to complete the project in compliance with applicable FTA requirements. These efforts have included bringing staff, either MTA or MDOT personnel or consultants, onto the project to manage the current needs, such as planning, P3 procurement and contracting, real estate acquisition, and construction.

In November 2021, MTA's quality lead for the Purple Line project, Rene Schroeder, retired. It was proposed that Roland Carroll, the Purple Line systems safety and construction safety lead, add the quality lead role to his other Purple Line roles. In February 2022, MTA provided a white paper outlining Mr. Carroll's experience, his recent training, and the proposed supporting staff related to the new quality management role. The PMOC has evaluated this change as a part of the PMP review and will continue to monitor management capacity for this function and all positions through ongoing oversight activities. ***Specific to safety, the PMOC is concerned that there may a lack of emphasis on safety or on management capacity or capability. Injury rates, particularly for OSF activities, are higher than the MTA goals. Also, reporting of injury and incident statistics is inconsistent. See Section 2.16, below, for more detail.***

In February 2023, the PMOC requested additional detail on the construction management and oversight organizational chart to allow for the PMOC's review of MTA, PMC, and other staff classifications and headcount. ***In May 2023, MTA provided this information and reviewed it with the PMOC on a subsequent phone call.***

In March 2023, MTA hired John Donovan in the role of Construction Manager. MTA is also forming a commercial project controls team, and Anita Rodgers was to assume the role of Contracting Officer. These changes were in response to: (1) the near completion of OSF and (2) the need to support the management of MTS's increasing amount of work.

On May 25, 2023, MTA communicated the departure of Executive Director Matthew Pollack, Deputy Project Director and Contracting Officer Anita Rodgers, and Director of Communications David Abrams, from the Purple Line project team. Project Director Ray Biggs, Jim Mitchell of the PMC, and MDOT Chief Financial Officer Jaclyn Hartman have been leading the project while those vacated positions are being filled. Ken Forsythe's role will change from his current role as Deputy Director to the interim Director of Communications role. ***A new Deputy Project Director, Alexa Heidrich, started with the Purple Line project team on July 26, 2023, and in July MTA interviewed candidates for the replacement Director of Communications. A search for a new MTA TDD Executive Director also is in progress.***

2.5. NEPA Process and Environmental Mitigation

2.5.1. NEPA Process

FTA issued a ROD on March 19, 2014. The National Park Service issued its ROD on July 16, 2014.

MTA has continued to submit environmental re-evaluations as required based on design advancement and other causes. To date, PLTC (before it left the project) 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. The most recent status ***(as of July 2023)*** of NEPA items is:

- All formally submitted LOD cases have been approved. MTA currently expects one additional LOD case and is preparing a submittal for review by FTA. MTA intends to submit the new LOD to FTA after MTA has obtained all applicable information from MTS. This additional LOD case submittal has been delayed, because MTA is awaiting necessary clarification from MTS.
- The ATC for the Bethesda Station jet fan has been vetted, and final documentation is being prepared for submittal to FTA for concurrence that the ATC meets project requirements. Final documentation for the ATC is still pending as of ***July 2023***. MTA will schedule a review of the documentation with FTA as soon as it is complete. MTA and MTS optimistically predict that the ATC will have no Section 4(f) impacts or other impacts to the project's ROD.

On August 3, 2016, in response to the lawsuit filed by the Friends of the Capital Crescent Trail against FTA, a federal judge filed his Order and accompanying Memorandum Opinion. In those documents, it was ordered that the ROD for the Purple Line project be 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 whether 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 in 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 U.S. Court of Appeals issued its ruling on December 19, 2017, in which the judges ruled in favor of FTA and the project, and ruled that the transit agencies would not have to conduct a new environmental study to examine other potential routes for the Purple Line.

The Friends of the Capital Crescent Trail filed a second lawsuit after the FFGA signing and after the groundbreaking ceremony was held on August 28, 2017. The September 19, 2017, Preliminary Hearing for this suit resulted in no temporary injunctions or restraining orders, and project

construction proceeded as the case progressed 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 FTA.

The Friends of the Capital Crescent Trail filed a third lawsuit in January 2019, this time against USACE. The USACE legal staff and the Office of the Attorney General provided the defense. 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 USACE. In October 2019, USACE filed for a Summary Judgment to Dismiss the case, and the plaintiffs filed their response; a hearing date was set for March 23, 2020. However, in late February 2020, the assigned judge recused himself from the case, and the scheduled hearing was canceled. In mid-April 2020, the District Court ruled in favor of the USACE/MTA motion for a Summary Judgement to Dismiss, and the case was dismissed. The plaintiff subsequently filed an appeal on May 11, 2020, and the case continued in the legal process. Oral arguments related to the appeal occurred on March 11, 2021. The District Court denied the appeal on May 13, 2021. The decision resolved the last remaining lawsuit related to the project.

2.5.2. Environmental Mitigation

The project achieved the required mitigation for reforestation through the purchase of 82.5 acres of offsite credits (combined, in both Montgomery County and Prince George's County). This amount of offsite credits is expected to be more than needed, and the P3 concessionaire will monitor that this remains the case. PLTP's Forest Conservation Plan (FCP), which documented a need of 75.73 acres, 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. In Maryland, need is based on land disturbance rather than only forest removal. MTA's tracking of additional disturbance due to the progress of design and construction indicated that the total need is still within the amount of available offsite credits.

The Joint Permit Application for Wetlands and Stream Mitigation was formally submitted to USACE and 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, because time had passed since the permit was drafted, MDE updated and issued the finalized permit the first week of April 2018. USACE completed its NEPA and conditions review as well as its 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 the longer construction periods resulting from construction moratoriums for forests and streams. The project received approval from MDE during the week of December 3, 2018, and received the USACE approval letter in mid-June 2019.

The project team has been addressing the environmental mitigation for wetlands through the development of the offsite Ken-Gar location, which is implemented through 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 the bids underwent MTA Procurement Department review. BPW approval of the award was received on September 4, 2019. As of June 2021, the Ken-Gar wetlands mitigation project is complete and has completed its one-year warranty period. See the **Construction** section of this report, below, for further discussion of the status of this Ken-Gar Wetlands Mitigation construction contract.

The project team has addressed the environmental mitigation for streams through the development of the offsite Paint Branch location, which is implemented through 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 the award was received on September 4, 2019. The Paint Branch stream restoration is complete, and warranty corrections (partial replanting) occurred in December 2022. See the **Construction** section of this report, below, for further discussion of the status of this contract.

The project has plans to address stormwater mitigation, beyond what can be mitigated on the project site, through retrofitting offsite locations in both Montgomery County and Prince George's County. On November 12, 2021, MTA determined that there is a need for additional stormwater mitigation in Prince George's County. A project to construct additional stormwater mitigation is included in the scope of work for MTS.

The joint MTA and University of Maryland (UMD) technical board resumed meetings in December 2021 to coordinate efforts related to the mitigation of noise, vibration, and electromagnetic interference at the UMD facilities. Following this meeting, the members of the joint technical board voted to approve the outstanding design packages. This action effectively ended the activities of the technical board until the LRT is in trial running.

The Purple Line project team submits quarterly Environmental Mitigation Monitoring Reports for the project. MTA managed the environmental mitigation and monitoring activities as the project transitioned to the replacement D-B contractor, MTS. Because MTS is now performing construction, MTA will monitor the environmental activities performed by MTS. ***On July 13, 2023, MTA provided the Second Quarter 2023 Environmental Commitment and Mitigation Monitoring Program Report.*** The report conveys the status of progress toward meeting commitments in the ROD that was issued in March 2014 and any pending actions required. In the report, MTA notes that "no problems, gaps, nonconformances, or NEPA issues of any sort were found during this quarterly assessment."

2.6. Project Delivery Method and Procurement

The majority of the capital cost of the Purple Line project has been packaged into a Design-Build-Finance-Operate-Maintain 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") in which appropriate risks and benefits are allocated in a cost-effective

manner between the contractual partners. The P3 concessionaire is intended to perform some functions normally undertaken by the transit agency, but MTA remains ultimately accountable for the Purple Line project 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 PLTP had been selected as the P3 concessionaire. Commercial close of the P3 contract occurred on April 7, 2016, and financial close occurred on June 17, 2016.

In late April 2020, PLTC notified PLTP that due to PLTC's forecasted schedule delays on the project (which did not receive agreement from MTA), PLTC intended to exercise the clause that allowed it to terminate its contract with PLTP for the design and construction services under the P3 contract if delays exceed 365 days. MTA sent a formal request to PLTP for a response that would include a definitive path forward. On the response due date of May 14, 2020, PLTP submitted its response, which stated that PLTP intended to continue to negotiate with PLTC to retain PLTC as part of the P3 concessionaire team. On June 23, 2020, PLTP sent a formal Notice of Unconditional Election to Terminate the P3 Agreement to MTA, although PLTP indicated a willingness to negotiate a settlement. On June 24, 2020, MTA sent a Formal Notice of Concessionaire Default. This notice essentially refuted the validity of the PLTP delay claims and stated that if PLTP fails to perform, MTA has a number of options related to the P3 Agreement. Through July 2020, construction activities continued at the levels previously planned and were not affected by the dispute.

In early August 2020, PLTC and subcontractors demobilized equipment, materials, and personnel. In response, the Maryland Attorney General filed a motion for a Temporary Restraining Order (TRO) that prevented PLTP from abandoning the work or demobilizing. Upon issuance of the TRO, the contractor and subcontractors remobilized some equipment and restarted many construction activities. A hearing to uphold or rescind the TRO occurred before the expiration of the TRO on September 14, 2020, and the court rescinded the TRO, allowing PLTP to leave the project. If the TRO had been upheld, PLTP would have been required to continue working until the contractual dispute resolution procedures were followed.

When an agreement was not reached, the bond holder firms had the first right to take over the project. However, MTA planned an alternate path forward based on its exercise of step-in rights. To that end, MTA assumed the contracts of over 100 subcontractors, indicating MTA's intent to continue the project. MTA adjusted staffing for construction management, resident engineers, and inspectors to move forward with the project.

On November 24, 2020, MTA and the P3 concessionaire, PLTP, reached a settlement agreement to release the project's D-B contractor from the P3 consortium and continue the project with the remaining parties. The state's BPW approved the settlement agreement on December 17, 2020. Activities set out in the agreement and the IRP have proceeded with multiple modifications to milestone dates as needed.

The agreement included the following key aspects, as MTA has communicated to the PMOC:

- PLTP agreed to procure a replacement D-B contractor to complete the project and to obtain project financing. The selection of the preferred replacement D-B contractor, MTS, occurred on November 5, 2021. The TIFIA loan for the project closed on April 14, 2022, allowing financial close and commercial close on that same day. MTS is now the D-B contractor for the project.
- The settlement agreement provided a mutual release from all disputed and undisputed amounts (incurred before September 28, 2020) for PLTP, PLTC, and subcontractors. The agreement also released outstanding litigation among the parties.

2.7. Design

2.7.1. MTA Design

MTA's GEC completed the project design to approximately the 30 percent design level in fall of 2013 and provided incremental enhancements through late 2015. This design formed the basis of the RFP for the P3 contract. See the **P3 Design** subsection, below, for a discussion of the advancement of this design by PLTC, the former PLTP partner that was responsible for the design and construction of the capital project, and continued design under MTA.

MTA was responsible for the design and construction contracts under a Design-Bid-Build delivery method (separate from the P3 scope) for the following projects:

- Stream mitigation – MTA completed the 100 percent design packages in June 2017 and received approval from MDE in May 2018. Construction of the stream mitigation is now complete. See the **Environmental Mitigation** subsection of this report, above, for additional details.
- Wetlands mitigation – MTA completed the 100 percent design packages in June 2017. Several design adjustments were subsequently made based on MDE and Montgomery County comments. The construction contract was advertised on May 3, 2019. Construction of the original wetlands mitigation is now complete. See the **Environmental Mitigation** subsection of this report, above, for additional details.
- Offsite SWM sites – MTA completed design and obtained MDE approval of more than the P3 contract-required 5 acres of offsite mitigation in Montgomery County on May 29, 2018. In late October 2019, MTA received MDE approvals for the next 5 acres to be added to the mitigation credit "bank," thus satisfying the contract requirements for 2019. MTA has determined that there is a need for additional mitigation in Prince George's County, and a project to construct additional mitigation is included in the scope of work for MTS.
- See the **Environmental Mitigation** subsection of this report, above, for the current requirements.

MTA also completed the design to support a D-B contract for the replacement of the existing Parks Maintenance Facility with a facility on Polk Street. Construction of the facility is now complete.

See the **Real Estate Acquisition and Relocation** and the **Construction** (MTA Scope) sections of this report, below, for further details.

2.7.2. P3 Design

PLTC's design progress was forecasted to achieve substantial design completion of Civil packages in August 2020, substantial design completion of Systems packages (except for Fare Collection) in September 2020, and completion of the Fare Collection design package in 2021. The original baseline schedule anticipated design completion by late fall 2017. As of August 2020, the number of planned Civil, Systems, and Utility design packages was 218.

Upon the departure of PLTC, MTA contracted with the project's engineer of record, Atkins, to continue to advance the design of limited aspects of the project.

The current progress through ***July 25, 2023,*** is that 212 of the 218 total planned design packages have been issued as RFC. Civil and Utility packages that remain in design or approval include traffic signal pre-emption, grade crossing safety systems, lighting, signage, and stations. Systems packages were scheduled to be complete by the end of the first quarter of 2022; ***however, as noted above, six packages remain to be completed. Approval of the final traffic signal package from State Highway Administration is expected in August 2023. A new item related to design has been added to the Risk Register regarding an intelligent interface device that could impact implementation and operational costs. MTA and MTS have agreed to put the item before the Dispute Resolution Board for feedback.***

PLTC reached resolution on the final remaining ATC identified during the proposal process. The ATC is related to the use of jet fans at the Bethesda Station in lieu of vent shafts. In accordance with the established process, MTA is reviewing the design package for NEPA compliance. Final documentation for the ATC is still pending as of ***July 2023***. MTA and MTS are coordinating to address the noise and aesthetic impacts of the fans, and they optimistically report that the ATC will have no Section 4(f) impacts or associated impacts to the ROD.

MTA and CSX worked to resolve issues related to the applicable design criteria and which project areas were affected until, in July 2019, a mutually agreeable path forward was defined for all areas. 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 SSTC 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 May 2020, CSX indicated that the final design is acceptable. Revised documents, providing some minor clarifications related to ROW, were submitted to CSX on September 8, 2020, and ultimately CSX approved the design. The revised documents were submitted to WMATA several times in early 2021.
- WMATA's comments on design plans for the SSTC mezzanine connector pedestrian bridge (over CSX ROW) will result in what MTA deems are betterments. Resolution of WMATA comments continues as of ***July 2023 for the SSTC and for other locations***

where WMATA and Purple Line stations coincide. MTA reports that the slow resolution of these comments has not impacted critical path activities.

- An encroachment into the CSX vertical clearance was discovered upon installation of girders at the SSTC. Although the designer believed the loading of the bridge deck might alleviate the issue, shimming was discussed as a potential solution. Shimming was not MTA's preferred solution; therefore, an exception was requested from CSX to allow the ¾-inch encroachment to remain. CSX denied the exception. MTA and the designer prepared for a contractor to jack and shim the structure to create the required clearance. Construction of this work was completed in August 2021.
- ***Proposed construction near the SSTC will require significant coordination with both WMATA and CSX. Track protection (flagging) and planning of a shutdown of the railroads to allow Purple Line activities near the SSTC in 2024 have been identified as schedule risk items.***
- CSX provided review comments disallowing revised drainage networks, related to the Capital Crescent Trail work, which would connect to CSX's existing drainage culverts. The work on the Capital Crescent Trail is not part of the FFGA and is separately funded by Montgomery County. As a result of work with Montgomery County, the connections were relocated from CSX property to Montgomery County property and therefore are no longer a CSX issue. To fully accomplish this approach, two connections required resolution. Montgomery County acquired two parcels of land from CSX (not FFGA-funded) and then accepted responsibility for one connection currently under the responsibility of CSX. Storm sewer construction under the CSX railroad was required in several locations. Two jack-and-bore installations of culvert pipes were completed in November 2022. Completion of another 72-inch-diameter culvert is pending construction by MTS.

2.8. Real Estate Acquisition and Relocation

As of ***July 12, 2023,*** the total number of planned property acquisitions is 601, including 464 privately owned properties and 137 public acquisitions. For the private properties, to date, a total of 476 offers were made, including for parcels that were subsequently eliminated, and 234 offers were accepted. All of the original Exhibit 9 FFGA-scope private parcels in the P3 contract are in MTA's possession, some of which are properties that continue in condemnation under the State Highway Administration process. To date, ***414*** of the original 464 private properties have completed settlement, ***5*** additional properties (not part of the original 464 private properties) are pending settlement, and ***66*** condemnations remain to be settled.

All required public properties have been available for construction when needed. Several public property rights transfers are currently being coordinated to accommodate sidewalk changes, utility easements, and ROW exchanges.

As the project has progressed and new utility relocation needs have been identified, additional small parcel acquisitions have been added to the total as utility down-guys. In December 2017,

PLTC initially submitted a list of approximately 280 such parcels related to utility relocations and subsequently added to that list. MTA resolved that it would acquire these properties, rather than execute amendments to the utility agreement that would 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 has been expediting the process somewhat. ***As of July 12, 2023,*** the list of additional acquisitions totals 188 parcels, and several more acquisitions potentially may be needed for stormwater facilities. Of these parcels, 54 are public property and will be acquired by agreement, and 134 are private acquisitions. MTA is tracking the additional parcels (approximately 98 percent are for utility relocations) separately in its ROW tracking system to best manage changes to parcels already acquired or in the process of acquisition. Sixty-six of the 188 properties are filed for condemnation, excluding those that were subsequently optioned or settled, and 92 are settled. MTA estimates that approximately ***$36.2*** million of exposure remains in the acquisition process. This amount has been included in the Quantitative Risk Analysis.

The project required a total of 177 relocations, of which 57 were residential and 120 were businesses. To date, all 177 of those identified relocations have been completed in accordance with the applicable procedures, and no active claims remain to be settled. Also, MTA is monitoring terms of agreement of the property acquisitions discussed above that have not yet completed settlement, because some of them could potentially result in the need for additional relocations. As of October 2022, there were two new relocations related to commercial properties that potentially will be needed.

On April 25, 2023, MTA reported that BPW has approved the last of seven critical project acquisitions. These acquisitions were required to allow MTS access to construction areas that include activities on or near the critical path.

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 MTA shares this information with the PMOC. Based on actual settlement amounts and projected amounts for those not yet closed, settlement/condemnation values are 55.2 percent higher than the original 2014 SCC budget for ROW. MTA included these ROW cost projections in its development of a FRP project cost estimate (see the **Project Cost** section of this report, below).

Due to the extended project duration, some agreements will expire before the expected RSA date. MTA and MTS have started the process of identifying the end dates now needed for the agreements and will begin the process of obtaining extensions. MTA has evaluated the risks, estimated the cost of the extensions, and included those costs in a budget contingency. MTA estimates that approximately $13 million of risk exposure remains due to necessary TCE extensions.

2.9. Third-party Agreements and Utilities

All major third-party agreements (specifically, those agreements with Washington Gas, Verizon, Potomac Electric Power Company [PEPCO], CSX, UMD, Montgomery County Parks, Prince George's County Parks, WMATA, 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 lines that are currently overhead be placed underground when they cross the light rail alignment. To minimize the total cost impact of this change, MTA and Verizon reduced the number of locations where Verizon lines cross the alignment to 34. MTA is of the opinion that this reduction 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 for placing 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 upon in early March 2019. MTA had planned to negotiate the cost responsibility with PLTC and Verizon after all major Verizon relocations were completed. However, since the departure of PLTC, MTA carries this cost as a betterment outside of the FFGA scope.

In early June 2018, MTA and PLTP completed the negotiation of all remaining third-party agreements with the smaller utility and telecommunications (telecom) 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 to existing executed agreements continues to be evaluated. The significant items include:

- To date, the design differences with CSX, as discussed earlier in this report, have been adequately resolved through design review and concurrences, and have not resulted in the need to amend the CSX agreement.
- WSSC proposed that the project relocate a 66-inch underground water main that runs through the Glenridge OMF site. In March 2020, MTA and WSSC agreed on a water main alignment primarily in the median of Veterans Parkway, as well as a strategy for completing the relocation. The original Purple Line project GEC performed the design; WSSC provided the material; and MTA separately contracted for the construction, thus avoiding impact to the P3 concessionaire's scope of work. On May 21, 2021, WSSC authorized work, and mobilization began August 9, 2021. Energizing of the cathodic protection is the only remaining item of this relocation as of ***July 2023.*** WSSC is currently using the line and is responsible for the cathodic protection.
- In late July 2022, MTA and MDOT held a summit with the many utility providers that experience relocations related to transportation projects to discuss best practices and improvements to the utility relocation process. As of May 2023, some of the utility providers are experiencing staff shortages that limit construction production rates. These staff shortages present an ongoing challenge for both MTA's OSF work and MTS's scope of work.

The project has been addressing its interface with 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 MOU with the Montgomery County Schools system, which was approved by the School Board and

signed by the School Superintendent, Montgomery County, and MTA. A similar MOU was negotiated between MTA and the Rosemary Hills School and was approved at the School Board meeting on February 12, 2019. MTA submitted a draft second MOU to Montgomery County Schools on November 3, 2022, and is awaiting a response from Montgomery County Schools. Work will continue under ROE agreements with these parties through 2024.

As MTS commenced construction work, coordination meetings were held to ensure that prior agreements with third parties (utility companies and others) are followed. It is MTA's position that the transfer of third-party agreements from PLTC to MTA and now to MTS should not allow for a change in the terms of the agreements.

2.10. Construction

2.10.1. 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 replacement Parks Maintenance Facility (which is part of the real estate effort and budget), wetlands mitigation, stream mitigation, and possibly some offsite SWM sites. MTA has accomplished forest mitigation without the need for additional construction. The following discussion presents the current status of the MTA construction contracts:

- **Prince George's County Parks Polk Street Replacement Maintenance Facility** – This D-B contract was awarded after the BPW approved the construction contract award on March 20, 2019. Forrester Construction Company completed construction, and Parks has taken possession of the facility.
- **Offsite Wetlands Mitigation (Ken-Gar)** – The Wetlands Mitigation construction contract was awarded after the BPW approved the award on September 4, 2019, and NTP was issued to Environmental Quality Resources, LLC on September 5, 2019. The contractor mobilized in December 2019 and completed site surveys and the installation of Erosion and Sedimentation (E&S) controls. Clearing and grubbing began in February 2020. Prince George's County took partial acceptance of the entire project on March 3, 2021. Acceptable growth of vegetation has been achieved, allowing for closure of this project. The one-year warranty review occurred on January 9, 2022, and now the project requires MTA quarterly monitoring until closeout in 2028.
- **Offsite Stream Mitigation (Paint Branch)** – The Stream Mitigation construction contract was awarded after the BPW approved the award on September 4, 2019, 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. The one-year warranty inspection occurred on August 4, 2022, and 1,700 plants were replaced in November 2022.

2.10.2. P3 Scope

Highlights of construction activities ***through July 2023*** throughout the alignment include*:*

- General: As a result of the dispute with PLTC (see the **Project Delivery Method and Procurement** section, above), all project activities slowed in the fall of 2020. In early August 2020, contractor forces, equipment, and materials were demobilized, and work in some areas ceased. Upon legal action from MTA, partial remobilization occurred. Following the court's rescission of the TRO, demobilization and safe-up activities in the construction area began in earnest in mid-September 2020 and continued into October 2020. Following PLTC's exit, MTA engaged a number of former PLTC subcontractors to continue select project activities. This work has been progressing under MTA management with a goal of advancing critical path activities and reducing risk for the replacement D-B contractor.
- Status of ongoing P3 construction items that MTA manages:
  - Utility installations of all types are underway, including construction by the electric provider, PEPCO, and the communications company, Verizon. Water, storm sewer, sanitary sewer, and gas lines are also being constructed.
  - As a part of OSF, MTA ordered rail, ties, special trackwork, and turnouts to mitigate supply chain risks. MTA also secured materials previously procured by PLTC for use by the replacement D-B contractor (MTS). ***As of July 2023, MTS has indicated that not all of these materials are available, as prescribed by the updated P3 Agreement. MTA has added this dispute to the Risk Register.***
  - Building construction at the Glenridge OMF is essentially complete; however, construction of civil items outside of the building continues, as does final commissioning of systems inside the building. MTS was scheduled to assume control of the facility in early 2023***; however, as of July 2023, there is a dispute over the completeness of the OMF that is delaying turnover from MTA to MTS. The PMOC recommends that this issue be added to the risk register, and mitigation plans and an estimate of cost and schedule impacts developed. MTS is currently installing rail and other features*** both inside and outside of the building. MTS will complete the tracks for storage and testing of LRVs.
  - Based on the status of construction, MTA determined which items would be completed before mobilization of the replacement D-B contractor. OSF construction activities were expected to be completed before September 1, 2022, but schedules provided by MTA indicated completion of most OSF activities in mid-2023, ***with some activities continuing through the end of October 2023.*** OSF utility relocations that are behind schedule continue to cause impacts to MTS's work***, and as of July 2023, delays in OSF activities have driven two change orders. MTA and PLTP have mobilized the Tiger Team to develop schedule alternatives to mitigate additional delays driven by OSF work between March 2023 and July 2023.***
  - MTS has taken responsibility for traffic control, E&S controls, security, and other housekeeping activities.

- MTA's Equal Employment Opportunity Officer assigned to the project is Marcques Washington, and he is supporting MTS in its hiring program. The former contractor, PLTC, left the project with a shortfall in meeting the requirements of its DBE program, and MTS is required to address this shortfall of approximately $12 million in contract value. In March 2023, MTA reported that the design portion and the nationally targeted worker program of the P3 contract had exceeded the DBE program goal, but the percentage DBE participation for general construction is below the goal. However, in April 2023, Mr. Washington reported that the DBE participation statistics are improving as construction continues. ***In July 2023, the PMOC continues to recommend*** that MTA report the projected values for these goals at the end of the project in addition to the current achieved values to allow for a better evaluation of progress toward meeting the goals. Also, MTA has been performing 20 audits per month in 2023 to monitor the Davis Bacon prevailing wage requirements.

2.11. Vehicle Technology and Procurement

The LRVs are five-car vehicles consisting of 136-foot-long, articulated units. Twenty-five vehicles (22 in operation and 3 spares) will be provided under the FFGA for the opening year. PLTP executed the LRV contract with CAF on June 17, 2016, and issued NTP to CAF on July 5, 2016, for the 25 FFGA vehicles. NTP to CAF also included one LRV outside of the FFGA.

Later, MTA added two additional vehicles (outside of the FFGA) by change order to CAF's contract, for a total of 28 vehicles to be supplied by CAF. The two additional LRVs will support better operations. MTS has incorporated these two additional LRVs into its scope of work (in addition to the cost and terms of LRV storage in Elmira).

Vehicle carshell manufacturing activities, which are coordinated with design progress, occurred until the facility in Spain was shut down in late March 2020 due to supply chain issues and to limit the spread of COVID-19. The final assembly facility in Elmira, New York, was shut down in early April 2020 due to New York State restrictions related to COVID-19 and reopened on May 18, 2020, at 50 percent of its workforce capacity. As of early August 2020, both the Spain facility and the Elmira facility were back to 100 percent staffing levels.

The final assembly of vehicles is being performed in CAF's facility in Elmira. MTA, its PMC, and SNC-Lavalin are meeting weekly with CAF to resolve all open items for design, testing, and manufacturing activities. First Article Inspections (FAIs) for Interior and Cab were completed on March 18, 2021, and FAIs for Exterior, Roof, and Undercar were completed on April 2, 2021.

Shipment of the first vehicle to the project site was expected in late spring of 2021. The lack of available storage at the yet-to-be-completed Glenridge OMF requires use of an offsite storage facility where vehicles can be stored, occasionally powered, and occasionally "exercised" or moved on tracks. MTA and CAF negotiated an agreement for CAF to store the completed LRVs in Elmira. That storage agreement subsequently transferred to MTS, and its terms are part of MTS's agreement. Twenty-six LRVs have been designated as Ready for Shipment and have been placed into storage in Elmira. MTS's proposed construction schedule establishes when the test

tracks will be available for acceptance of the railcars at the Glenridge OMF. Currently, the schedule indicates that initial deliveries of LRVs will occur in early 2024.

The status of the LRV manufacturing as of ***July 25, 2023,*** is:

- To date, 130 carshell segments have been assembled in Spain.
- All 130 carshells have been delivered to CAF's facility in Elmira, New York.
- All 25 full LRVs in the FFGA are designated as Ready for Shipment and are in storage at CAF's Elmira facility. One additional LRV (outside of the FFGA) is also Ready for Shipment and in storage.
- Two additional LRVs are under contract. These LRVs are not a part of the FFGA, but rather are an addition to the contract by MTA to support rail operations. ***Manufacture of the two additional vehicles (ten cars) in Spain is now complete. Six of those ten cars have been delivered to Elmira for final assembly and static testing. The remaining four cars are at the Port of Baltimore awaiting the final leg of transport to Elmira.***

2.12. Project Cost

Table 5 summarizes the project's current actual expenditures and EAC, and compares them to the project budget as reported in MTA's SCC Workbook dated June 1, 2016, which is the basis of the project's FFGA. The project's documented expenditures total ***$2,937,626,166 through June 30, 2023.*** Refer also to **Table 4 – FFGA Core Accountability Items** in the **Executive Summary** section of this report for details on the project's planned and actual expenditures. The following table shows project budgets, actual expenditures, and forecast at completion amounts through ***June 30, 2023***, compared with the project budget as reported in MTA's SCC Workbook dated June 1, 2016, and MTA's current working budget.

Table 5 – Project Cost Versus Budget

SCC	Cost Category	Budget (June 1, 2016 Original FFGA)	Working Budget[1] (April 3, 2023 Final Recovery Plan)	Expenditures *(as of June 30, 2023)*	Forecast at Completion[1]
10	Guideway and Track	$280,620,726	$371,508,682	***$183,015,640***	$371,508,682
20	Stations	$114,857,016	$161,159,923	***$14,495,603***	$161,159,923
30	Maintenance Facility	$94,155,591	$93,454,387	***$85,866,412***	$93,329,787
40	Sitework	$521,968,990	$796,081,289	***$490,332,027***	***$750,515,161***
50	Systems	$263,887,313	$517,256,196	***$135,845,349***	***$506,294,782***
	Subtotal 10–50	$1,275,489,636	$1,939,460,477	***$909,575,031***	***$1,882,855,335***
60	Right-of-Way	$229,600,000	$329,126,214	***$289,521,183***	$329,126,214
70	Vehicles	$212,940,927	$292,780,600	***$148,642,522***	$292,780,600
80	Professional Services (total)	$571,658,114	$2,247,359,915	***$1,589,887,430***	$***2,326,882,024***
80.01	Project Development	$87,149,878	$85,469,312	$85,469,312	$85,469,312
80.02	Engineering	$139,766,036	$196,722,013	***$207,965,860***	***$219,864,607***

SCC	Cost Category	**Budget** (June 1, 2016 Original FFGA)	**Working Budget**[1] (April 3, 2023 Final Recovery Plan)	**Expenditures** ***(as of June 30, 2023)***	**Forecast at Completion**[1]
80.03	Project Management for Design and Construction	$148,555,323	$655,185,988	***$380,126,953***	$640,202,588
80.04	Construction Administration and Management	$83,269,280	$734,209,735	***$479,510,192***	$821,735,385
80.05	Professional Liability; Other Non-construction Insurance	$34,534,796	$85,701,891	***$78,756,709***	$78,780,490
80.06	Legal; Permits; Review Fees by Other Agencies, Cities, etc.	$5,805,117	$341,013,320	***$303,623,965***	$338,965,520
80.07	Surveys, Testing, Investigation, Inspection	$15,164,346	$92,504,023	***$49,652,905***	***$87,621,523***
80.08	Startup	$57,413,338	$56,553,635	$4,781,535	$54,742,600
	Subtotal 10–80	$2,289,688,678	$4,808,727,206	***$2,785,125,428***	***$4,830,901,897***
90	Unallocated Contingency	$90,535,748	$307,293,174	***$22,174,691***	***$285,118,483***
100	Finance Charges	$0	$0	$0	$0
	Total	$2,407,030,288	$5,116,020,381	***$2,807,300,119***	$5,116,020,380

[1]The Purple Line project Working Budget and Forecast at Completion are based on the accepted FRP, dated April 3, 2023. ***This table does not include the OSF-delay-driven change order that was executed in July 2023.***

MTA developed the unallocated contingency of $307,293,174 by utilizing a Quantitative Risk Analysis, and the RCMP dated April 21, 2023, recommended that amount for unallocated contingency.

On July 15, 2021, the PMOC requested that MTA provide revised budget tracking information that accurately reflected the combined IRP and OSF expenditures. MTA prepared a summary of actual versus planned expenditures for high-level OSF activities for review by the PMOC. MTA submitted the latest version of the summary that provides information through December 2022. MTA forecasted OSF expenditures of $556.15 million, which exceed the original OSF budget by approximately $136 million. ***In May and June 2023, the PMOC requested an OSF budget update. The extended OSF schedule and other changes have added cost since the December 2022 budget update.***

In July 2023, the Maryland BPW approved a change order that had a total addition of $204,954,610 of cost and 207 additional days of contract time. The net budget impact to the capital construction portion of the project was $137,144,705, and the balance of the total amount was applied to the financing and lost return on investment for PLTP. The $137,144,705 will be expended over the course of construction; therefore, this amount does not immediately show up in the MTA budget reports. However, that amount, plus the amount of the earlier change order included in the FRP, represents 50 percent utilization of the budget contingency. The PMOC recommends that MTA closely monitor these cost overruns and the potential need for contingency.

2.12.1. Project Funding

The funding for the project, as reflected in Attachment 3 of the FFGA, is shown in Table 6.

Table 6 – Baseline Cost Estimate by Source Funding

Initial New Starts Project Cost	Total FFGA Cost in Year of Expenditure (YOE) Dollars	Federal 5309 New Starts in YOE Dollars	Federal 5307 in YOE Dollars	Federal American Rescue Plan Act (ARPA) in YOE Dollars	Federal Surface Transportation Program (STP) in YOE Dollars	Local in YOE Dollars
10 Guideway & Track Elements	$280,620,726	$106,464,907	$0	$0	$0	$174,155,819
20 Stations, Stops, Terminals, Intermodal	$114,857,016	$43,747,594	$0	$0	$0	$71,109,422
30 Support Facilities, Yards, Shops, Admin. Bldgs.	$94,155,591	$35,721,760	$0	$0	$0	$58,433,831
40 Sitework & Special Conditions	$521,968,989	$197,858,301	$0	$0	$0	$324,110,688
50 Systems	$263,887,313	$100,116,405	$0	$0	$0	$163,770,908
60 ROW, Land, Existing Improvements	$229,600,000	$87,108,116	$0	$0	$0	$142,491,884
70 Vehicles	$212,940,927	$80,787,818	$0	$0	$0	$132,153,109
80 Professionals Services	$571,658,113	$216,881,800	$36,000,000	$0	$0	$318,776,313
90 Unallocated Contingency	$90,535,748	$31,313,299	$0	$0	$0	$59,222,449
100 Finance Charges	$26,805,863	$0	$0	$0	$0	$26,805,863
Total Project Cost (10-100)	**$2,407,030,286**	**$900,000,000**	**$36,000,000**	**$0**	**$0**	**$1,471,030,286**

Source: Maryland Purple Line Project Recovery Plan dated April 3, 2023.

2.13. Project Schedule

The March 15, 2017 progress update of the master project schedule was approved, as noted, in May 2017 and served as the only approved version of the schedule until September 2022. Numerous submissions of schedule updates from PLTC were not approved for various reasons, but the primary reason was the inability of MTA and the P3 concessionaire to agree on the schedule impacts of the approximately one-year delay in the execution of the FFGA. In response to a letter that FTA issued to MTA in early August 2018 expressing concerns about the amount of time that the project had advanced without an approved schedule, MTA prepared a working schedule update of the master project schedule. The working schedule update was based on the negotiations of the P3 contract schedule occurring at the time, but the update was not based on a mutually agreed-upon P3 contract schedule.

In late April 2020, PLTC notified PLTP that, based on its forecasting of schedule delays on the project (which were not mutually agreed upon), PLTC intended to exercise the clause in its P3 contract with PLTP that allows it to terminate the contract for design and construction services under the P3 contract if delays exceed 365 days. MTA sent a formal request to PLTP for a response that included a definitive path forward for PLTP's intended management of the P3 contract. On May 14, 2020 (the date the response to the formal request was due), PLTP submitted its response, which stated that PLTP intended to continue to negotiate with PLTC to retain PLTC as part of the P3 concessionaire team. On June 23, 2020, PLTP sent a formal Notice of Unconditional Election

to Terminate the P3 Agreement, although PLTP indicated a willingness to negotiate a settlement. On June 24, 2020, MTA sent a Formal Notice of Concessionaire Default. This notice essentially refuted the validity of the PLTP delay claims and stated that if PLTP failed to perform, MTA had a number of options related to the agreement. Through late July 2020, construction activities continued at the level previously planned, and construction progress was not affected.

In early August 2020, PLTC and subcontractors demobilized equipment, materials, and personnel. In response, the Maryland Attorney General filed a motion for a TRO that prevented PLTP from abandoning the work or demobilizing. Upon issuance of the TRO, the contractor and subcontractors remobilized some equipment and restarted many construction activities. A hearing to uphold or rescind the TRO was held on September 14, 2020. The court rescinded the TRO, allowing PLTP to leave the project. Through negotiation, it was determined that PLTP would remain on the project, although PLTC would not.

MTA contracted with numerous subcontractors to continue the project. MTA developed organizational options with respect to construction management, resident engineers, inspectors, and other staff needed to move forward select project activities.

It was certain that the project schedule as reflected in the FFGA would be negatively affected, and a Recovery Plan for the project, including a revised project schedule with adequate schedule contingency to address remaining project risks, would be required. MTA submitted its draft IRP to FTA in December 2020, and FTA approved the IRP on January 12, 2021. A schedule for the period during which the D-B contractor was to be replaced was developed, and MTA monitored project progress against the schedule. On November 5, 2021, PLTP announced the selection of the preferred replacement D-B contractor, MTS.

PLTP and MTA continued to coordinate during the financial process and State of Maryland approvals for the replacement D-B contractor. In addition, MTA successfully coordinated other key issues that needed to be resolved before PLTP could execute the contract with MTS.

The following is a summary of IRP milestones:

- January 6, 2021 – PLTP issued an RFQ for replacement D-B contractors.
- March 8, 2021 – PLTP issued an RFP to the short list of replacement D-B contractors based on the RFQ.
- October 15, 2021 – PLTP received RFP responses.
- November 5, 2021 – PLTP and MDOT/MTA selected the replacement D-B contractor firm (MTS).
- January 26, 2022 – BPW approved the replacement D-B contractor, contract amendments, schedule, cost, and financing.
- April 11, 2022 – Private activity bonds went to market.
- September 12, 2022 – MTA approved the IBS.

- October 14, 2022 – MTS was required to have commenced action on the 11 critical elements that are specified in the D-B contract. At the December 2022 PMOC meeting, MTA confirmed that MTS missed the 180-day window to commence action on 3 of the 11 critical elements.
- October 28, 2022 – MTA was required to have submitted a draft FRP to FTA and the PMOC for review and comment. On October 4, 2022, MTA submitted the draft FRP to FTA and the PMOC for review.

A milestone not specifically mentioned in the IRP is the requirement to extend the current RSD. The PMOC therefore adds the following milestone to this list:

- December 31, 2022 – The RSD in the original FFGA is December 31, 2022. MTA requested an extension to the current RSD identified in the original FFGA. FTA has now accepted the FRP, which indicates a revised RSD of February 24, 2028.

Current critical path analysis indicates that the critical path runs through the activities in Segments 7 and 8 of installation of Civil and Systems packages, and then train testing. There are ten other near-critical paths with activities that have less than two weeks of float. MTA reports that MTS's IBS includes a proposed sequence and duration of activities that have zero float and a completion date in October 2026. MTA used MTS's approved IBS to develop a master schedule that incorporates operational readiness activities and schedule contingency (float).

The schedule included in the FRP is considered to be the new baseline schedule. The next update to the master schedule will incorporate the schedule recovery developed by MTA and MTS. By implementing Maintenance of Traffic and construction activity resequencing, at a cost of $21,343,588, they were able to reduce schedule delays from 218 days to 81 days. These schedule delays are a result of OSF utility adjustments that fell behind schedule. MTS has indicated that delays continue as a result of the MTA-managed OSF work. ***The second OSF-delay-driven change order, as approved by the BPW in July 2023, added 207 days to MTS's RSA date. This addition to the RSA date represents a significant use of schedule contingency, which is a concern considering the remaining duration of the project. In an effort to mitigate continuing OSF delays,*** MTA has resumed the Tiger Team process to develop schedule alternatives.

2.13.1 Key Milestones

Table 7 shows the current key milestone dates for the project for the prior approved (March 15, 2017) progress update of the master project schedule and the MTA master schedule incorporated in the FRP dated April 3, 2023. Issuance of NTP to PLTP on April 14, 2022, triggered the contract requirement for an MTA-approved MTS IBS for the full project to be in place within 120 days of financial close (by August 14, 2022). In January 2022, MTA submitted a draft version of the master schedule for FTA and PMOC review, and FTA and the PMOC transmitted their review comments to MTA in April 2022. MTS submitted its IBS, and on September 12, 2022, MTA approved it. MTS submitted the 120-day mobilization schedule, which MTA also approved.

In August 2022, MTA and the PMOC discussed the current state of the baseline schedule, particularly the inclusion of adequate float to address schedule risk. The P65 date that MTA

proposed before the risk workshop held in May 2022 included approximately seven months of float and an RSA date in October 2026. After MTA performed the Quantitative Risk Analysis for the updated RCMP, MTA added additional float to address known and unknown schedule risk. The RSD proposed in the FRP is now February 24, 2028, which includes 16 months of float as of April 3, 2023.

The PMOC recommends that MTA closely monitor schedule contingency and the corresponding budget contingency when evaluating the RSA date/RSD and the EAC that have been incorporated into the FRP. The information in Table 7 will be updated once the schedule reviews and approvals are complete.

Table 7 – Key Milestone Dates

Activity	Prior Approved Master Project Schedule (March 15, 2017)	MTA Master Schedule (July 2023) (working schedule)
Locally Preferred Alternative Approval Date	08/04/2009 (A)[1]	---
FTA Approval to Enter Preliminary Engineering	10/07/2011 (A)	---
FTA ROD	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 through 03/02/2016 (A)	---
BPW Approval of P3	04/06/2016 (A)	---
P3 Commercial Close	04/07/2016 (A)	---
Limited NTP for P3 Engineering	04/07/2016 (A)	---
MTA Submit FFGA Application	05/24/2016 (A)	---
P3 Financial Close	06/17/2016 (A)	---
FFGA Signed	08/22/2017 (A)	---
Start of First Major Construction Activity	08/28/2017 (A)	---
All Significant ROW Acquisition and Relocation	As needed by construction	---
Commencement of Contract Work for Replacement D-B Contractor (MTS)	---	04/14/2022 (A)
Commencement of Integration Testing	---	07/28/2025
All Segments Complete Construction (with Contingency)	---	02/19/2027
Revenue Service Availability per P3 Amendment (with Contingency)	---	***05/24/2027***
FFGA RSD Date (Includes Contingency)	12/31/2022	02/24/2028

[1] A = Actual.

2.13.2 90-day Look-ahead

The critical 90-day (***August 2023 through October 2023***) look-ahead includes activities that MTA highlighted in the recent monthly meeting with the PMOC. MTA and MTS also are preparing four-week look-ahead schedules to manage interim activities. Key activities that MTA has identified for the short term are:

- Retaining wall, OCS foundation, and bridge structure construction in multiple locations.
- Water, sanitary sewer, and storm sewer construction in multiple locations.
- ***Completion of MTA-managed OSF activities.***
- ***Station construction.***
- Overhead electrical line, communications line, and buried gas line relocations.
- TPSS installation and commissioning.
- MTA's closeout of Glenridge OMF punch lists and turnover of the facility to MTS.
- ***Completion of*** summer work on the UMD campus.
- Blasting at the Bethesda shaft. Construction of the Bethesda Enclosed Trainway grade beam.
- Track construction at the Glenridge OMF.

2.13.3 Critical Path Activities

In the MTA master schedule update dated March 12, 2023, for which final agreement with PLTP was never reached, the critical path runs through the activities in Segments 7 and 8 of installation of Civil and Systems packages, and then train testing. During review of the FRP, FTA and the PMOC provided input on the schedule information, including the schedule contingency, to be included in a revised RSD and FFGA.

2.14 Project Risk

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

During the approximately one-year period during 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 Quantitative Risk Analyses, or perform formal updates of the Risk Register. However, the Purple Line project management team did assess and respond to the risks associated with the unforeseen chain of events related to the lawsuit.

The project team resumed formal risk management 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 in draft form in January 2018, and was updated further and reissued in

March 2018. As an ongoing process, MTA currently is performing updates of the Risk Register periodically, though somewhat less frequently than bimonthly (the frequency established in its RCMP). The current status of the RCMP is discussed in the **Project Management Plan and Sub-plans** section of this report, above.

MTA provides copies of significant updates of the Risk Register to FTA and the 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; the project's top five project risks are included as Attachment C of this report and are updated quarterly. A risk management workshop was held on January 26, 2021, at which the PMOC and FTA participated. The workshop focused on the resolicitation period for the replacement D-B contractor (January through October 2021).

Now that the replacement D-B contractor is under contract, risk updates have been prepared. The project held a risk workshop the week of May 2, 2022, at which the PMOC and FTA participated in an OP 40 risk and contingency review that evaluated cost, schedule, and project contingency. Confirmation and finalization of the Risk Register, the Quantitative Risk Analysis, and an update of the RCMP are components of the required FRP. FTA provided a summary of the risk workshop to MTA on June 22, 2022, for MTA's consideration and incorporation into its management plans and contingency evaluation. MTA provided responses to FTA comments on the risk workshop summary on July 15, 2022, and clarification on August 25, 2022. In October 2022, MTA submitted RCMP Version 15 to FTA and the PMOC for review. In February 2023, FTA and the PMOC provided comments on RCMP Version 15 to support MTA's development of the project's budget contingency and schedule contingency. On April 21, 2023, MTA provided a revised RCMP to FTA and the PMOC for review, and on May 22, 2023, FTA accepted the revised RCMP with comment. ***In June 2023, MTA held its quarterly Risk Management Committee meeting, at which it updated the Risk Register to reflect retired and new risk items. Five of the seven new risk items are related to disputes with MTS. Two significant risks were added to the Risk Register—one related to numerous design changes that occurred during OSF but were not reflected in the amended P3 Agreement and one related to a very specific intelligent interface device.***

2.15 Quality Assurance/Quality Control

The project's QA/QC is addressed in Section 10 of the PMP, the Quality Program Plan, and the updated MTA QAP Revision 8.0, which incorporates the quality plans prepared by PLTC. The **Project Management Plan and Sub-plans** section of this report, above, discusses the most current versions of the PMP and the QAP. MTA also submitted to FTA the package of inter-related quality plans prepared by the P3 concessionaire after the package was reviewed and approved by MTA.

MTA obtained and used PLTP's quality logs and other applicable documents and procedures for use during the transition to the replacement D-B contractor. Several former subcontractors are now under contract with MTA and conducted QA/QC activities during the replacement D-B contractor solicitation period. The budget to address nonconforming construction by PLTC

remains a concern as of July 2023. MTA incorporated known defects into the MTS contract; however, MTA has not clarified the specific budget that will be used to rectify defects found since the contract with MTS was executed. MTA estimates that the potential magnitude of this budget impact will be no more than $10 million***, and the current risk register carries this risk item.***

In October 2022, MTA submitted QAP Version 10 to FTA and the PMOC for review, and on March 8, 2023, FTA provided review comments on the QAP to MTA. MTA provided a revised QAP to FTA and the PMOC in May 2023.

The project has continued to conduct its monthly meeting to review the QA/QC activities performed by the Purple Line project team, including those activities performed by the PMC and the GEC. Documentation from this meeting is distributed and maintained. The project's Monthly Progress Report to FTA also contains a summary of the significant current QA/QC activities and events, including quality audits and quality reviews. ***In July 2023,*** quality management topics included quality process improvements, records storage, field inspections to close open issues, equipment testing inspections, design submittal reviews, records spot checks, approval of MTS's quality management plans, MTS offsite inspections at the fabrication location for OCS poles, and planning of the monthly QC meetings.

In November 2021, MTA's quality lead for the Purple Line project, Rene Schroeder, retired. Roland Carroll, the Purple Line systems and construction safety lead, added the quality lead role to his other Purple Line roles. In February 2022, MTA provided a white paper outlining Mr. Carroll's experience, his recent training, and the proposed supporting staff related to his new quality management role. The PMOC has evaluated this change as a part of the PMP review and will continue to monitor MTA's management capacity for this function and all positions through ongoing oversight activities.

2.16 Safety and Security

PLTP has conducted 44 Preliminary Hazards Analysis (PHA) workshop sessions to date. These workshops were held to resolve MTA's comments on the PHAs completed to date.

To support the ultimate Safety and Security Certification of the Purple Line project, the PLTP System Safety team completed development of its first DCCC in May 2017 and submitted it to MTA for approval. MTA (assisted by the PMC) reviews the DCCCs as part of the Final Design package, according to the established submittal review process. According to PLTP, the DCCCs were being verified before the issuance of RFC packages. To date, an estimated 96.6 percent of the DCCCs have been verified. All previous comments on PLTP's Certified Elements List (CEL), which includes operations and maintenance and system integration testing elements, have been resolved, and CEL Revision 2 was accepted in March 2020. The Certified Items List (CIL) Revision 1 has been accepted. The next revision of the CIL is expected after MTS completes the design. MTA will provide the revised CIL to FTA and the PMOC as soon as it is completed. Approximately 10.6 percent of the CSCCs have been verified to date.

MTA chairs a Safety and Security Certification Committee (SSCC) that reviews, comments on, and approves any PLTP hazard management and safety and security certification issues. The first

meeting of the MTA SSCC was conducted on March 20, 2018. Since July 11, 2018, the SSCC meeting has been held regularly and will continue as a monthly meeting until the level of activity requires more frequent meetings. ***As of July 2023,*** monthly SSCC meetings continue. Resolution of comments is still needed from Atkins (the designer) for a previous blast analysis review, but as of January 2023, MTA believed that resolution of these comments was nearly complete. MTA stated that the progressive collapse analysis of the Carr Building, although it may lead to remedial actions, will no longer be tracked by the Purple Line project. MTA stated that there would be no use of funds from the Purple Line project for remediation at the Carr Building.

PLTC submitted a Threat and Vulnerability Assessment, and on July 15, 2019, MTA accepted and verified the comment responses and approved PLTC's Threat and Vulnerability Assessment. PLTC then completed its Threat and Vulnerability Assessment process.

MTA continues to conduct bimonthly Fire/Life Safety meetings with Montgomery County and Prince George's County. The meetings provide a basis for the counties' emergency responders to understand the features of the Purple Line systems and to resolve any concerns. Topics of discussion include: Police Department MOUs; Fire Department connection and hydrant locations; access, signage, and station naming conventions; MOUs for training; the PHA at the Glenridge OMF maintenance gate; station names; and addresses/emergency phone numbers for locations along the corridor. Other topics of discussion have included closed circuit television cameras and Mobile Emergency Vehicle Response access. It is the opinion of the PMOC that MTA should emphasize resolving the project's outstanding Fire/Life Safety issues, because progress on the resolution of these issues is not apparent.

MTA police continue coordinating MOUs with local safety agencies and developing MOUs with police jurisdictions (such as the Maryland National Capital Park Police) along the Purple Line. These MOUs are related to training the existing police agencies on how to respond to transit situations. During the September 2022 MTA/PMOC meeting, a larger related issue was discussed at length. The SSOA staff participated in this discussion as well. The crux of the issue is that MTA does not have a police force located in proximity to the Purple Line. MTA hired a consultant team to analyze alternatives for providing security and fare enforcement services for the Purple Line. Alternatives include: expanding MTA's enforcement services geographically, bringing on a third party to provide these services through a contract, or sharing police services with another party. On February 23, 2023, MTA submitted its prepared draft recommendation for providing security and fare enforcement to several State of Maryland departments. Representatives from MDOT, which is the SSOA, who are monitoring the Purple Line project development provided comments on the draft recommendation before MTA submitted it to MTA's upper management and the several state departments. In late April 2023, MTA provided FTA with the alternatives study for review. The study indicates that the preferred alternative is the development of a new Southern District of the MTA Police Department and recommends several next steps toward implementation of the new district, including hiring a commander, developing operating procedures, working on MOUs with other local jurisdictions, and developing a facility to house the district.

As required by the P3 contract, PLTP was responsible for directly implementing many of the safety and security requirements for the project, including those for construction safety and the collection and maintenance of the Occupational Safety and Health Administration (OSHA) safety statistics for the project. PLTC performed this work until its departure from the project, at which time MTA assumed responsibility. MTS transitioned into the safety and security role that PLTC held. MTS and MTA are holding regular safety and security coordination meetings.

Safety continues to be acceptable, although with an increase of MTS activities, recordable incidents are increasing. Also, MTS appears to be having difficulties in its communication of incident reporting. MTA determined the methodology for reporting of, and assumed reporting of, OSHA statistics for the project under OSF. For the period from January 1, 2022, through ***May 2023***, the OSHA statistics are:

- TCIR (Total Case Incident Rate) (Recordable Rate) – MTS and OSF activities:
  - Actual: ***3.1/8.04 (MTS/OSF)***
  - MTA goal: 0.45
  - National average: 2.8 (for heavy civil construction)
- LTIR (Lost Time Injury Rate) (Recordable Rate) – MTS and OSF activities:
  - Actual: ***3.1/8.04 (MTS/OSF)***
  - MTA goal: 0.00
  - National average: 0.9 (Construction – heavy civil)

MTA had assumed responsibility for safety oversight until MTS assumed control of the project. As of December 2022, MTA reported that MTS needs coaching on expectations for the required reporting of safety statistics. In April 2023, the PMOC noted to MTA that both the LTIR and the TCIR have significantly increased, ***particularly for the MTA-managed OSF activities. In addition to the increase in incident rates, there is an apparent lack of tracking and reporting of safety issues.*** MTA recognizes the issue and reports that it has scheduled additional safety coordination efforts. In May 2023, the PMOC requested documentation on these additional efforts, ***and in July 2023, the PMOC questioned the effectiveness of the efforts. MTA acknowledges the need for safety process improvement. The PMOC recommends that MTA and MTS complete a safety process review as soon as practical and that MTA prepare a written summary. The summary should include the action items and the responsible parties for each. It is the opinion of the PMOC that there may be a lack of emphasis on safety or lack of safety-related MCC.***

In late October 2022, MTA submitted updated SSMP and SSCP documents in conjunction with the updated PMP. On February 13, 2023, and March 8, 2023, FTA provided review comments to MTA on the SSMP and SSCP, respectively. ***MTA has resubmitted the SSCP but has not yet provided a revised SSMP due to ongoing coordination with other state agencies.***

See the **Project Management Plan and Sub-plans** section of this report, above, for the status of the sub-plans of the PMP related to safety and security. Attachment B of this report includes additional quarterly safety- and security-related information for the Purple Line project.

2.17 Americans with Disabilities Act

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

Accessibility and compliance with the ADA are required as part of the functional requirements for stations and guideway, and as part of the codes and standards for LRVs within the P3 contract (Book 2, Part 2) for the Purple Line project. MTA and its consultants reviewed the design packages prepared by PLTC. Based on project reviews conducted by the PMOC, MTA has confirmed that it included ADA compliance in its QA oversight reviews of PLTC's design packages. A full-time Purple Line project Maintenance of Traffic construction representative also monitors whether temporary pedestrian accommodations during construction continue to comply with ADA requirements. ADA compliance is included in the PMOC's periodic project reviews, during which the PMOC discusses timely project ADA-related items with the project team. Such discussions during the PMOC's most recent reviews identified no current ADA-related issues.

MTA indicates that the project is maintaining ADA accessibility along the project corridor during construction. In addition to planning for ADA accessibility, MTA and MTS respond to public concerns due to construction activities and temporary accessibility features**.**

2.18 Buy America

MTA understands that Buy America compliance applies not only to the rail vehicles but also to the 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 regulations is contained in MTA's standard clauses for its procurements, and the P3 contract contains explicit Buy America language in its Appendix 16.

Virginkar and Associates, Inc. conducted the Buy America pre-award audit and concluded that there is reasonable certainty that CAF will satisfy the Buy America requirements as stated in 49 Code of Federal Regulations (CFR) 661. MTA's interpretation is that, because the vehicle RFP was advertised before December 4, 2015 (which is the date of passage of the Fixing America's Surface Transportation Act, also known as the FAST Act), the 49 CFR 661 Public Interest Waiver that limits domestic content to a minimum of 60 percent, as opposed to the escalating domestic content requirements of the FAST Act, applies in this case. During the week of October 2, 2017, an intermediate post-award Buy America audit was conducted of CAF's facility in Elmira, New York, for added confidence that the post-delivery audit would not identify issues. CAF targeted 65 percent domestic content in the completed LRVs.

The project's Buy America compliance audit for the LRVs was conducted on November 14, 2022. In January 2023, CAF provided additional documentation requested to assist with evaluation of

Buy America compliance. ***On July 11, 2023, MTA committed to providing the compliance audit report to FTA.*** The draft report indicates that the LRVs will have a U.S. domestic content of 66.74 percent, which satisfies FTA's Buy America requirements.

2.19 Start-up, Commissioning, Testing

To be determined (TBD).

2.20 Before-and-After Study Reporting

TBD

2.21 Lessons Learned

The resolicitation of a D-B contractor has given MTA the opportunity to apply several lessons learned to the new D-B contract documents and to amend the P3 agreement. After the May 2022 risk workshop with MTA and the PMOC, MTA provided an update on opportunities for improvement that MTA had identified during the resolicitation and is incorporating into the project.

2.22 Action Items

Action Items are identified at MTA/FTA Quarterly Progress Review Meetings, at MTA/PMOC Monthly Update Meetings, and at MTA/FTA Biweekly New Starts Progress Conference Calls. Action Items from the most recent biweekly conference call on ***July 25, 2023***, are as follows:

1. MTA will provide updates to the OSF schedule, including updated schedule dates for management plan completions no later than the Friday before each biweekly (now twice-monthly) meeting. – OPEN
2. The Buy America Post Delivery Audit Report to be provided to the FTA and PMOC. – OPEN
3. MTA to forward real estate information directly to the program manager at FTA, in addition to uploading it to FTA. – OPEN

ATTACHMENT A – LIST OF ACRONYMS

ADA	Americans with Disabilities Act
ARPA	American Rescue Plan Act
ATC	Alternate Technical Concept
BFMP	Bus Fleet Management Plan
BPW	Board of Public Works
CAF	Construcciones y Auxiliar de Ferrocarriles
CEL	Certified Elements List
CFR	Code of Federal Regulations
CIL	Certified Items List
CSCC	Construction Specification Conformance Checklist
CSX	CSX Corporation
D-B	Design-Build
DBE	Disadvantaged Business Enterprise
DCCC	Design Criteria Conformance Checklist
DNR	Maryland Department of Natural Resources
E&S	Erosion and Sedimentation
EAC	Estimate at Completion
FAI	First Article Inspection
FCP	Forest Conservation Plan
FFGA	Full Funding Grant Agreement
FRP	Final Recovery Plan
FTA	Federal Transit Administration
GEC	General Engineering Consultant
IBS	Initial Baseline Schedule
IRP	Interim Recovery Plan
LOD	Limits of Disturbance
LRT	Light Rail Transit
LRV	Light Rail Vehicle
LTIR	Lost Time Injury Rate

MCC	Management Capacity and Capability
MDE	Maryland Department of the Environment
MDOT	Maryland Department of Transportation
MOU	Memorandum of Understanding
MTA	Maryland Transit Administration
MTS	Maryland Transit Solutions
N/A	Not Applicable
NEPA	National Environmental Policy Act
NTP	Notice to Proceed
OCS	Overhead Contact System
OMF	Operation and Maintenance Facility
OP	Oversight Procedure
OSF	Operation Step Forward
OSHA	Occupational Safety and Health Administration
P3	Public-Private Partnership
PEPCO	Potomac Electric Power Company
PHA	Preliminary Hazards Analysis
PLTC	Purple Line Transit Constructors
PLTP	Purple Line Transit Partners
PMC	Project Management Consultant
PMOC	Project Management Oversight Contractor
PMP	Project Management Plan
QA/QC	Quality Assurance/Quality Control
QAP	Quality Assurance Plan
RAMP	Real Estate Acquisition Management Plan
RCMP	Risk and Contingency Management Plan
RFC	Released for Construction
RFP	Request for Proposals
RFQ	Request for Qualifications
ROD	Record of Decision
ROE	Right of Entry

ROW	Right-of-Way
RSA	Revenue Service Availability
RSD	Revenue Service Date
SCC	Standard Cost Category
SEIS	Supplemental Environmental Impact Statement
SSCC	Safety and Security Certification Committee
SSCP	Safety and Security Certification Plan
SSMP	Safety and Security Management Plan
SSOA	State Safety Oversight Agency
SSP	Safety and Security Plan
SSPP	System Safety Program Plan
SSTC	Silver Spring Transit Center
STP	Surface Transportation Program
SWM	Stormwater Management
TBD	To Be Determined
TCE	Temporary Construction Easement
TCIR	Total Case Incident Rate
TDD	Transit Development and Delivery
TIFIA	Transportation Infrastructure Finance and Innovation Act
TPSS	Traction Power Substation
TRO	Temporary Restraining Order
UMD	University of Maryland
USACE	U.S. Army Corps of Engineers
WMATA	Washington Metropolitan Area Transit Authority
WSSC	Washington Suburban Sanitary Commission
YOE	Year of Expenditure

ATTACHMENT B – SAFETY AND SECURITY CHECKLIST

Note: References to the System Safety Program Plan (SSPP), Safety and Security Plan (SSP), and 49 Code of Federal Regulations (CFR) Part 659 as they are contained in the FTA standard checklist form have been retained in the following update. However, it is recognized that Maryland Transit Administration is transitioning to the Public Transportation Agency Safety Plan and 49 CFR Parts 673 and 674.

Refer to the July 2020 PMOC Monitoring Report for the most recent update.

ATTACHMENT C – TOP PROJECT RISKS

An internal risk workshop to support the Interim Recovery Plan (IRP) was held on January 26, 2021. Maryland Transit Administration (MTA) and Purple Line Transit Partners (PLTP) used information from the meeting as they solicited a replacement Design-Build (D-B) contractor. At the time of the workshop, the MTA Risk Management was tracking the following risks identified during development of the IRP:

Procurement/Settlement Risks:

- PLTP solicitation of replacement D-B contractor:
  - Market resolicitation in a compressed time frame
  - Delay in finalizing solicitation
  - Weak bidder interest – two or fewer proposals
- D-B contract and other contract negotiations

Schedule Risks:

- Inability of MTA subcontractors to meet the Operation Step Forward (OSF) schedule dates, causing delay to certain activities to be performed by the replacement D-B contractor
- Unanticipated delay to the replacement D-B contractor "ramp up" of activities, resulting in impacts to the critical path anticipated by MTA

Design and Construction Risks:

- Performance risk assumed by MTA by contracting for and performing work during the replacement D-B contractor resolicitation period (subcontracting risk)
- Quality, commercial, coordination, and unforeseen conditions unknown to MTA at the time of assumption of former Purple Line Transit Constructors subcontracts

A risk workshop was held May 3 through May 5, 2022. After the risk workshop, MTA prepared supplementary or updated documents for review, including an updated Risk Register. FTA provided a risk summary to MTA on June 22, 2022, for MTA's consideration when updating risk, contingency, and other project management plans. MTA provided a response to each of the comments on the risk summary to FTA on July 18, 2022, and provided further clarifications on August 25, 2022. MTA incorporated the FTA comments in the revised Risk and Contingency Management Plan (RCMP) that is a part of the Final Recovery Plan.

On October 7, 2022, MTA submitted RCMP Version 15 to FTA and the PMOC for review. FTA provided review comments to MTA on February 16, 2023, and MTA prepared a revised RCMP and submitted it to FTA on April 21, 2023. On May 22, 2023 FTA accepted the revised RCMP with conditions.

In April 2023, MTA presented the following top project risks:

1. Construction – Exhibit 24 Utility Adjustments – Significant
2. Construction – RCO1 and RCO7 Utility Delays – Significant
3. Design – Temporary Construction Easement Extensions – High

4. Construction – Exhibit 24 Utility Adjustments Verizon – High
5. Construction – Unknown Existing Construction Defects – High
6. Market – Unknown Unknowns – High
7. Construction – Utility Relocation – High
8. CSX Flaggers – High

In June 2023 at the Quarterly Risk Management Committee Meeting, MTA added the following top project risks:

9. Design – Intelligent Interface Device – Significant
10. Construction – Owner Furnished Materials – Significant

ATTACHMENT D – AWARDED CONTRACTS

A significant update to awarded contracts is forthcoming due to the transition within the original Public-Private Partnership concessionaire and Maryland Transit Administration's (MTA's) assumption of some, but not all, subcontracts. Included below is information that MTA prepared for the May 15, 2023 Quarterly Progress Review Meeting packet. ***The same information was provided for the August 9, 2023 Quarterly Progress Review Meeting, but it does not reflect the recent change order attributed to the OSF delays.*** Please note that the total shown in this table for contracts awarded does not reflect the full project value.

Purple Line
Project #1042
Current Project Status (Dollars in $000s)
Project Manager/RE: Matthew Pollack

Major Contracts:

Company	Vendor Type	Contract No.	Baseline Amount	Change Order Totals	Current Amount	Pending Change Orders
PB/RK&K	Engineers/ Architects	MTA-1054A	$12,000	$1,850	$13,850	
STV/Jacobs	Engineers/ Architects	MTA-1054B	$8,000	$1,300	$9,300	
AECOM/ RK&K/PB	Engineers/ Architects	MTA-1264A	$60,000	$338,500	$398,500	
Gannett Fleming/WRA	Engineers/ Architects	MTA-1265B	$80,000	$71,000	$151,000	
Purple Line Transit Partners	P3 Concession (design build portion only)	PUR16032PP	$1,988,816	$1,341,310	$3,330,126	
Total			**$2,148,816**	**$1,753,960**	**$3,902,776**	**0**

Reason for Change: *Amendment 6 to the Purple Line Transit Partners P3A was not been previously reflected. The amount shown as "Current Amount" represents that portion of the P3A Design-Build contract associated with the New Starts Program.*

ATTACHMENT E – ROLLING STOCK VEHICLE STATUS REPORT

Date: July 31, 2023

Vendor: Construcciones y Auxiliar de Ferrocarriles (CAF)

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

Year: The first vehicle was completed in 2021, and currently 26 vehicles are designated as "Ready for Shipment." Completion of the storage and testing facilities at the Glenridge Operation and Maintenance Facility (OMF) has been delayed, so Maryland Transit Administration (MTA) and CAF negotiated terms for storage of vehicles at the CAF facility in Elmira, New York. The storage agreement has now transferred to the replacement Design-Build (D-B) contractor, Maryland Transit Solutions (MTS).

Quantity: 25 vehicles (125 cars) original contract (Full Funding Grant Agreement [FFGA]). One vehicle (5 cars) was added to the original CAF authorization by MTA, outside of the FFGA.

2 vehicles (10 cars) were added in July 2021 via change order, also outside of the FFGA.

Identification: The original light rail vehicles (LRVs) will be numbered from 101 through 126. The numbering of the two additional LRVs is to be determined.

New Technologies: None planned (all major suppliers have service-proven equipment).

Status and Significant Activities:

- As a part of the original order, 130 cars were assembled in Spain, all of which were delivered to CAF's facility in Elmira, New York for final assembly and static testing. Manufacture of the additional 2 vehicles (10 cars) in Spain is complete. Six of those 10 cars have been delivered to Elmira for final assembly and static testing. The remaining four cars are at the Port of Baltimore awaiting the final leg of transport to Elmira.
- Delivery of finished vehicles was expected to begin in spring 2021; however, because the Glenridge OMF is not ready to accept railcars, MTA and CAF have negotiated an agreement for CAF to store the completed cars in Elmira.
- Cost risk for delivery of the finished vehicles has been transferred to MTS. If delays in construction cause a delay, then MTS is responsible to CAF for additional storage cost.
- Twenty-six LRVs have passed static testing, have been designated as Ready for Shipment, and have been placed into storage in Elmira. These include vehicle 110, which was returned to Ready for Shipment status after a second period in static testing.
- Delivery of the first of the original 26 vehicles is currently scheduled for early 2024. Approximately one vehicle per week will be delivered thereafter. The Glenridge OMF

will be able to store three or four vehicles on the yard and in the building, so track must be available for additional storage. The Overhead Contact System and Traction Power Substation (TPSS) Q7 and TPSS QYG must also be completed and installed before delivery of vehicles.

- SNC-Lavalin (now an MTS subcontractor) prepares a monthly quality report documenting safety, production, and quality items at both the Spain and New York production facilities. Many of the same SNC-Lavalin staff who observed the original vehicle fabrication work are overseeing the fabrication of the two additional vehicles in Spain.
- MTA, the Project Management Consultant, and CAF are holding weekly coordination meetings to review all outstanding testing and factory/shop activities, including onsite testing procedures for when the vehicles are delivered to Maryland.
- MTS, which has assumed the CAF contract, is preparing and submitting to MTA reports on LRV maintenance activities required during the storage period.
- The project's Buy America compliance audit for the LRVs was conducted on November 14, 2022. In January 2023, CAF provided additional documentation requested to assist with the evaluation of Buy America compliance. ***On July 11, 2023, MTA committed to providing the compliance audit report to FTA.*** Preliminary information from the audit indicates that the percentage of U.S. domestic content meets FTA requirements.
- The resolution of the previously identified quality issue related to the M33 bolt on the LRVs and the associated final report was expected in May 2023, but submittal to FTA has been deferred until MTA coordinates confidentiality issues with CAF. MTA determined that the issue does not impact safety, and the solution is likely the use of a higher strength bolt. The effort included a significant amount of work to determine whether a bolt failure would cause debris to fall on the track.

ATTACHMENT F – PROJECT MILESTONES/KEY EVENTS

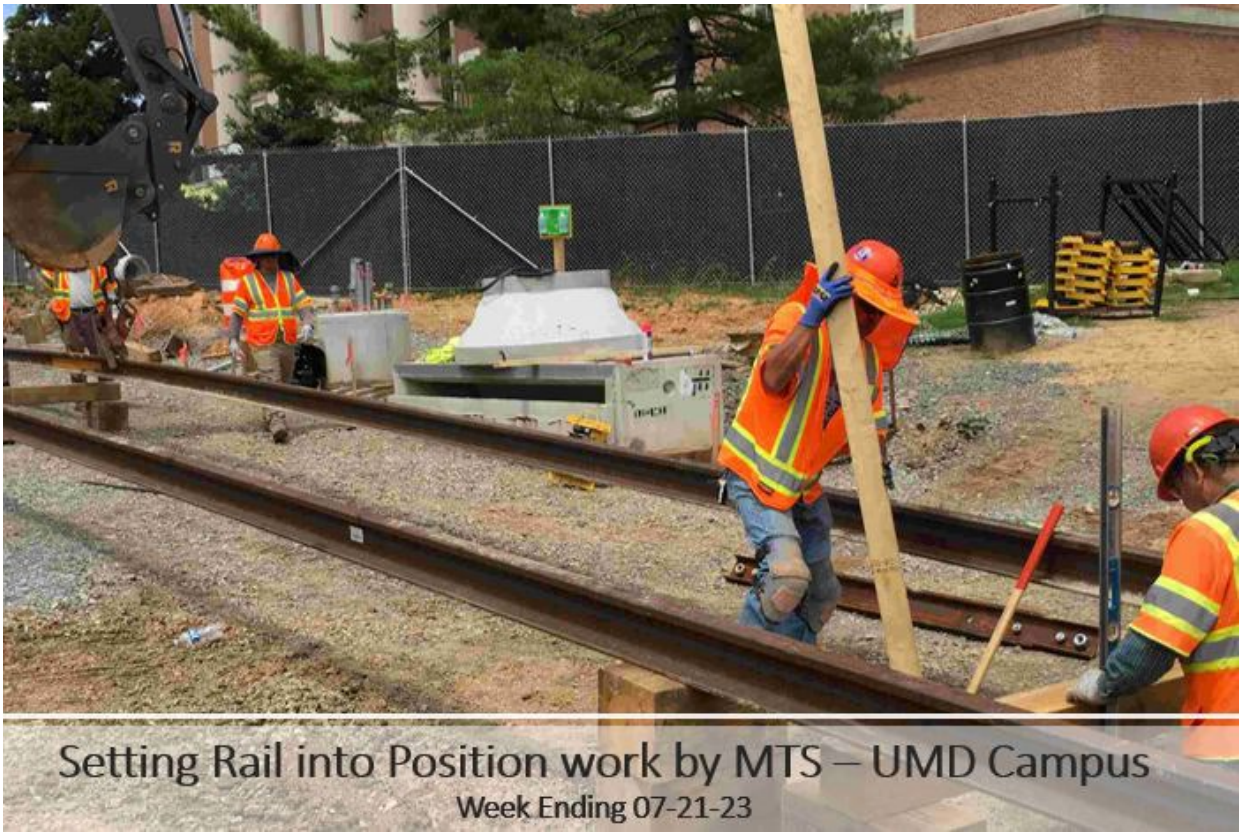
Photos courtesy of Maryland Transit Administration.



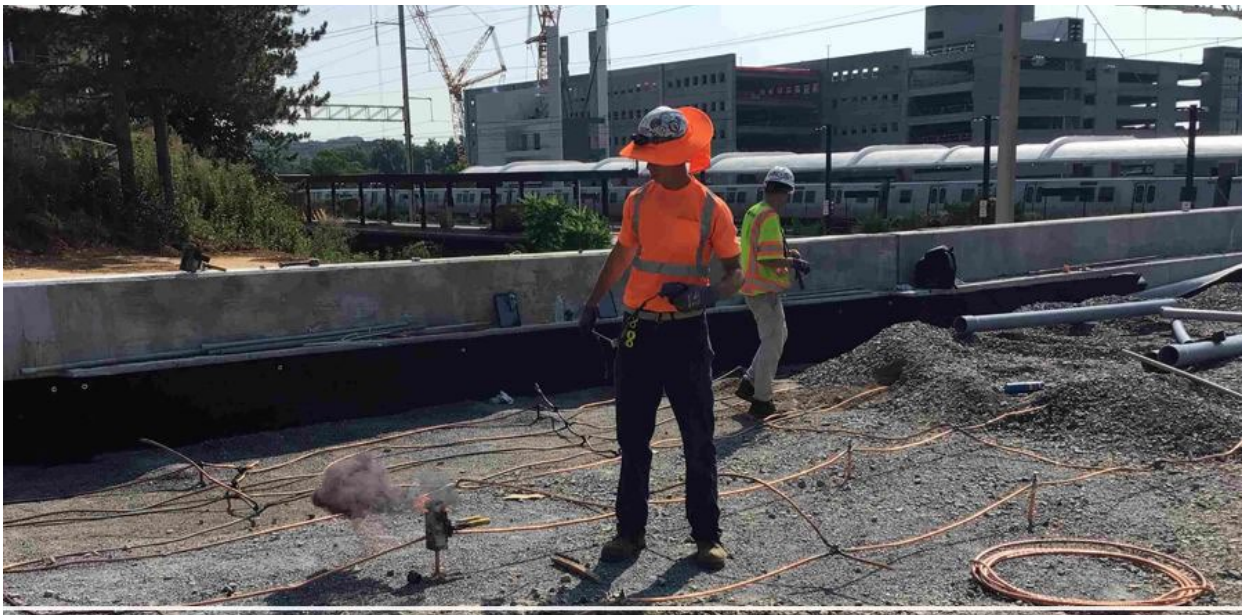



Platform Foundation Rebar work by MTS – Lyttonsville Station
Week Ending 07-14-23


S20 Bridge Deck SIP work by MTS – Silver Spring Transit Center
Week Ending 07-14-23


Setting Rail into Position work by MTS – UMD Campus
Week Ending 07-21-23


Drilling OCS Foundation #OCS-643.27-C by MTS – UMD Campus
Week Ending 07-21-23



Cad Welding Ground Electrodes to Ground Grid at TPSS-Q8 by MTS – Ellin Rd
Week Ending 07-28-23



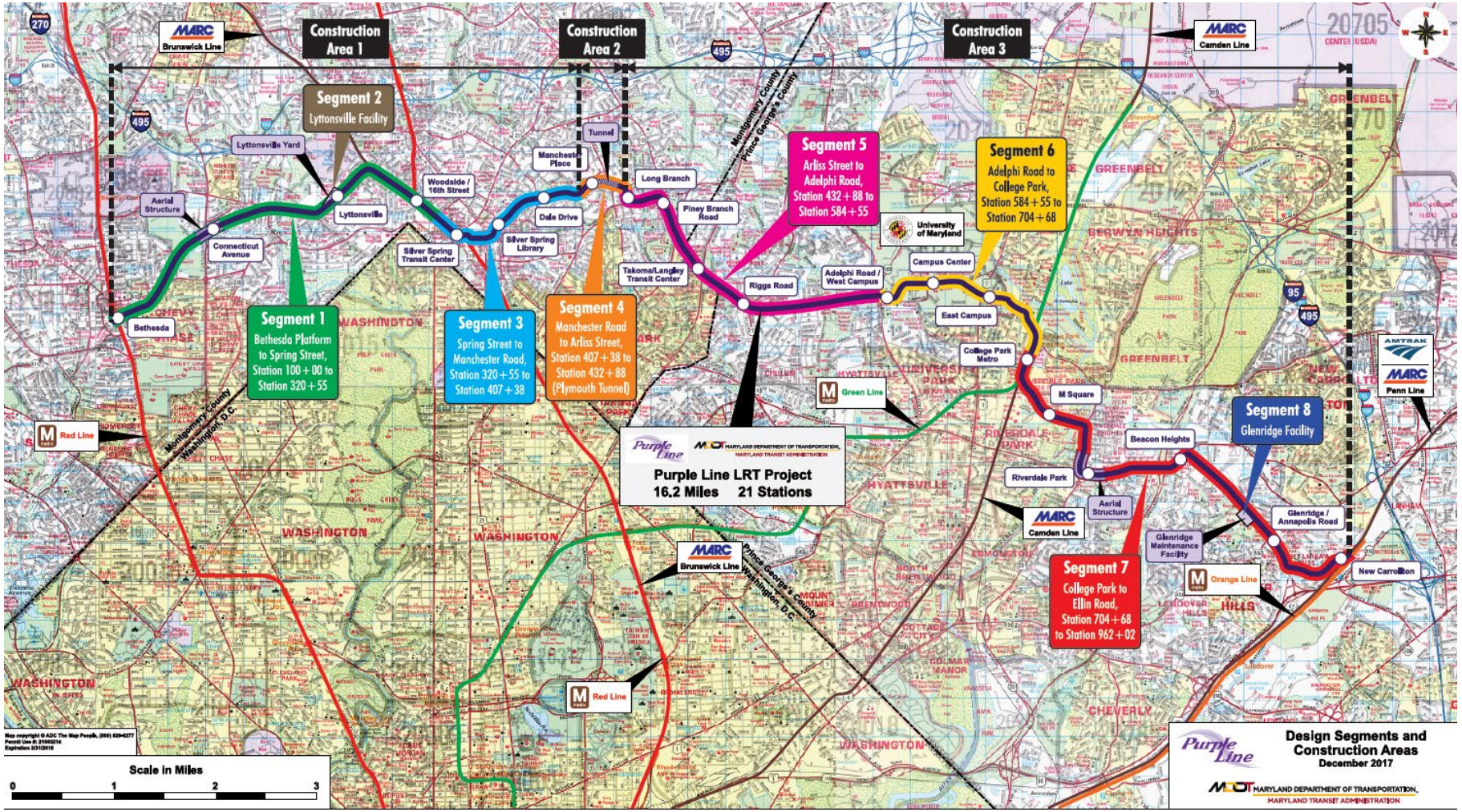
Sidewalk Concrete Placement by MTS – Ellin Rd at Hanson Oak
Week Ending 07-28-23

ATTACHMENT G – ROADMAP TO REVENUE OPERATIONS

In accordance with Oversight Procedure (OP) 25, the Roadmap to Revenue Operations, prepared from the Project Sponsor's master schedule, is issued quarterly as a separate electronic file. Because the Project Sponsor's master schedule is undergoing a major revision for schedule recovery, the dates currently shown will change.

Per OP 25, this item is issued quarterly "as a separate attachment." Due to the transition to a new Design-Build contractor, quarterly updates will be provided when available. Refer to the July 2020 Project Management Oversight Contractor Monitoring Report for the most recent update.

ATTACHMENT H – PROJECT MAP



COMPREHENSIVE MONITORING REPORT
May 2023–July 2023

Metro Fleet and Train Control Replacement Project
MTA Non-New Starts Capital Projects

Maryland Transit Administration
Baltimore, Maryland
Final

Draft Report Delivered to FTA on August 10, 2023
Final Report Delivered to FTA on August 18, 2023

PMOC Contract No.: 69319519D000016
Task Order No.: 69319520F300095
Project No.: 69319519D000016/69319520F300095
Requisition/Reference No.: FTA-TPM20-20-0106
OPs Referenced: 20, 22, 24, 25, 26
CLINs 0001, 0002, and 0005

David Evans and Associates, Inc.
John Susino, Task Order Manager
Voice: 610-570-6496; Email: john.susino@deainc.com
Time on Project: 05/18/2020 through 05/17/2025

REPORT FORMAT AND FOCUS

This report is submitted in compliance with the terms of the Federal Transit Administration (FTA) Contract #69319519D000016, Task Order #69319520F300095. Its purpose is to provide information and data to assist FTA as it continually monitors the management capacity and capability of the Maryland Transit Administration (MTA) (the Project Sponsor) to execute the project efficiently and effectively, and hence, whether the Project Sponsor continues to be ready to receive federal funds for further project development. This report covers the project management activities on the Metro Fleet and Train Control Replacement Project and the MTA Non-New Starts Capital Projects managed by MTA as the Project Sponsor. The cost and schedule information in this report was extracted from MTA's July 26, 2023, monthly report, except where noted. This report has been organized to comply with the requirements of updated Oversight Procedure 25 – Recurring Oversight and Related Reports, dated June 2020.

THIRD-PARTY DISCLAIMER

This report and all subsidiary reports are prepared solely for FTA. This report should not be relied upon by any party, except FTA or the Project Sponsor, in accordance with the purposes as described below.

Projects funded by FTA and monitored by its Project Management Oversight Contractor (PMOC) can utilize a risk-based assessment process to review and validate a Project Sponsor's budget and schedule. This risk-based assessment process is a tool for analyzing project development and management. Moreover, the assessment process is iterative in nature; any results of an FTA or PMOC risk-based assessment represent a "snapshot in time" for a particular project under the conditions known at that same point in time. The status of any assessment may be altered at any time by new information, changes in circumstances, or further developments in the project, including any specific measures a Project Sponsor may take to mitigate the risks to project costs, budget, and schedule, or the strategy a Project Sponsor may develop for project execution. Therefore, the information in the reports will change from quarter to quarter, based on relevant factors for the period and/or previous periods.

TABLE OF CONTENTS

1. EXECUTIVE SUMMARY 1
1.1. Project Description 1
1.2. Project Status 1
1.3. Major Issues and/or Concerns 6
1.4. Status of Key Indicators Dashboard (Post-Grant) 8
1.5. Core Accountability Items 9
2. OBSERVATIONS AND FINDINGS 11
2.1. Summary of Monitoring Activities 11
2.2. Oversight Triggers 11
2.3. Project Management Plan and Subplans 12
2.4. Management Capacity and Capability 12
2.5. National Environmental Policy Act Process and Environmental Mitigation 12
2.6. Project Delivery Method and Procurement 12
2.7. Design 12
2.8. Value Engineering and Constructability Reviews 14
2.9. Real Estate Acquisition and Relocation 14
2.10. Third-party Agreements and Utilities 14
2.11. Construction 14
2.12. Vehicle Technology and Procurement 16
2.13. Project Cost 17
2.14. Project Schedule 19
2.15. Project Risk 21
2.16. Quality Assurance/Quality Control 22
2.17. Safety and Security 22
2.18. Americans with Disabilities Act 22
2.19. Buy America 22
2.20. Start-up, Commissioning, Testing 22
2.21. Before-and-After Study Reporting 23
2.22. Lessons Learned 23
2.23. Actions Items Table 23

ATTACHMENT A – LIST OF ACRONYMS 24
ATTACHMENT B – SAFETY AND SECURITY CHECKLIST 26
ATTACHMENT C – TOP 5 PROJECT RISKS 29
ATTACHMENT D – AWARDED CONTRACTS 30
ATTACHMENT E – ROLLING STOCK VEHICLE STATUS REPORT 31
ATTACHMENT F – PROJECT MILESTONES/KEY EVENTS 32
ATTACHMENT G – ROADMAP TO REVENUE OPERATIONS 33
ATTACHMENT H – PROJECT MAP 36

LIST OF TABLES

Table 1 – Major Issues/Concerns and Action Items 6
Table 2 – Key Indicators Dashboard 8
Table 3 – Core Accountability Items 9
Table 4 – Project Federal Grants 17
Table 5 – Project Funding Summary 18
Table 6 – Project Schedule 20

1. EXECUTIVE SUMMARY

1.1. Project Description

The Metro Fleet and Train Control Replacement Project, as part of the Maryland Transit Administration (MTA) (Project Sponsor) Non-New Starts Capital Projects, renovates the MTA Metro System that consists of a double-tracked train-controlled signaling system that is 15 miles long and a Metro railcar fleet consisting of 100 cars that are now more than 30 years old. The MTA Metro System is located in Baltimore, Maryland. The Metro railcars were designed with a 30-year life and are now due for replacement. The Automatic Train Protection system is currently experiencing reliability problems due to its age and parts obsolescence. The Metro Fleet and Train Control Replacement Project, which is using phased construction, consists of installation of a new Communications Based Train Control (CBTC) system, 78 new railcars (based on a needs assessment), phaseout of the old fleet, and decommissioning of the old train control system. The project cost is budgeted at $476,851,000, which is unchanged from the value reported in the 2023Quarter 1 Project Management Oversight Contractor (PMOC) comprehensive monitoring report.

1.2. Project Status

The contract was awarded to Hitachi Ansaldo Baltimore Rail Partners, LLC (HAB) (now Hitachi Baltimore Rail Partners LLC [HBR]) in July 2017. Notice to Proceed (NTP) was issued on September 1, 2017. HBR is making contract submittals and conducting project training. Submissions of Train Control and Railcar Conceptual Design Reviews (CDRs) and Preliminary Design Reviews (PDRs), and review meetings have been completed. The PDR phase for the Train Control system was completed in February 2019, and the Railcar PDR phase was completed in March 2019 (with the exception of Lighting, which was completed in early May 2019).

Work by HBR to complete the Reliability, Availability, Maintainability, and System Safety (RAMS) documentation for the vehicles continues, and the impacts of COVID-19 delayed completion of the Final Design Review (FDR) phase from the original September 2020 due date. As first reported in April 2021, the RAMS documentation and the FDR remain under review and revision. **As of June 30, 2023, the RAMS documentation is nearing completion for railcars, and only minor comments on engineering documents and six RAMS documents remain to be completed. The Fire Hazard Analysis (FHA) is pending the completion of the Fire, Smoke, and Toxic Inhalation (FST) Matrix. The FST Matrix still needs all waiver submissions and reviews. The FHA will take the most time because both MTA and HBR work on reviewing backup documents for this analysis. The FHA is the only document remaining for Automatic Train Control FDR and is pending resubmission from HBR. Other documents will be moved to appropriate phases of the project, as will conformance checklist verification, which cannot be completed until testing is completed. MTA warns that the *First Vehicle Delivery* cannot progress without completing the related Factory Acceptance Test (FAT) and construction conformance checklist. MTA now anticipates that HBR will complete the construction conformance checklist by the end of August 2023.** Based on the proposed baseline schedule,

this slow progress on the delivery of vehicles is no longer expected to further delay project completion. HBR is actively managing this process to mitigate additional delays.

- Scope: No significant changes to the scope have been initiated since MTA added axle counters in the existing Metro vehicle yard as part of the Train Control portion of the project. **Also, as a result of scope removal, there is a credit of $3.7 million; MTA's plan is to use this credit for construction management (CM) services.**
- Summary of COVID-19-related Items:
    - Most COVID-19 staffing-related delays to the Train Control system ended by September 2021.
    - The final first-round training session for the Solid-state Interlocking (SSI)/Data Communication System (DCS)/Local Automatic Train Supervision (LATS) was postponed and rescheduled to be completed just before startup of the first interlocking.
    - HBR's Italian carshell manufacturer (OMEP) reopened to approximately 95 percent to 100 percent of its normal capacity in June 2020; carshell production work continues.
    - Railcar First Article Inspections (FAIs) did not occur on schedule because of travel restrictions and closed facilities. Railcar FAIs began in late June 2020 and are continuing. Accommodations were made for remote FAIs where needed.
    - Maryland on-site construction and Train Control testing and commissioning were initially shut down in April 2020 and restarted in May 2020; however, these activities experienced another two-week shutdown in December 2020.
    - FATs for SSI were postponed due to travel restrictions but are now complete.
    - SSI manufacturing was shut down but has resumed.
    - The structural qualification testing required for carshell acceptance that was to be performed on Carshell X, which has a reworked roof, was moved from Italy to Germany as a result of new COVID-19 restrictions that were imposed in October 2020. The beginning of structural qualification testing was delayed from April 2021 to September 2021 due to backlogs and employee COVID-19 exposures at the testing vendor.
    - MTA has not reported new issues or impacts from COVID-19 since June 2021, with the exception of the global supply chain disruptions that delayed the delivery of vehicle subsystems and materials. MTA indicated that it is able to segregate COVID-19-related impacts (i.e., labor, material supply, superchips) from other project costs. **In regard to an HBR claim for a second no-cost time extension of 20 months due to COVID-19, MTA reported that negotiations are nearly completed.** This second request for a no-cost time extension is for issues above and beyond the previously granted COVID-19 extension. ***The PMOC***

recommends that MTA maintain records regarding any COVID-19-related disruptions in case additional claims on this subject arise in the future.

- Schedule:
    - MTA approved HBR's February 28, 2018, project baseline schedule (Rev. 3), which showed a project completion date of May 2024, with warranty completion and project closeout scheduled to occur in May 2026. HBR submitted its Project Schedule Update V11, with a data date of March 1, 2019, to address some of MTA's prior comments. In its April 2019 and May 2019 schedule submissions, HBR presented schedule recovery plans to MTA that attempted to recover the Full Revenue Service date (although these recovery plans did not recover the interim milestones, including the Phased Revenue Service Start date).
    - In May 2020, MTA decided to proceed with the addition of axle counters in the yard. Because of uncertainty related to testing requirements for these axle counters, HBR's Project Schedule Update V25 showed a delay of the Full Revenue Service date to February 6, 2024. MTA rejected HBR's Project Schedule Update V25.
    - After multiple submittals, rejections, and comments, MTA accepted Project Schedule Update V28 from HBR in September 2020 as the new baseline schedule. Project Schedule Update V28 showed the completion of the "Train Control" construction milestone on May 5, 2025; the "Last Vehicle Final Acceptance" milestone on March 1, 2024; and the "Revenue Service Full Project" milestone on September 15, 2024.
    - Starting in April 2021 and continuing through January 2022, MTA reported that the project was delayed compared to the previously accepted September 2020 baseline schedule. As of January 12, 2022, HBR projected that the "Last Vehicle Final Acceptance" milestone was delayed by 257 days from the baseline schedule to November 13, 2024, and that the "Revenue Service Full Project" milestone was delayed by 258 days from the baseline schedule to November 12, 2024.
    - In January 2022, HBR proposed a new baseline schedule to MTA, referred to as Schedule Update 41. Since January 2022, MTA and HBR have been negotiating the details of the proposed baseline schedule (Schedule Update 41). HBR requested that MTA accept Schedule Update 41 as the new baseline schedule. In the interim, **after receiving comments from MTA,** HBR has submitted **16 schedule revisions. MTA and HBR are working off the most recent revision (Schedule Update 41R14), which HBR submitted in May 2023, and has not been approved.**
    - As first reported in December 2022, small holes in the floor of carshells were discovered where calcium chloride desiccant packs had been placed for shipping. These small holes occurred in carshells including those used in the fully or partially assembled Cars 200 through 214. HBR has halted the use of this

desiccant for future shipments from Italy, and railcar assembly in Miami, Florida, was stopped. MTA also formally rejected 11 carshells.

- In May 2023, a new issue regarding corrosion appeared on some of the carshells that did not ship with desiccant packs. MTA provided as an example Carshell #034, which has corrosion dust but also displays flash rust in some areas, similar to the 33 carshells with corrosion from the desiccant.
- **MTA indicated that it is now awaiting resolution of the second COVID-19-related no-cost time extension and the impact from the delay caused by the scrapping of the 33 corrosion-damaged rail carshells. MTA remains in negotiations with HBR as it works through the commercial aspects of a change order to officially replace the contract's baseline schedule.** MTA is working under the expectation that the milestones in the upcoming schedule revision will be accepted as the new baseline schedule. **In the most recent schedule update, MTA presented on July 26, 2023,** MTA reports that the "First Vehicle Delivery" (aka the "First Married Pair") milestone is delayed until September 2023, which is 24 months later than the current baseline schedule. Schedule Update 41R14 also shows that the "First Vehicle Final Acceptance" milestone will be delayed until February 2025, and the "Last Vehicle Final Acceptance" milestone will be delayed until July 2026. Both of these dates are more than 25 months later than those shown in the current baseline schedule. Schedule Update 41R14 shows that the "Project Closeout" milestone will be delayed until March 2029, which is 22 months later than shown in the current baseline schedule.

- Cost: On **July 26, 2023,** MTA reported that **$223,252,000** of the $476,851,000 project budget had been expended through **May 31, 2023**. Forty-six change notices were in various stages of development, negotiation, and authorization; many were credits or no-cost changes, and the scope of two were funded by other sources. The total cost of the change notices is within the $20,000,000 contract contingency included in MTA's $400,517,000 contract with HBR. **The $476,851,000 project budget includes a miscellaneous work allowance (MWA) budget; this MWA is what is commonly referred to as "contingency." Currently, there is just over $10 million left in the MWA budget, with the rest having been used for change notices and upcoming estimated change notices. MTA plans to use the remaining $10 million MWA for CM services (or whatever portion is left after change notices). MTA believes that most, if not all, changes have been identified and estimated, although unforeseen change requests could arise. There is also a credit due to scope removal of $3.7 million that MTA plans to use for CM services**.
  - **Based on the current Estimate at Completion (EAC), MTA is approximately $1.0 million short for CM services through end of contract. MTA believes that this amount is a conservative estimate, because the EAC assumes a cost for CM services of $900,000 per month, which has been the average for the**

last two years, when MTA had its peak need for design reviews, test engineers, and inspectors. Because the Metro Fleet and Train Control Replacement Project is an MTA force-funded project, MTA will need to request more funds after this next fiscal year, based on the EAC. MTA stated that the HBR budget will not increase. There are no changes that will require an increase to the budget of $400,517,000 associated with HBR. This budget amount includes the original $20,000,000 MWA, of which the remaining $10 million will be used for CM services, as described above. Given that HBR will need 24 to 26 months until it can increase production to mitigate scrapping 33 rail carshells because of corrosion, and barring any other undetermined delays to railcar production, *the PMOC forecasts that additional funds may be required for schedule mitigation, safety oversight, CM services, and administration.*

- Significant Project Activities and/or Key Milestones:
    - Monthly meetings between Hitachi Rail executives and MTA leadership began in January 2021 to address issues related to vehicle quality and the project schedule. **At the meeting in May 2023, MTA issued HBR a cure notification regarding HBR's performance or lack thereof. Hitachi Rail executives are committed to addressing the cure notification and improving HBR's performance overall. In the most recent meeting, which occurred on July 20, 2023, the discussion topics were current mitigations HBR has been providing, HBR's desire to vet the systems testing predominately in the lab versus in the field, and increased validation in-house with HBR's RAMS group. HBR discussed with MTA that once HBR is settled in at the Hagerstown, Maryland facility and initial production is running smoothly, it will increase the production rate at a steady pace to minimize the impact from the loss of the 33 carshells. Current focus on the critical path is to meet the "First Vehicle Delivery (First Married Pair)" milestone (Milestone 12) on September 1, 2023. *The PMOC finds this motivation promising and continues to recommend that MTA maintain the partnering meetings with Hitachi Rail executives and continue to provide the Federal Transit Administration (FTA) and the PMOC with summaries of meetings with Hitachi Rail executives.***
    - **The Automatic Train Supervision (ATS) team developed a new revision to address minor bugs, and it has passed the validation process and is scheduled to go live on August 4, 2023. ATS mainline testing and interlocking testing will continue in preparation for the full backup Operational Control Center cutover at the end of the year. The next focus will be on Phase 3B, which is scheduled to start new ATS work in January 2024.**
    - **CBTC is on schedule for FATs the week of August 21, 2023. MTA indicated that HBR may not have some items (e.g., turn backs) ready for field use, apparently because of a contract clarification regarding locations for the**

turn backs. MTA assumed the turn backs would be at all locations and HBR assumed that only certain stations would have turn backs ready. HBR will provide a list of the locations for the turn backs that it assumed should be ready, so that MTA can determine how to proceed with the FATs.

- **Safety Certification: HBR continues to make progress on design conformance checklist (DCC) verification for ATS, CBTC, and Automatic Train Control (full integration). HBR is also making progress on DCC verification for the yard at the last SSI location.**
- **Testing Updates: Phase 4 testing is continuing on the mainline for tests that do not require CBTC. Dynamic testing is scheduled to start on August 14, 2023, and take three weeks to complete, at which time the yard should be ready for revenue service.**
- **MTA is still arranging a visit to the facility in August 2023. MTA mentioned that the elevated track has been completed. In September 2023, the Hagerstown facility will begin occupancy certification. HBR is still on target for equipment installation in the fourth quarter of 2023. MTA thinks that HBR is still on schedule for the Hagerstown facility to start railcar production in April 2024.**

1.3. Major Issues and/or Concerns

Table 1 discusses the major issues or concerns impacting the project's scope, schedule, cost, risks, quality, safety, etc., as well as the Project Sponsor actions and the FTA and PMOC recommendations.

Table 1 – Major Issues/Concerns and Action Items

Issue/Concern	HBR's schedule updates continue to show slippage of the project baseline schedule interim milestones and the project completion dates. Project Schedule Update V28 has been accepted as the new baseline schedule and reflects initial COVID-19-related impacts, but the pandemic has caused **additional impacts not covered by the new baseline schedule**. **This September 2020 baseline schedule does not include contingency time or "float."** HBR has now proposed a new baseline schedule (Schedule Update **41R14**) that delays most vehicle delivery and acceptance milestones by approximately **22 to 25 months** from the current baseline schedule.
Date Identified	June 2020
Status	In progress
Project Sponsor Action	MTA is conducting monthly executive meetings throughout the calendar year 2023. **At the meeting in May 2023, MTA issued HBR a cure notification regarding HBR's performance or lack thereof. HBR executives are committed to addressing the cure notification and improving their performance overall. In the most recent meeting, which occurred on July 20, 2023, the discussion topics were current mitigations HBR has been providing. HBR's desire to vet the systems testing predominately in the lab versus in the field, and increased validation in-house with HBR's RAMS group. HBR discussed with MTA that once HBR is settled in at the Hagerstown facility and initial production is running smoothly, it will increase the production rate at a steady pace to minimize the impact from the loss of the 33 damaged carshells. Current focus on the critical path is to meet the "First Vehicle Delivery (First Married Pair)" milestone (Milestone 12) on September 1, 2023.**

PMOC Recommendation	MTA should continue to perform its own schedule analysis to forecast realistic key milestones. This analysis should include a reasonable amount of schedule contingency based on MTA's experience with HBR's performance to date and MTA's professional experience. It should be used as the basis to report schedule status to FTA and the PMOC. MTA should track delays closely and continue to provide monthly updates to assess how delays are being mitigated. MTA should continue to provide FTA and the PMOC with summaries of the executive meetings held with Hitachi Rail.
Issue/Concern	Since the incident when MTA rejected Roof #1 due to significant quality issues, **HBR continues to experience significant quality issues. Corrosion of carshells due to desiccant, corrosive dust, the need to rework axle counters, and a cracked structural bolster beam and roof dimpling are a few of the more recent quality concerns and issues affecting the project.**
Date Identified	July 2020
Status	Ongoing
Project Sponsor Action	**During the May 2023 monthly meeting with Hitachi Rail executives, MTA issued a cure notification. HBR executives are committed to rectifying the quality issues and improving quality and performance.**
PMOC Recommendation	MTA should continue **to work with HBR and its executives** to fully evaluate the root causes of the quality issues and revise the associated quality processes accordingly.
Issue/Concern	Outstanding change notifications are yet to be finalized, such as the second COVID-19 no-cost time extension.
Date Identified	May 2022
Status	Ongoing
Project Sponsor Action	MTA reports that there are no further COVID-19-related impacts aside from those that are the basis for HBR's latest request for a no-cost time extension. **MTA states that it is working closely with HBR to resolve all change notices. MTA indicated that since the issuance of the cure notification, HBR has been more responsive.**
PMOC Recommendation	**MTA should finalize all outstanding change notices, and continue to monitor and quantify the impact of the resulting cost or schedule impacts to the project.**

1.4. Status of Key Indicators Dashboard (Post-Grant)

Table 2 shows the key indicators dashboard for the project.

Table 2 – Key Indicators Dashboard

Project Sponsor:				Maryland Transit Administration	
Project Name:				Metro Fleet and Train Control Replacement Project/MTA Non-New Starts Capital Projects	
Date:				**August 4, 2023**	
Project Detail					
Oversight Frequency:				**Monthly**	
Element	**Status**			**Prior Status**	**Issue or Concern**
	●	●	●		
	G	**Y**	**R**		
Project Management Plan (PMP)		●		●	**The PMP is due for another update now that MTA is getting ready to receive railcars and is entering the significant test phase**.
Management Capacity and Capability		●		●	Management capacity and capability reviews are not being performed on this Non-New Starts Project. However, the PMOC is evaluating MTA's project management capacity because of the change in staff: **Michael Ollinger was promoted, and Wane-Jang Lin has assumed his role until the vacancy can be filled.**
Cost*			●	●	**Although the recently added funds currently are not reflected in the project budget, MTA maintains $1 million budget deficit. MTA's MWA may not be sufficient to cover the change orders under negotiation or other project risks that could occur.**
Schedule			●	●	The currently proposed baseline schedule extends the project by up to **27** more months without float.
Quality			●	●	**Quality issues still under resolution include the bolster beam and axle counters. A newer quality issue in the past quarter relates to carshell roofs; HBR has presented an acceptable solution for this carshell roof issue to MTA. Quality issues have improved in the areas of safety certification checklist documentation and testing. HBR has refocused its efforts on quality, and MTA is starting to notice an improvement.**
Safety	●			●	No issues.
Risk			●	●	Schedule, cost, and quality risks remain high.
Legend					
Green	*Satisfactory: No corrective action necessary.*				
Yellow	*Caution: Risk/issues exist. Corrective action may be necessary.*				
Red	*Elevated for immediate corrective action: Significant risk to the health of the project.*				

*Note: With regard to cost:
Yellow – Forecast cost exceeds the project budget by up to 3%.
Red – Forecast cost exceeds the project budget by more than 5%.

1.5. Core Accountability Items

Table 3 shows the core accountability items for the project, including the current status of the project and the major issues and how they are being addressed.

Table 3 – Core Accountability Items

		Original (Grant)	Current Forecast	PMOC Assessment of Current Forecast
Cost	Capital Cost Estimate	$465,851,000	$476,851,000	**This estimate does not include $10 million of additional budget from state funds for CM and administration.**
Contingency	Unallocated Contingency		**$0**	**MTA has only an MWA (can be considered to be contingency) that is assigned to CM and administration. MTA has just over $10 million left in the MWA. The rest of the initial MWA has been used for change notices and upcoming estimated change notices. MTA plans to use the $10 million MWA for CM services (or whatever portion of the $10 million is left after resolution of change notices, most if not all of which have been identified and estimated barring any unforeseen occurrences). There is also a credit of $3.7 million due to scope removal; MTA plans to use this credit for CM services as well.**
	Allocated Contingency		**$20,000,000**	**This contingency amount does not appear adequate at this point in the project; schedule delays are likely to exhaust this amount before project completion.**
	Total Contingency	$20,000,000	**$20,000,000**	**MTA is about $1 million short for CM services through the end of contract. This shortfall is a conservative estimate, because the EAC assumes $900,000 per month in CM services, which has been the average cost for CM services for the last two years, during which MTA had peak needs for design reviews, test engineers, and inspectors. The project is an MTA force-funded project; therefore, based on the EAC, MTA will request more funds to cover additional needs and shortfalls after the next fiscal year.**
Schedule	Revenue Service Date	11/29/2022	07/27/2026	This forecasted date is more than **25** months later than shown in the baseline schedule agreed to by the contractor in January 2021. **MTA is planning to start a roll-in regarding revenue service beginning on May 27, 2025.**

Project Progress		Amount ($)	Percent of Total
Total Expenditures	Actual cost of all eligible expenditures completed to date	**223,252,000**	**46.8%**
Planned Value to Date	Estimated value of work planned to date	Not Available	Not Applicable (N/A)
Actual Value to Date	Actual value of work completed to date	Not Available	N/A

Contract Status		Amount ($)	Percent of Total
Total Contracts Awarded	Value of all contracts (design, support, construction, equipment) awarded; % of total value to be awarded	466,767,000*	97.9%
Construction Contracts Awarded	Value of construction contracts awarded; % of total construction value to be awarded	**449,924,000***	**96.4%**
Physical Construction Completed	Value of physical construction (infrastructure) completed; % of total construction value completed	**223,252,000****	**46.8%**

Rolling Stock Vehicle Status	Date Awarded	No. Ordered	No. Delivered
300 through 377	**09/01/2017**	78	0

Next Quarterly Progress Review Meeting:	**August 9, 2023**

*** Includes change orders issued through June 30, 2023.**

**** Does not include invoices on hold due to issuance of the cure notification.**

2. OBSERVATIONS AND FINDINGS

2.1. Summary of Monitoring Activities

The PMOC attended an in-person quarterly progress review meeting on May 15, 2023, and monthly virtual meetings on **June 29, 2023, and July 26, 2023,** with MTA project staff and MTA's Project Management Consultant. The PMOC prepared a trip report for each meeting to document the discussions.

2.2. Oversight Triggers

The oversight triggers most applicable to the project are the Oversight Procedure (OP) 25 schedule, cost, and quality triggers. The project schedule has been in one form of update or another throughout the current quarter. MTA and HBR agreed upon a no-cost change order in January 2021 that extended the Project Closeout date by 12 months to May 2027. Since the September 2020 revised baseline schedule was agreed upon with the contractor in December 2020, nearly every key milestone has been delayed by more than 12 months. MTA and HBR are trying to wrap up a negotiation for another no-cost time extension, the last one associated with COVID-19. The current unapproved schedule update version, Schedule Update 41R14, projects that the "Revenue Service Full Project" milestone will be delayed to July 2026, representing an additional **29 months compared to the approved baseline schedule.** Project schedule delays typically impact project cost, another significant indicator of project health.

Quality issues in the carshell manufacturing, first noted in July 2020, reportedly have been addressed. A second issue resulted in a roof buckling after it was assembled on Carshell #002 in November 2020. MTA reported additional minor quality issues with the carshells in March, April, June, and July 2021, which HBR has addressed. HBR completed root cause analysis of the nonconforming paint inclusions on frame subassemblies on three carshells and of paint on the F-end mask assemblies. HBR determined that the causes were related to shipping and handling, and painting errors. HBR has not confirmed the corrective actions but inspected for paint errors, so that they can be repaired before the mask assemblies arrive at the Miami facility. HBR addressed a minor quality issue related to seat brackets, as reported by MTA in October 2021. In November 2022, MTA reported that calcium chloride from desiccant packs had caused corrosion on the floor beams of the carshells, including small holes less than 1/4 inch in diameter in some floor beams, where desiccant packs had been placed before shipment from Italy. MTA then reported in December 2022 that, upon closer inspection of the first 16 cars, HBR has found the same corrosion on the floor beams on cars that were in production and FAI. As of January 18, 2023, HBR was assessing whether each car could be repaired or would need to be scrapped. At the May 2023 FTA quarterly progress review meeting, MTA reported that HBR was scrapping all 33 carshells that have the corrosion issue. HBR found the problem with the manufacturing process at the manufacturing facility in Italy that was causing the corrosion issue. HBR has since corrected the manufacturing process and developed a means to clean rail carshells that have minor corrosion dust on them. HBR has successfully cleaned the seven rail carshells in Miami. HBR continues to reuse components from corroded carshells. MTA indicated that HBR would need 24 to 26 months

before it can increase production at Hagerstown, Maryland, to mitigate the scrapping of the 33 carshells because of corrosion.

2.3. Project Management Plan and Subplans

Project Management Plan (PMP) Rev. 5, dated 2022, is the latest formal version issued for this project. Due to significant schedule and budget revisions, the quality issues, and the status of delivery and testing, MTA should consider updating the PMP. Incorporating lessons learned into MTA's daily management practices could benefit project performance moving forward.

2.4. Management Capacity and Capability

The PMOC is not performing comprehensive Management Capacity and Capability Reviews for these Non-New Starts Capital Projects.

2.5. National Environmental Policy Act Process and Environmental Mitigation

The National Environmental Policy Act process and environmental mitigation are not applicable to this task order assignment.

2.6. Project Delivery Method and Procurement

Project delivery method and procurement reviews are not being performed on this task order assignment.

2.7. Design

On July 26, 2023, MTA reported that it is working with HBR on the remaining design changes.

2.7.1. Train Control

On July 26, 2023, MTA reported that both the design certification and system certification checklists are almost complete and, that out of a handful that are close to being approved, there is still one document pending. In June 2023, MTA reported that there were 80 certifications remaining for construction conformance. For July 2023, MTA reported that HBR had closed out 90 percent of the remaining certifications and, of the then remaining 10 percent, two-thirds are not fully approved. There are no safety issues impeding approval of the last two-thirds of the remaining certifications, and MTA has decided to allow HBR to ship the vessels from Miami to Baltimore. This action does not allow HBR to put the railcars on the test track, however. HBR still will need to obtain final construction conformance approvals. The railcars cannot go on the test track until the design conformance checklist and construction conformance checklists are complete. For the latter, this means the construction conformance checklist must be complete, with evidence generated in Miami, because some criteria cannot be closed until further testing is performed in Baltimore, Maryland. MTA presents this decision to not hold up the project for non-safety issues as an example of its good management decisions. HBR sent two people to Italy regarding two fixes to the conformance checklist processes, and they walked through the checklists, making

significant improvements during the time period from July 9, 2023 to July 23, 2023. MTA also indicated that as of Milestone 12, HBR still had approximately six weeks of work on the static area before the tracks are ready. All HBR's improved efforts are aligning to meet the key "First Vehicle Delivery (First Married Pair)" milestone (Milestone 12) date of September 1, 2023.

The ATS team developed a new revision to address minor bugs, and it has passed the validation process and is scheduled to go live on August 4, 2023. ATS mainline testing and interlocking testing will continue in preparation for the full backup Operational Control Center cutover at the end of the year. The next focus will be on Phase 3B, which is scheduled to start new ATS work in January 2024.

CBTC is on schedule for FATs the week of August 21, 2023. MTA indicated that HBR may not have some items (e.g., turn backs) ready for field use, apparently because of a contract clarification regarding locations for the turn backs. MTA assumed that the turn backs would be at all locations, and HBR assumed that only certain stations would have turn backs ready. HBR will provide a list of the locations it assumed should be ready, so that MTA can determine how to proceed with the FAT.

Regarding safety certification, HBR continues to make progress on DCC verification for ATS, CBTC, and Automatic Train Control (full integration). HBR is also making progress on DCC verification for the yard at the last SSI location.

Regarding testing updates, Phase 4 testing is continuing on the mainline for tests that do not require CBTC. Dynamic testing is scheduled to start on August 14, 2023, and take three weeks to complete, at which time the yard should be ready for revenue service.

On May 15, 2023, MTA reported that Michael Ollinger was promoted, and Wane-Jang Lin assumed his role until the vacancy can be filled. On June 29, 2023, MTA reported that HBR had hired additional safety experts to assist with addressing the problems related to the development of safety certification documents. On July 26, 2023, MTA reported that the additional safety staff have proven helpful and HBR has made good progress on safety certification, as discussed above. MTA also stated that, since issuance of the cure notification, HBR has been improving its quality and making adjustments in quality staff. As of July 26, 2023, MTA had not reported any additional key MTA or HBR quality staff vacancies. ***Considering the potential negative impacts on the schedule related to any position remaining vacant for an extended period of time, the PMOC recommends that MTA fill the open position (currently filled by Wane-Jang Lin on an interim basis) and continue to carefully monitor HBR's progress with respect to safety and quality.***

2.7.2. Metro Fleet

As of July 26, 2023, the vehicle design milestone was projected to be complete on August 31, 2023. This date is two months later than reported in the PMOC's Comprehensive Monitoring Report for 2023 Quarter 1, and more than 26 months later than shown in the current baseline schedule. ***The PMOC recommends that MTA continue to analyze the schedule and***

require the contractor to develop and implement recovery activities, as well as incorporate float and report realistic milestone dates to FTA.

2.8. Value Engineering and Constructability Reviews

Value Engineering and constructability reviews are not applicable to this task order assignment.

2.9. Real Estate Acquisition and Relocation

Real estate acquisition and relocation reviews are not applicable to this task order assignment.

2.10. Third-party Agreements and Utilities

Third-party agreements and utilities are not applicable to this task order assignment.

2.11. Construction

2.11.1. Control System Construction

HBR started construction fieldwork to identify available existing conduits and installation of pull strings in April 2018. HBR began inner duct and fiber backbone material deliveries in July 2018. In addition, HBR started cable tray installation in October 2018 and completed this installation at the Owings Mills and Milford Mill stations in November 2018. HBR began installation of the inner duct in December 2018, and continued installation of inner duct, power cable, and fiber each weekend through October 2019.

HBR scheduled pilot training for SSI/DCS/LATS to start in October 2019, with regular student training to follow starting in January 2020. However, HBR has since delayed this training to align with the revised Owings Mills SSI/DCS/LATS revenue service date.

HBR provided the DCS pilot training in November 2019, but the training did not meet the needs of MTA. MTA and HBR held a workshop, and HBR subsequently updated the DCS pilot training. HBR was able to address all concerns about the training and provide a rack of hardware identical to that to be used by MTA for a successful dry run of the DCS pilot training, which was held on December 18, 2019. On January 6, 2020, HBR began actual student training, which included DCS, SSI, and LATS, and the second five-day training session was completed on February 7, 2020.

In July 2020, HBR completed wiring at Rogers Avenue and continued wiring at Portal. HBR continued fiber terminations at the DCS Ring 2 locations. Testing and commissioning staff finalized tests at Owings Mills, Old Court, and Milford Mill, and the SSI manufacturer worked on the equipment for Johns Hopkins. HBR continued Train Control system work in July 2020, working on verification of the construction conformance checklist for SSI/DCS/LATS.

As of May 15, 2023, MTA's outside service provider completed the installation of the logging Protective Circuit Device (PCD) at the Johns Hopkins traction power substation and also continued to install the logging PCD at other locations. This activity remains off the schedule's critical path.

MTA reported on April 17, 2023, that negotiations between HBR and its axle counter subcontractor continue to delay the start of this work. The axle counter subcontractor has filed a claim against HBR. As of April 2023, MTA had determined that, if this claim is not resolved and the required axle counters are not moved by June 2023, the dynamic testing would be affected. MTA stated that the subcontractor was ready to move forward and that axle relocation will take two weeks, but at that time the subcontractor would not move forward with the work until the issue with HBR was resolved.

On July 26, 2023, MTA indicated that HBR had replaced the axle counter subcontractor and moved forward with replacing the axle counters in the yard and on the mainline, including junction boxes, counters, and cable replacements for melters and switches. MTA said that train operator training is set to begin the third week of September 2023 after the first Married Pair arrives in Baltimore. MTA indicated that HBR still needs to address a full set of comments on and perform a language review of the training material. MTA indicated that staffing is no longer a risk for document development, because HBR has increased the level of dedicated staff.

2.11.2. Metro Fleet Fabrication and Assembly

On April 17, 2023, MTA reported that at the HBR progress meeting during the week of April 11, 2023, HBR discussed an unofficial plan to possibly scrap 33 carshells because they did not meet HBR's Quality Standards as a result of desiccant-related corrosion. MTA indicated that HBR has provided a process to clean the corrosion dust from the other carshells not affected by the desiccant-related corrosion. In addition, a new issue regarding corrosion has appeared on some of the carshells. MTA provided as an example Carshell #034, which is exhibiting corrosion dust but also displaying flash rust in some areas, similar to carshells with corrosion from the desiccant. HBR has also identified similar noncompliance issues with the seven shipped, completed carshells. MTA has reminded HBR that it cannot move forward on the seven completed carshells until the noncompliance issue is resolved. HBR continues to reuse components from corroded carshells.

At the FTA quarterly progress review meeting on May 15, 2023, MTA announced that HBR had made the decision to scrap the 33 carshells that did not meet the Quality Standards. HBR continues to reuse components from corroded carshells.

On July 26, 2023, MTA indicated that there are no new corrosion issues. MTA reported that the new cleaning process HBR instituted in Italy appears to be functioning well. MTA stated that the proof will be when the carshells ship from Italy to Hagerstown. HBR has used the cleaning process on five of the seven carshells in Miami. The remaining two will be cleaned by August 5, 2023, and this cleaning step will complete assembly of the vehicles in Miami. Then HBR will ship two carshells to Hagerstown as part of a test. ***The PMOC recommends tabling this issue until HBR restarts production at Hagerstown, at which time MTA should revisit the condition of the carshells being shipped from Europe.***

Regarding the carshell structural steel issues, MTA is awaiting the results of the destructive testing report from the third party that is expected by July 28, 2023. HBR and MTA will not know the results of HBR's independent fatigue test, which is being performed in Italy, until late October

2023. **MTA indicated that HBR has suspicions that the fatigue test will point to a manufacturing issue with the bolster beams**.

In June 2023, MTA reported an issue with dimpling on the carshell roofs. At that time, indications from HBR were that it was not a structural concern. MTA mentioned that HBR has decided to add four beams to the carshells (two on each side along the carlins) moving forward; however, the existing carshells are acceptable. MTA requested that HBR test the sidewalls, and those tests have proven there is no issue with them.

FAI testing on the original Married Pair 1 and Married Pair 2 was completed in June 2023 and demonstrated successful testing procedures to be used for future carshells. As indicated in the PMOC's June 2023 trip report, the original Married Pair 3 and Married Pair 4 will become the replacement pairs for Married Pair 1 and Married Pair 2. Assembly of Married Pair 3 is almost complete, and Married Pair 4 will soon start the assembly process. The new Married Pair 1 and Married Pair 2 will ship to the Metro Maintenance Facility in Baltimore upon completion of safety certification. Also as indicated in June 2023, production will restart in the United States in April 2024, and HBR has committed to improving its production output to mitigate the impact of scrapping 33 carshells; however, MTA Train Control and HBR will not be able to support a major ramp-up in carshell fabrication until 24 or 26 months into production at the Hagerstown facility.

Regarding the Hagerstown facility, MTA is still arranging a visit to the facility to occur in August 2023. MTA mentioned that the elevated track at Hagerstown has been completed. In September 2023, the Hagerstown facility will begin occupancy certification. HBR is still on track for equipment installation in the fourth quarter of 2023, and MTA believes that HBR is still on schedule for the Hagerstown facility to start railcar production in April 2024.

The PMOC recommends that MTA continue to require HBR to develop a mitigation plan to address the scrapping of the 33 carshells that includes a realistic schedule, along with an EAC cost that includes sufficient contingency based on that mitigation plan.

2.12. Vehicle Technology and Procurement

Vendor: Hitachi Ansaldo Baltimore Rail Partners, LLC

Model: Hitachi Rail Italy (HRI)-MTA

Year: 2023 (first vehicle delivery)

Quantity: 78

Identification: **300 through 377**

New Technologies: Not applicable

Upcoming Significant Events:

Time Frame	Event

June 2023	**Manufacturer's Design Complete**
September 2023	**First Vehicle Delivery (Married Pair)**

Bus Vehicle Testing: Not applicable

2.13. Project Cost

2.13.1. Project Budget

MTA reported the latest project cost data to the PMOC on July 29, 2023. Based on this data, which is through **May 31, 2023,** the project has total expenditures of **$223,252,000.** Table 4 shows the federal grants used for the project, and Table 5 shows the total project funding and the drawdowns on that funding through **May 31, 2023**, as reported by MTA on **July 26, 2023**. ***The PMOC recommends that MTA continue to analyze the overall project budget, including administrative and oversight costs, in light of the ongoing schedule delays.***

Table 4 – Project Federal Grants

Federal Grants	Federal Amount	Drawdown
MD-2016-006	$34,054,000	$34,054,000
MD-2016-007	$3,645,000	$3,645,000
MD-2019-014 /ZC02XX	$19,621,000	$18,435,000
MD-2019-017	$5,002,000	$5,002,000
MD-2019-018/ZC01XX / ZC03XX	$5,785,000	$5,785,000
MD-2020-003 / ZD22XX	$16,847,000	$16,847,000
MD-2021-004 /STP-20	$13,730,000	$8,687,000
MD-2021-013 / ZD20XX	$27,946,000	$27,490,000
MD-2022-010//**ZF08XX**	$7,578,000	$2,286,000
1401-2021-30 / ZE02XX	$9,745,000	
1401-2021-18 / ZF20XX	$38,032,000	
5307-22/*ZG24XX*	$45,178,000	
5307-23/ZH02XX	$26,098,000	
B5307-24	$24,010,000	
B5307-25	$15,043,000	
B5307-26	$3,331,000	
ZG08XX	$10,301,000	
CMAQ-23/ZH11XX	$29,072,000	
B5337-25	$12,163,000	
B5337-26	$2,469,000	
Total	**$349,650,000**	**$122,231,000**

Note: Rounding in grant values is not reflected in the total.

Table 5 – Project Funding Summary

Funding Source	Amount	Drawdown
Federal	$349,650,000	**$122,231,000**
State/County	$127,201,000	$98,869,000
Total	$476,851,000	**$221,100,000**

MTA continues to manage change orders and change notices. The following is the status of contract changes as reported by MTA on **July 26, 2023:**

- Forty-six change requests have been initiated to date.
- Three of the change requests were cancelled.
- MTA and HBR have negotiated **38** change orders (with a related net increase to the contract value of **$7,988,560**), which include two change orders funded by separate MTA projects and the "Yard Axle Counters" (CN-034).
- Negotiations for a change request for the ground-penetrating radar work for the yard axle counters (CN-42) began in July 2022. The two parties have reached an agreement on the contract value, but the change order is not yet executed.
- Negotiations for a change request for the addition of exterior vehicle wraps with an overlaminate (CN-35) are complete, but the change order is not yet executed. While the change order value is significantly higher than MTA had anticipated, the two parties have reached an agreement on it. Changes for the replacement or repair of additional signals above ground (CN-23R) and for a "clean agent" fire suppression system at the "Pit Hut" (CN-044) are tied to the axle counter rework subcontractor's claim and related issue (see Section 2.11.1).
- HBR is in the process of preparing cost proposals for the six remaining change requests, which MTA estimates total approximately $0.5 million. These change requests have the approval of MTA's Change Control Board.
- MTA reported on April 17, 2023, that additional changes have been requested: CN-045 is the second COVID-19-related no-cost time extension request, and CN-046 is to add the replacement of conduits in five locations. MTA did not report the monetary value of the commercial contract terms of the pending change requests; therefore, that value is not reflected in this discussion.

2.13.2. Disadvantaged Business Enterprise Performance

The project has the following Disadvantaged Business Enterprise (DBE) goals:

- HRI DBE goal: **4.00** percent (**2021**)
- Ansaldo Signaling and Transportation Systems (STS) DBE goal: 9.72 percent

Actual performance relative to these goals is reported separately to FTA by HRI and by Ansaldo STS (as a transit vehicle manufacturer) in accordance with the U.S. Department of Transportation DBE regulations.

2.14. Project Schedule

HBR submitted a preliminary project schedule that was revised to address comments that MTA provided in November 2017. MTA approved the February 28, 2018, Project Schedule (Rev. 3) as the project baseline schedule in March 2018.

After initial delays, HBR submitted the integrated Train Control and Railcar schedule recovery plan (HBR's Project Schedule Update V12) in May 2019. MTA reviewed Project Schedule Update V12 and accepted it as the schedule recovery plan. HBR's project schedule updates through March 2020 continued to show delays to interim milestones and the Full Revenue Service date. Delays due to COVID-19 then began to occur.

In May 2020, MTA decided to proceed with the addition of axle counters in the yard, which MTA understood would result in delays that would be experienced concurrently with delays already resulting from design delays and COVID-19 restrictions.

HBR submitted Project Schedule Update V28 on September 10, 2020. MTA and its consultant reviewed it and returned it to HBR for revision and resubmission. MTA and HBR then met twice to resolve the comments and concerns, and HBR resubmitted Project Schedule Update V28 in October 2020. MTA's comments on Project Schedule Update V28 related to changes to the schedule since the previous update that were not fully documented and to other scheduling practices. HBR's proposed Schedule Update V28 also included the past delays related to COVID-19, but the documentation to back up the COVID-19-related delays (starts and stops) of each activity was not provided.

In December 2020, MTA accepted Project Schedule Update V28 from HBR as the new baseline schedule. Comparison of the prior baseline schedule to the new baseline schedule indicated that the completion of the train control construction was delayed by 343 days (just over 11 months), and the "Revenue Service Full Project" milestone was delayed by 456 days (just under 15 months). MTA reported that this baseline schedule did not include contingency time (i.e., float).

Since MTA accepted Schedule Update V28 as the revised contract baseline schedule, HBR has submitted 12 updates that MTA has accepted. HBR submitted Schedule Update 41 in January 2022, requesting that MTA accept it as the new baseline schedule. HBR has since submitted 16 schedule revisions after receiving comments from MTA. The latest revision being reported on is Schedule Update 41R14, which was submitted on May 1, 2023 (see Table 6).

Schedule Update 41R14 shows that the "Contractor Design Completion" milestone is delayed until August 31, 2023, 32 months later than the current baseline schedule and 3 months later than previously reported. In addition, Schedule Update 41R14 indicates that the "Manufacturer Design Complete" milestone is delayed until August 31, 2023, 30 months later than the current baseline schedule and 2 months more than previously reported, and

the "First Vehicle Delivery" milestone is delayed until September 4, 2023, 25 months later than the current baseline schedule and 2 months more than previously reported. The PMOC recommends that MTA provide a discussion during the quarterly progress review meeting that walks through the "Key Contractual Milestones" and demonstrates how the project will continue to achieve the remaining critical path components to complete the project without additional loss of time or increase to project cost.

MTA reported that Milestone 12 (delivery of Married Pair 1), which is a focal point of the schedule and an important contractual milestone that HBR must meet, is currently on schedule. MTA reported that negotiations with HBR on the second no-cost time extension and commercial contract terms are ongoing. The commercial contract terms to compensate for delays that MTA is seeking include additional ATS user interface modifications, railcar training videos, extended software maintenance, additional spare parts, and additional warranty for computer hardware. The no-cost time extension is connected to the last of the COVID-19-related delays.

MTA reported that the next planned schedule revision (Schedule Update R15) from Update 41R14 will likely be superseded by Schedule Update R16, which is to be accepted as the new baseline schedule. Schedule Update R15 will account for the no-cost time extensions, and Schedule Update R16 will account for the scrapping of 33 carshells due to the corrosion issues and other schedule risks. MTA also indicated that Schedule Update R16, once approved, is an achievable schedule for both MTA and HBR. MTA did not provide an estimated time frame for the approval of Schedule Update R16, because negotiations have not concluded for the no-cost time extension and commercial contract terms.

Based on the consistent schedule slippage and lack of float in the project schedule, the current project schedule and budget do not appear achievable. ***The PMOC recommends that MTA require HBR to develop a mitigation plan that includes a realistic schedule, along with an EAC cost that includes sufficient contingency based on that mitigation plan.***

Table 6 – Project Schedule

Activity	Original Contract or Grant Date	Current Approved Baseline Completion Schedule (Update 28, 9/1/2020)	Last Quarter Completion Dates	Current Completion Date (Schedule Update 41R14, 5/1/2023)	Change Since Last Quarter*	Actual
MTA Design Complete	3/1/2015	3/1/2015	3/1/2015	3/1/2015	N/A	3/1/2015
Right-of-Way Complete	Not Applicable (N/A)	N/A	N/A	N/A	N/A	N/A
Advertisement	9/30/2015	9/30/2015	9/30/2015	9/30/2015	N/A	9/30/2015
Bids/Proposal Due	3/31/2016	3/31/2016	8/12/2016	8/12/2016	N/A	8/12/2016
Award Date	11/30/2016	11/30/2016	7/26/2017	7/26/2017	N/A	7/26/2017
Notice to Proceed	12/15/2016	12/15/2016	9/1/2017	9/1/2017	N/A	9/1/2017

Activity	Original Contract or Grant Date	Current Approved Baseline Completion Schedule (Update 28, 9/1/2020)	Last Quarter Completion Dates	Current Completion Date (Schedule Update 41R14, 5/1/2023)	Change Since Last Quarter*	Actual
Construction:						
Contractor Design Complete	**2/7/2019**	**12/15/2020**	**6/2/2023**	**8/31/2023**	**-90 Days**	
Construction Start	5/14/2018	5/14/2018	4/2/2018	4/2/2018	N/A	4/2/2018
Construction Complete	5/26/2024	5/4/2025	9/19/2025	9/19/2025	0 Days	
Vehicles:						
Mfgr Design Complete	**5/29/2019**	**2/23/2021**	**6/30/2023**	**8/31/2023**	**-62 Days**	
First Vehicle Delivery	**5/29/2020**	**8/23/2021**	**6/29/2023**	**9/4/2023**	**-67 Days**	
First Vehicle Cond. Accept	6/26/2021	11/3/2022	2/20/2025	2/20/2025	0 Days	
First Vehicle Final Accept	6/26/2021	11/4/2022	2/21/2025	2/21/2025	0 Days	
Last Vehicle Delivery	10/25/2022	1/23/2024	6/19/2026	6/19/2026	0 Days	
Last Vehicle Cond. Accept	11/28/2022	2/28/2024	7/22/2026	7/22/2026	0 Days	
Last Vehicle Final Accept	11/29/2022	3/1/2024	7/23/2026	7/23/2026	0 Days	
Integrated Test Start	6/26/2021	6/21/2022	7/31/2023	7/31/2023	0 Days	
Revenue Service Start, if Phased	6/26/2021	11/3/2022	3/20/2025	3/20/2025	0 Days	
Revenue Service Full Project	11/29/2022	2/28/2024	7/22/2026	7/22/2026	0 Days	
Last Car Delivery	11/29/2022	10/25/2022	6/19/2026	6/19/2026	0 Days	
Project Closeout	5/26/2026	5/4/2027	3/10/2029	3/10/2029	0 Days	

***Reason for Change:** HBR updated the schedule and proposed it as the new baseline schedule. The schedule includes delays due to late delivery of the first Married Pair from testing in Miami, expected delays related to the move to Hagerstown, and delays associated with repair/replacement of corroded carshells.

2.15. Project Risk

It is recognized that the train control work has been very challenging, because both the new system and the existing system need to operate simultaneously during the transition period, when both new railcars and existing railcars are in operation.

The no-cost time extension impacts of the second COVID-19 change notice present risks to the project schedule. In addition, delivery of the vehicles has been delayed as HBR and the subassembly manufacturer worked to resolve roof quality issues, and quality issues with the carshells could resurface. The "First Vehicle Delivery" milestone remains a high-risk item because of delays in HBR's completion of the design documents and the slow completion of the FAIs; MTA is now expecting this milestone to slip by two months, to September 2023.

The scrapping of 33 rail carshells, while eliminating the issues regarding the rust/corrosion impacts, still poses a risk to the production schedule, and HBR should develop a related mitigation plan. MTA also must wait for the Hagerstown plant to restart production in 2024, in order to validate that HBR's mitigation to the corrosion issue has been successfully addressed. The impacts of ongoing schedule delays are significantly increasing the risk of project cost overruns.

2.16. Quality Assurance/Quality Control

MTA's contract with HBR establishes the quality assurance/quality control requirements for the project in accordance with FTA Quality Management System Guidelines.

Quality problems related to carshell manufacturing, which were first noted in July 2020, reportedly have been addressed. See the discussion in Section 2.11.2, above.

2.17. Safety and Security

MTA's contract with HBR establishes the requirements for safety and security, including those for safety certification of the work performed on this project. Railway Worker Protection safety training is ongoing. MTA announced that HBR hired well-known industry consultants to assist with addressing the security certification issues that have been plaguing HBR. **MTA has since noticed the beginning of positive movement toward resolution of those safety certification issues. MTA has witnessed a change in HBR through improvements in addressing the quality issues.**

2.18. Americans with Disabilities Act

The contract for this project requires compliance with the Americans with Disabilities Act regulations. The new vehicles do not have barriers to guide sight-impaired passengers from mistaking the gap between the vehicles as an entry door.

2.19. Buy America

The contract for this project requires compliance with FTA's Buy America requirements. MTA reported in January 2022 that it had completed the interim Buy America audit and found that both the train control and the railcar materials exceeded the requirements. MTA plans to conduct another audit after the first railcars are delivered and the train control materials have all been installed.

2.20. Start-up, Commissioning, Testing

The "First Vehicle Delivery" (aka the "First Married Pair") milestone is scheduled for September 2023 (according to Schedule Update 41R14) in order to begin conditional acceptance. MTA and HBR must finalize the vehicle commissioning plan before that time. In addition, the integration testing of the vehicles and control system was scheduled for July 2023 (according to Project Schedule Update 41R14), and MTA and HBR must finalize the integration testing plan for the integrated operation.

2.21. Before-and-After Study Reporting

Before-and-after study reporting is not applicable to this task order.

2.22. Lessons Learned

At the PMOC's request, MTA provided four Lessons Learned documents on September 25, 2020, to illustrate the project processes that are using lessons learned from past events during the control system construction and railcar manufacturing. At the time, MTA and the PMOC reviewed and briefly discussed these documents during their monthly meeting.

The process of incorporating lessons learned involves review of those events from the last major work activity (either positive or negative) that should be agenda items for the next major work activity being prepared. There are generally one or two meetings before a major activity, including those activities that require a power outage.

After a major activity, a new Lessons Learned document is prepared. MTA staff, consultant staff, and HBR each provide a list of lessons learned and recommend future actions separately, and then these are consolidated into post-activity debriefing meeting minutes. However, the meeting minutes document does not build upon items from previous major activities; thus, the lessons learned are not cumulatively documented.

As first stated in the October 2020 PMOC Comprehensive Monitoring Report, in the opinion of the PMOC, MTA should record and track lessons learned in a cumulative fashion. MTA should then refer to this more complete document in order to integrate lessons learned into the construction process and adjust them as project conditions dictate.

2.23. Actions Items Table

All action items identified at the previous quarterly meetings and monthly meetings related to this project have been closed.

ATTACHMENT A – LIST OF ACRONYMS

ATS	Automatic Train Supervision
BRT	Bus Rapid Transit
CBTC	Communications Based Train Control
CDR	Conceptual Design Review
CM	Construction Management
CMGC	Construction Manager General Contractor
CFR	Code of Federal Regulations
CSSP	Construction Safety and Security Plan
DBE	Disadvantaged Business Enterprise
DBOM	Design, Build, Operate, and Maintain
DCC	Design Conformance Checklist
DCS	Data Communication System
DF	Designated Function
EAC	Estimate at Completion
FAI	First Article Inspection
FAT	Factory Acceptance Test
FDR	Final Design Review
FHA	Fire Hazard Analysis
FRA	Federal Railroad Administration
FTA	Federal Transit Administration
HAB	Hitachi Ansaldo Baltimore Rail Partners, LLC
HBR	Hitachi Baltimore Rail Partners LLC
HRI	Hitachi Rail Italy
LATS	Local Automatic Train Supervision
MTA	Maryland Transit Administration
MWA	Miscellaneous Work Allowance
N/A	Not Applicable
NTP	Notice to Proceed
O&M	Operations and Maintenance

OHA	Operational Hazard Analysis
OP	Oversight Procedure
OSHA	Occupational Safety and Health Administration
PCD	Protective Circuit Device
PDR	Preliminary Design Review
PHA	Preliminary Hazard Analysis
PMOC	Project Management Oversight Contractor
PMP	Project Management Plan
RAMS	Reliability, Availability, Maintainability, and System Safety
RAP	Rail Activation Plan
SCIL	Safety Certifiable Item List
SEPP	Security and Emergency Preparedness Plan
SIT	Systems Integration Test
SOP	Standard Operating Procedure
SSCP	Safety and Security Certification Plan
SSCVR	Safety & Security Certification Verification Report
SSI	Solid-state Interlocking
SSMP	Safety and Security Management Plan
SSO	State Safety Oversight
SSPP	System Safety Program Plan
STS	Signaling and Transportation Systems
TVA	Threat and Vulnerability Assessment

ATTACHMENT B – SAFETY AND SECURITY CHECKLIST

To be revised and populated in future reports.

Project Overview			
Project Mode (Rail, Bus, BRT, Multimode)			
Project Phase (Project Development, Engineering, Construction, Start-Up)			
Project Delivery Method (Design/Build, DBOM, CMGC, etc.)			
Project Plans	**Version**	**Review by FTA**	**Status**
Safety and Security Management Plan (SSMP)			
Safety and Security Certification Plan (SSCP)			
System Safety Program Plan (SSPP)			
System Security Plan or Security and Emergency Preparedness Plan (SEPP)			
Construction Safety and Security Plan (CSSP)			

Area of Focus	**Y/N**	**Notes/Status**
Safety and Security Authority		
Is the project sponsor subject to 49 CFR Part 659 state safety oversight requirements?		
Has the state designated an oversight agency as per Part 659.9?		
Has the oversight agency reviewed and approved the project sponsor's Security Plan or SSPP as per 49 CFR Part 659.17?		
Did the oversight agency participate in the last Quarterly Program Review Meeting?		
Has the project sponsor submitted its safety certification plan to the oversight agency?		
Has the project sponsor implemented security directives issues by the Department Homeland Security and/or Transportation Security Administration?		
SSMP Monitoring		
Is the SSMP project-specific, clearly demonstrating the scope of safety and security activities for this project?		
Does the project sponsor review the SSMP and related project plans to determine if updates are necessary?		
Does the project sponsor implement a process through which the Designated Function (DF) for Safety and DF for Security are integrated into the overall project management team? Please specify.		
Does the project sponsor maintain a regularly scheduled report on the status of safety and security activities?		
Has the project sponsor established staffing requirements, procedures, and authority for safety and security activities throughout all project phases?		
Does the project sponsor update the safety and security responsibility matrix/organizational chart as necessary?		
Has the project sponsor allocated sufficient resources to oversee or carry out safety and security activities?		
Has the project sponsor developed hazard and vulnerability analysis techniques, including specific types of analysis to be performed during different project phases?		

Does the project sponsor implement regularly scheduled meetings to track to resolution any identified hazards and/or vulnerabilities?		
Does the project sponsor monitor the progress of safety and security activities throughout all project phases? Please describe briefly.		
Does the project sponsor ensure the conduct of preliminary hazard and vulnerability analyses? Please specify analyses conducted.		
Has the project sponsor ensured the development of safety design criteria?		
Has the project sponsor ensured the development of security design criteria?		
Has the project sponsor ensured conformance with safety and security requirements in design?		
Has the project sponsor verified construction specifications conformance?		
Has the project sponsor identified safety and security critical tests to be performed prior to passenger operations?		
Has the project sponsor verified conformance with safety and security requirements during testing, inspection, and start-up phases?		
Does the project sponsor evaluate change orders, design waivers, or test variances for potential hazards and/or vulnerabilities?		
Has the project sponsor ensured the performance of safety and security analyses for proposed workarounds?		
Has the project sponsor demonstrated through meetings or other methods, the integration of safety and security in the following? • Activation Plan and Procedures • Integrated Test Plan and Procedures • Operations and Maintenance Plan • Emergency Operations Plan		
Has the project sponsor issued final safety and security certification?		
Has the project sponsor issued the final safety and security verification report?		
Construction Safety		
Does the project sponsor have a documented/implemented Contractor Safety Program with which it expects to comply?		
Does the project sponsor's contractor(s) have a documented companywide safety and security program plan?		
Does the project sponsor's contractor(s) have a site-specific safety and security program plan?		
How do the project sponsor's OSHA statistics compare to the national average for the same type of work?		
If the comparison is not favorable, what actions are being taken by the project sponsor to improve its safety record?		

Federal Railroad Administration		
If shared track, has the project sponsor submitted its waiver request application to FRA? (Please identify specific regulations for which waivers are being requested.)		
If shared corridor: has the project sponsor specified specific measures to address shared corridor safety concerns?	N/A	This is not a shared corridor.
Is the Collision Hazard Analysis underway?		
Other FRA required Hazard Analysis – Fencing, etc.?		
Does the project have Quiet Zones?		
Does FRA attend the Quarterly Review Meetings?	N	

ATTACHMENT C – TOP 5 PROJECT RISKS

Please see Table 1 – Major Issues/Concerns and Section 2.15, Project Risk, in this report for top risks.

ATTACHMENT D – AWARDED CONTRACTS

As reported by MTA on **April 17, 2023**.

Company	Vendor Type	Contract Number	Baseline Amount (in thousands)	Current Amount (in thousands)	Projected Amount (in thousands)	Percent of Projected Total
RKK	Design	1354A	$800	$163	$252	0.05%
JMT	Design	1354B	$487	$452	$698	0.15%
PB	Design	1265A	$2,030	$97	$150	0.03%
HAB Rail Partners	Contractor	T-8000-1415	$400,517	$400,517	$400,517	84.01%
AECOM	Construction Services	1445A	$16,396	$16,093	$24,834	5.21%
CH2M Hill	Construction Services	1345A/ AGY-16A	$6,191	$7,025	$10,842	2.27%
HNTB	Construction Services	1445A/ AGY-16A	$7,785	$8,598	$13,269	2.78%
STV	Construction Services	1345B/ AGY-16D	$5,030	$6,118	$9,442	1.98%
OMNI	Construction Services	AGY-16B	$1,907	$1,728	$2,667	0.56%
WSP	Construction Services	1345C/ AGY-16E	$247	$1,921	$2,965	0.62%
Urban	Construction Services	15-01C	$505	$846	$1,306	0.27%
GF	Construction Services	1445C	$3,044	$73	$113	0.02%
MTA	Construction Services	Misc.	$15,973	$438	$676	0.14%
ADS	Construction Services	AE-19-04D/1399C	$5,855	$5,855	$9,036	1.90%
Contracted Total			$466,767	$449,924	$476,767	100.00%

ATTACHMENT E – ROLLING STOCK VEHICLE STATUS REPORT

Vendor: Hitachi Ansaldo Baltimore Rail Partners, LLC

Model: Hitachi Rail Italy (HRI)-MTA

Year: 2023 (first vehicle delivery)

Quantity Ordered: 78

Quantity Delivered to Date: 0

Identification: 300 through 377

New Technologies: Not applicable

Upcoming Significant Events:

Time Frame	Event
June 2023	**Manufacturer's Design Complete**
September 2023	**First Vehicle Delivery (Married Pair)**

ATTACHMENT F – PROJECT MILESTONES/KEY EVENTS

Milestones	Actual or Currently Planned Dates
MTA Design Complete	March 2015
Notice to Proceed	September 2017
Control System	
Contractor Design Complete	**August 2023**
Construction Start	April 2018
Construction Complete	September 2025
Fleet	
Manufacturer's Design Complete	**August 2023**
First Vehicle Delivery	**September 2023**
First Vehicle Final Acceptance	February 2025
Last Vehicle Delivery	June 2026
Last Vehicle Final Acceptance	July 2026
Integrated Project	
Integrated Test Start	July 2023
Revenue Service, if Phased	**March 2025**
Revenue Service Full Project	July 2026
Work Complete	December 2026
Project Closeout	March 2029

Note: Dates shown are based on Project Schedule Update 41R14.

ATTACHMENT G – ROADMAP TO REVENUE OPERATIONS

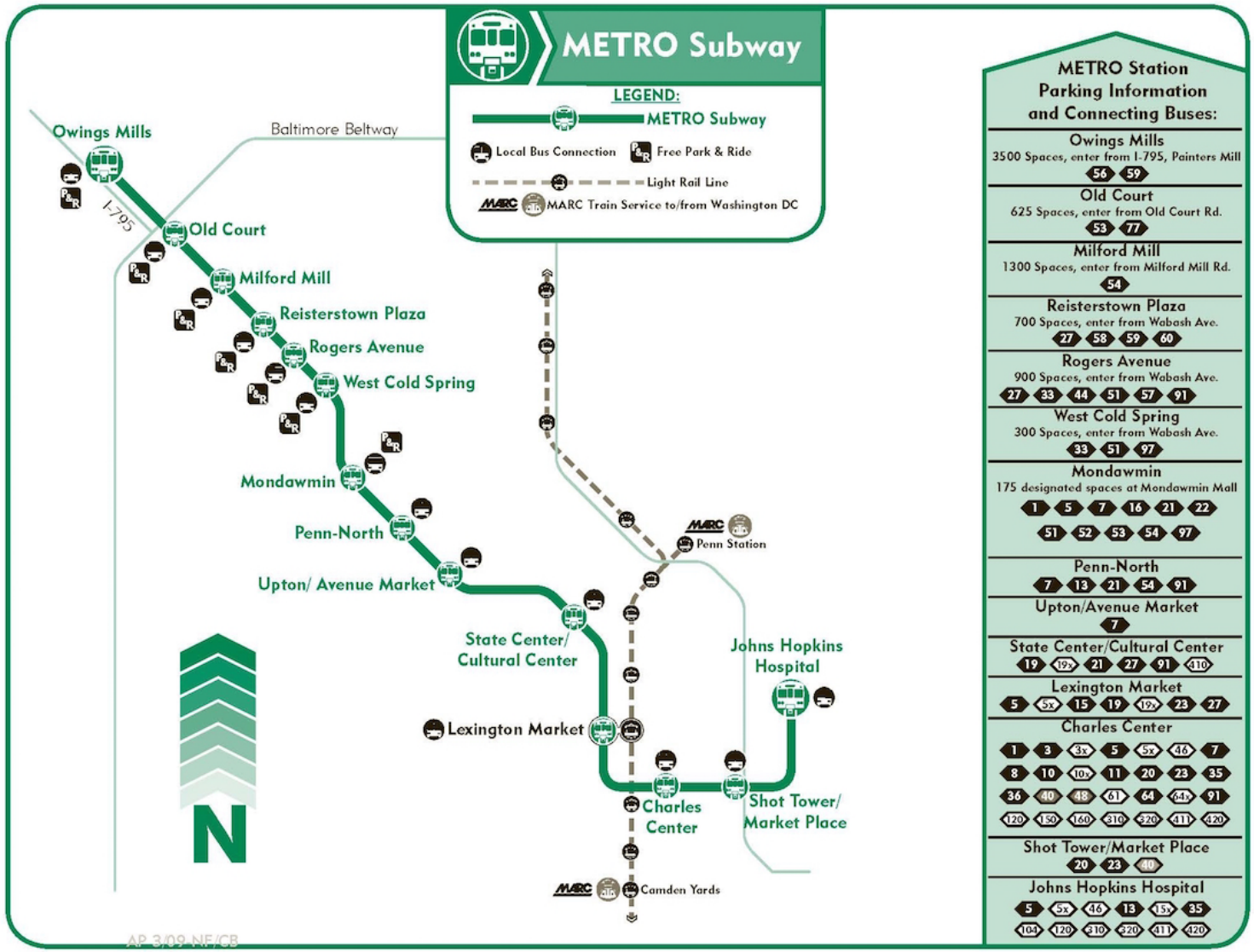
In accordance with Oversight Procedure 25, the Roadmap to Revenue Operations, prepared from the Project Sponsor's Master Schedule, is issued quarterly as a separate electronic file. It will be revised and populated in future reports.

Description	Responsible Party	Status	Estimated Start Date	Estimated Completion Date	Actual Completion Date	Notes
Testing						
Finalize Comprehensive Test Plan						
Finalize/update Systems Integration Test (SIT) Plan						
Develop Testing Schedule and Monitoring Tools						
Develop Operating Rules for Testing						
Conduct System Integrated Testing - Building Systems						
Conduct System Integrated Testing - Train Systems						
Conduct Testing and Commissioning - Train Systems						
Certificates of Occupancy/Substantial Completion						
Operating Plan, Rules						
Finalize Operating Plan						
Finalize/revise SOPs, manuals, and rulebook as applicable						
Complete Staffing Plan						
Obtain Required Staff						
Training of O&M personnel						
Emergency response plan, training, and drills						

Description	Responsible Party	Status	Estimated Start Date	Estimated Completion Date	Actual Completion Date	Notes
Maintenance and Asset Management						
Pre-Revenue Operations						
Finalize and/or update Rail Activation Plan (RAP) and/or Pre-Revenue Operations Plan						
Implement Rail Activation Committee						
Develop/revise SSPP and Security Plan (approved by State Safety Oversight (SSO))						
FTA Office of Safety and Security Readiness Review						
PMOC OP-54 Readiness for Revenue Operations Review Report, Phase I						
PMOC OP-54 Readiness for Revenue Operations Review Report, Phase II						
Conduct Operational Hazard Analysis (OHA) and resolve other hazards/ vulnerabilities						
Pre-Revenue Operations						
Public Outreach						
Develop Safety Outreach Plan						
Provide Community Outreach						
Public Timetables/Maps/Website Updates, etc.						
Grand Opening Plan						
Safety, Security, and Fire-Life Safety Certifications						
Update/Finalize SSMP						

Description	Responsible Party	Status	Estimated Start Date	Estimated Completion Date	Actual Completion Date	Notes
Finalize and/or update SCIL and SSCP						
Implement Safety and Security Certification Committee						
Implement Fire Life Safety Committee						
Verify design criteria, PHA, TVA, change orders are implemented within the project						
Review status of quality nonconformances						
Close-out of non-safety critical items/ non-conformances						
Close-out of safety critical items/ nonconformances						
Complete Safety & Security Certification Verification Report (SSCVR)						
Document Workarounds/Open Items List						
Verify emergency drills, tabletops, training, etc. are completed						
SSO final certification/signature						
FRA?						
Revenue Service						
Target Revenue Service Date						
Public Revenue Service Date						
Revenue Service Date						

ATTACHMENT H – PROJECT MAP



PMOC MONITORING REPORT
August 2023

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

Maryland Transit Administration
Baltimore, Maryland
FINAL

Draft Report Delivered to FTA on ***September 14, 2023***
Final Report Delivered to FTA on ***October 3, 2023***

PMOC Contract No.: 69319519D000016
Task Order No.: 69319520F300095
Project No.: 69319519D000016/69319520F300095
Requisition/Reference No.: FTA-TPM20-20-0106
OPs Referenced: 20, 22, 23, 24, 25, 26, 37, 40
CLINs 0001, 0002, and 0005

David Evans and Associates, Inc.
Pete Hankovszky, Task Order Manager
Voice –720.448.6730; Email – pzh@deainc.com
Time on Project: 05/18/2020 through 05/17/2025

REPORT FORMAT AND FOCUS

This report is submitted in compliance with the terms of the Federal Transit Administration (FTA) Contract #69319519D000016, Task Order #69319520F300095. Its purpose is to provide information and data to assist FTA as it continually monitors the management capacity and capability of the Maryland Transit Administration (MTA) (the Project Sponsor) to execute the project efficiently and effectively, and hence, whether the Project Sponsor continues to be ready to receive federal funds for further project development. This report covers the project management activities on the National Capital Purple Line Light Rail Transit Project managed by MTA as the Project Sponsor and financed by the FTA Full Funding Grant Agreement (FFGA). The cost and schedule information in this report was extracted from MTA's submitted information except where noted. The report is organized to comply with the requirements of updated Oversight Procedure 25 – Recurring Oversight and Related Reports, dated June 2020.

THIRD-PARTY DISCLAIMER

This report and all subsidiary reports are prepared solely for FTA. This report should not be relied upon by any party, except FTA or the Project Sponsor, in accordance with the purposes as described below.

For projects funded through the FTA FFGA program, FTA and its Project Management Oversight Contractor (PMOC) use a risk-based assessment process to review and validate a Project Sponsor's budget and schedule. This risk-based assessment process is a tool for analyzing project development and management. Moreover, the assessment process is iterative in nature; any results of an FTA or PMOC risk-based assessment represent a "snapshot in time" for a particular project under the conditions known at that same point in time. The status of any assessment may be altered at any time by new information, changes in circumstances, or further developments in the project, including any specific measures a Project Sponsor may take to mitigate the risks to project costs, budget, and schedule, or the strategy a Project Sponsor may develop for project execution. Therefore, the information in the monthly reports will change from month to month, based on relevant factors for the month and/or previous months.

TABLE OF CONTENTS

1. EXECUTIVE SUMMARY 1
1.1. Project Description 1
1.2. Project Status 1
1.3. Major Issues and/or Concerns 10
1.4. Status of Key Indicators Dashboard (Post-grant) 11
1.5. Core Accountability Items 13
2. OBSERVATIONS AND FINDINGS 14
2.1. Summary of Monitoring Activities 14
2.2. Oversight Triggers 14
2.3. Project Management Plan and Sub-plans 15
2.4. Management Capacity and Capability 18
2.5. NEPA Process and Environmental Mitigation 18
2.6. Project Delivery Method and Procurement 21
2.7. Design 23
2.8. Real Estate Acquisition and Relocation 25
2.9. Third-party Agreements and Utilities 27
2.10. Construction 28
2.11. Vehicle Technology and Procurement 30
2.12. Project Cost 31
2.13. Project Schedule 33
2.14 Project Risk 38
2.15 Quality Assurance/Quality Control 39
2.16 Safety and Security 40
2.17 Americans with Disabilities Act 42
2.18 Buy America 43
2.19 Start-up, Commissioning, Testing 43
2.20 Before-and-After Study Reporting 43
2.21 Lessons Learned 43
2.22 Action Items 44
ATTACHMENT A – LIST OF ACRONYMS 45
ATTACHMENT B – SAFETY AND SECURITY CHECKLIST 49

ATTACHMENT C – TOP PROJECT RISKS....50
ATTACHMENT D – AWARDED CONTRACTS....52
ATTACHMENT E – ROLLING STOCK VEHICLE STATUS REPORT....53
ATTACHMENT F – PROJECT MILESTONES/KEY EVENTS....55
ATTACHMENT G – ROADMAP TO REVENUE OPERATIONS....59
ATTACHMENT H – PROJECT MAP....62

LIST OF TABLES

Table 1 – MTA Master Project Schedule Dates....4
Table 2 – Current Major Issues and Concerns....10
Table 3 – Key Indicators Dashboard....11
Table 4 – Core Accountability Items....13
Table 5 – Project Cost Versus Budget....32
Table 6 – Baseline Cost Estimate by Source Funding....33
Table 7 – Key Milestone Dates....36

1. EXECUTIVE SUMMARY

1.1. 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, Maryland, to New Carrollton in Prince George's County, Maryland. The Purple Line will operate largely at street level in a combination of dedicated and semi-exclusive right-of-way (ROW) and 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) service at Bethesda, Silver Spring, College Park, and New Carrollton, Maryland. The project will also connect to all three Maryland Area Regional Commuter rail lines, Amtrak, and local bus routes. The project includes 21 stations, 2 operations control/vehicle storage and maintenance facilities, and 25 light rail vehicles (LRVs). Maryland Transit Administration (MTA) is executing the project using a Public-Private Partnership (P3) method of project delivery.

As documented in the Federal Transit Administration (FTA) Full Funding Grant Agreement (FFGA), the original estimated project cost was $2,407,030,289, and the scheduled Revenue Service Availability (RSA) date was December 31, 2022. On January 26, 2022, the Maryland Board of Public Works (BPW) approved significant revisions to the project cost and the RSA date. The Transportation Infrastructure Finance and Innovation Act (TIFIA) loan closed on April 14, 2022. Financing approvals and subsequent financial close allowed Purple Line Transit Partners (PLTP), the P3 concessionaire, to issue Notice to Proceed (NTP) to the replacement Design-Build (D-B) contractor, Maryland Transit Solutions (MTS). MTA prepared a Final Recovery Plan (FRP), which FTA accepted on April 17, 2023, and which had a revised project cost of $5,116,020,380 and a revised Revenue Service Date (RSD) of February 24, 2028. MTA has submitted multiple management plan updates for FTA and Project Management Oversight Contractor (PMOC) review. Several of these management plans have been reviewed and accepted, while two updates remain in progress.

1.2. Project Status

The FFGA was executed on August 22, 2017. The Purple Line project is currently in the construction phase. Due to a contractual dispute, PLTP demobilized the assets/staff and subcontractors of the original D-B contractor, Purple Line Transit Constructors (PLTC), from the project in September 2020.

On November 24, 2020, MTA and PLTP reached a settlement agreement to release PLTC from the P3 consortium and continue the project with the remaining parties. The BPW approved the agreement on December 17, 2020. PLTP agreed to procure a replacement D-B contractor to complete the project and to obtain project financing.

Despite changes within the P3 consortium, MTA intends to complete the full scope of the project as envisioned in the original contract documents, with some minor exceptions such as the addition of three more LRVs. After a procurement process for a replacement D-B contractor, PLTP

selected MTS (a joint venture of Dragados USA and OHL USA) on November 5, 2021. The contract with MTS was executed on April 14, 2022.

MTA submitted a draft Interim Recovery Plan (IRP), dated December 15, 2020, to FTA, and subsequently prepared and submitted the FRP to FTA. FTA and the PMOC have reviewed the Project Management Plan (PMP) and other MTA management plans, along with the FRP. FTA accepted the FRP on April 17, 2023.

MTA made deliberate choices about how to proceed with major project elements once PLTC was released from the project. MTA's planning criteria included schedule, budget, and the reduction of risk for the replacement D-B contractor. To address budget constraints, some project activities that were identified for completion in the IRP were deferred. MTA and its Project Management Consultant (PMC) added staff to support subcontractor invoicing, payment processes, and other administrative tasks.

MTA is essentially the general contractor managing a number of construction activities which are currently scheduled for completion in early November 2023. During the IRP period, called Operation Step Forward (OSF), several of these MTA managed activities fell behind schedule. Delays related to third-party utility relocations and other unforeseen issues continue to cause MTA to miss milestone dates included in MTA's revised agreements with PLTP that were executed in April 2022. Evaluation and recovery of the impacts on schedule and budget from these missed milestones by MTA continue. ***Through August 2023***, MTA has executed two change orders caused by delays in OSF activities, and until all OSF activities are complete, there is potential for additional cost and schedule claims from MTS related to OSF.

Construction work continues under the management of both MTA and MTS, including activities and elements such as erosion and sediment control maintenance, bridge structures, retaining walls, the Glenridge Operation and Maintenance Facility (OMF), and utility installation. The Polk Street Maintenance Facility (for Prince George's County Parks), the Paint Branch stream restoration, and the Ken-Gar wetlands mitigation projects are complete with the exception of warranty periods.

Completion of the Glenridge OMF has been on or near the critical path and continues to be a focus. MTA completed the majority of the OMF building and utilities, but construction of track that accommodates LRV storage and testing was deferred for completion by MTS. Currently, a dispute over the completeness of the OMF is delaying turnover of the facility from MTA to MTS. MTS was scheduled to assume control of the facility in early 2023, but as ***of August 2023,*** the date of the turnover of the facility from MTA to MTS is still being determined. MTS is installing rail and other features both inside and outside of the building.

Delayed completion of the OMF construction upon PLTC's departure required finding an alternative location to store completed LRVs. MTA reached an agreement with Construcciones y Auxiliar de Ferrocarriles (CAF) to store the LRVs at CAF's Elmira, New York facility until track is ready for acceptance of the LRVs. MTS assumed the storage agreement with CAF upon finalization of the replacement D-B contract.

MTA has revised and submitted the PMP, Risk and Contingency Management Plan (RCMP), Quality Assurance Plan (QAP), project schedule, Safety and Security Management Plan (SSMP),

and Safety and Security Certification Plan (SSCP). FTA and the PMOC have reviewed these revised plan documents in conjunction with their review of the FRP. ***As of August 2023,*** FTA accepted MTA revisions to the SSMP, and the PMOC continued reviews of the SSCP and QAP.

MTA provides FTA and the PMOC with updates on the progress of MTA and MTS construction activities and monthly updates that track project milestones.

- Scope: There have been no significant reductions or changes to project scope. Three LRVs were added to the project scope (non-FFGA) to support improved operations once service commences.
- Schedule:
  - PLTC never developed an approved recovery schedule to address the delayed start of construction caused by the environmental lawsuit (please see the **NEPA Process and Environmental Mitigation** section, below, for a discussion of the environmental lawsuit). In fall 2019, the P3 concessionaire submitted a revised, fully cost-loaded schedule reflecting a phased project opening (with the first phase opening at the end of 2022 and the second phase opening in mid-2023). This schedule was never incorporated into the working master project schedule.
  - In accordance with the IRP, MTA developed a schedule for the period during which the D-B contractor was being replaced. PLTP and MTA identified several milestones and the requirement to establish a full project schedule before the end of the D-B contractor replacement period. The IRP included project milestones for PLTP to procure a replacement D-B contractor, obtain new financing, and execute contract amendments with MTA. The IRP period also included development of the FRP. In early 2023, MTA submitted an FRP and requested an extension to the RSD in the original FFGA of December 31, 2022. FTA accepted the FRP that includes a revised RSD of February 24, 2028.
  - See also the **Significant Project Activities and/or Key Milestones** subsection of this Executive Summary, below.
  - Table 1 presents MTA's key milestone dates for the project. This table has been updated to show the dates included in the FRP. The schedule in the FRP is considered the baseline schedule for the project. Through the Quantitative Risk Analysis and processes described in MTA's RCMP, a schedule contingency of 16 months was deemed appropriate. However, delays to OSF activities continue to have the potential to further consume the contingency. The utilization of a large portion of the schedule contingency at the early stages of MTS's contract is a concern.
  - To clarify schedule terminology used by MTA: The RSA date is a contractual date critical to the agreement between MTA and PLTP. The RSD is the contractual date tied to FTA FFGA funding and other project approvals.
  - MTA and MTS ***have agreed to two change orders related to delays attributed to OSF activities. These change orders extended the project RSA date to May 24,***

2027. MTA and MTS are currently reviewing additional potential delays and opportunities for schedule recovery. ***The current RSA date in MTA's master project schedule is June 7, 2027, and the current float for the RSD milestone is 181 days.***

Table 1 – MTA Master Project Schedule Dates

Activity	Current MTA Master Project Schedule Milestone *Dated August 17, 2023*
Original FFGA	August 22, 2017
Financial Close / NTP / Amendment Agreement Effective Date for Revised PLTP Agreement	April 14, 2022
Commencement of Integration Testing	September 2, 2025
Commencement of Trial Running	May 27, 2026
Construction Complete All Segments	November 12, 2026
RSA	***June 7, 2027***
FFGA RSD (includes contingency)	February 24, 2028

- Cost:
  - The project's documented expenditures are ***$2,980,070,357 through July 31, 2023***. The current Estimate at Completion (EAC) for the project (construction, management, and LRVs) is $5,116,020,380. This budget has been accepted by FTA, and MTA has adopted it as the project cost.
  - The accepted project cost includes $307,293,174 of unallocated contingency, of which ***$137,613,091*** has been committed through change orders (although not yet expended).
  - Refer to **Table 4 – Core Accountability Items**, in Section 1.5 below, for additional project cost information.
  - MTA prepared a summary of actual versus planned expenditures for high-level OSF activities in Standard Cost Category (SCC) format and is updating this summary each month. Through December 31, 2022, MTA forecasted OSF expenditures of $556.15 million, which exceeds the original OSF budget by approximately $136 million. A significant portion of the overrun previously had been incorporated into the project budget, but additional contingency may be needed to address the increase of $35 million to $45 million that has occurred since the final recovery budget was developed. MTA states that these overruns are due to labor and material cost inflation as well as the extended duration of the OSF activities. The PMOC recommends that MTA closely monitor these cost overruns. The PMOC has requested an update on the OSF expenditures. MTA has indicated that it will prepare a revised EAC for OSF and provide it to FTA and the PMOC; ***however, after repeated requests, MTA has not provided the information.***

- The budget includes funds to address nonconforming construction by PLTC. MTA incorporated known defects into the contract with MTS. However, MTA must pay to address any defects unknown at the time of execution of the MTS contract. In February 2023, MTA estimated the total cost of these unknown defects to be approximately $10 million. As with the OSF overruns, the PMOC continues to recommend that MTA closely monitor utilization of contingency to cover these costs. Many instances of PLTC nonconforming construction and/or defects have been discovered. Also, as of July 2023, there is a dispute between MTA and MTS over the availability of MTA-supplied materials. Both items (the PLTC nonconforming construction/defects and the availability of MTA-supplied materials) are included in the Risk Register, and the parties are negotiating a resolution of the disputes.

- Significant Project Activities and/or Key Milestones:

  The COVID-19 pandemic impacted the project in different ways and at different levels. These impacts were primarily related to availability of resources and labor. MTA, PMC, and other project staff followed recommended COVID-19 protocols. On January 30, 2023, MTA stated that COVID-19 protocols for the project had been suspended.

  - The third lawsuit filed by the Friends of the Capital Crescent Trail in January 2019 against U.S. Army Corps of Engineers (USACE) was dismissed in April 2020. The plaintiff subsequently filed an appeal on May 11, 2020. The District Court denied the appeal on May 13, 2021. The decision resolved the last active lawsuit related to the project.
  - The original baseline schedule indicated design completion by late fall 2017. The progress through ***August 23, 2023***, is that 212 of the 218 total planned design packages have been issued as Released for Construction (RFC). The six Civil and Utility packages that remain in design or approval include traffic signal pre-emption, grade crossing safety systems, lighting, signage, stations, and fare collection. Although Systems packages were scheduled to be complete by the end of the first quarter of 2022, those packages remain in progress. There is a dispute pending related to the cost of design changes that were made after execution of the agreement with MTS. MTA's team estimates that the disputed amount is approximately $15 million. The Design Review Board will consider the dispute.
  - WMATA's comments on design plans for the Silver Spring Transit Center (SSTC) mezzanine connector pedestrian bridge (over CSX Corporation [CSX] ROW) will result in what MTA deems are betterments. Resolution of WMATA comments continues as of July 2023 at the SSTC and at other locations where WMATA and Purple Line stations coincide. MTA reports that the slow resolution of these issues has not impacted critical path activities.

- Storm sewer construction under the CSX railroad is required in several locations. Two jack-and-bore installations of culvert pipes were completed in November 2022. One jack-and-bore installation remains to be completed by MTS ***as of August 2023.***
- Proposed construction near the SSTC will require significant coordination with both WMATA and CSX. Track protection (flagging) and planning of a shutdown of the railroads to allow Purple Line activities near the SSTC in 2024 have been identified as schedule risk items.
- MTA and Washington Suburban Sanitary Commission (WSSC) reached agreement on the relocation of the 66-inch water main that was under the Glenridge OMF. Energizing the cathodic protection is the only remaining item ***and is expected to be complete in September 2023***. WSSC is currently using the line and is responsible for finishing the cathodic protection.
- PLTC reached resolution on the final remaining Alternate Technical Concept (ATC) identified during the proposal process, which is related to the use of jet fans at the Bethesda Station in lieu of vent shafts. In accordance with the established process, MTA reviewed PLTC's design package for National Environmental Policy Act (NEPA) compliance. Final documentation for the ATC is still ***pending as of August 2023.*** MTA will schedule a review of the documentation with FTA as soon as it is complete. MTA and MTS optimistically predict that the ATC will have no Section 4(f) impacts or other impacts to the project's Record of Decision (ROD).
- MTA has completed its non-P3 construction contract activities, as follows:
  - Prince George's County Parks (Parks) Polk Street Maintenance Facility D-B – A substantial completion letter was issued to the contractor on March 30, 2021. Parks has taken possession of the facility, and remains in the warranty period.
  - Offsite Wetlands Mitigation (Ken-Gar) – The Design-Bid-Build construction NTP was issued on September 5, 2019. The one-year warranty review occurred on January 9, 2022, and the project is now in quarterly monitoring and annual reporting by MTA that will continue through 2028.
  - Offsite Stream Mitigation (Paint Branch) – The Design-Bid-Build construction NTP was issued on September 5, 2019, and the contractor mobilized in late November 2019. Quarterly monitoring and annual reporting by MTA will continue through 2028.
- Building construction at the Glenridge OMF is essentially complete; however, construction of items outside of the building continues, as does final commissioning of systems inside the building. MTS was scheduled to take possession of the Glenridge OMF on December 31, 2022, but that did not occur because MTA had several remaining items to complete. Although transfer of the facility has not occurred, MTS is working in and around the OMF, installing track and conduit outside the building, and completing other interior features. The turnover letter to

transfer possession of the facility from MTA to MTS is ***on hold as of August 2023,*** pending resolution of disputes ***and punch list items***.

- Preparation of Traction Power Substations (TPSSs) Q6, Q7, Q8, and QYG continues. As of ***August 2023***, both TPSS Q7 and TPSS QYG have been placed on their foundations and are being commissioned. The foundation for TPSS QY8 has been backfilled in preparation for substation installation, and Q6 is in storage at the Glenridge OMF.
- The following is the status of LRV manufacturing as of ***August 23, 2023:***
  - All 25 of the vehicles in the FFGA project scope description and one additional vehicle are designated as "Ready for Shipment" and are in storage at CAF's facility in Elmira, New York. These vehicles are under a schedule of inspection and maintenance until delivery can occur.
  - MTA has added three vehicles by change order to CAF's contract. The additional LRVs will support better operations at the RSA date. It is important to note that these three additional LRVs are not a part of the FFGA between MTA and FTA. One of the three additional vehicles is in storage in Elmira along with the 25 FFGA LRVs. ***As of August 2023, all ten of the railcars*** that make up the two remaining vehicles have been transported to Elmira for final assembly.
  - The previously identified quality issue related to the M33 bolt on the LRVs is nearly resolved. MTA determined that the issue does not impact safety, and the solution is likely the use of a higher strength bolt. The final report on this issue was expected in May 2023, although the PMOC has not yet received it. ***CAF currently is validating the results of the report. Once complete, MTA will ask CAF to release its confidential report to FTA.***
  - Delivery of vehicles was expected to begin in spring of 2021; however, the location for their delivery was uncertain because the Glenridge OMF was not ready to accept railcars. MTA and CAF negotiated an agreement for CAF to store the completed railcars in Elmira to await delivery. The terms of the agreement became a part of MTS's agreement. Deliveries of LRVs to the Glenridge OMF have been delayed to early 2024.
  - The project's Buy America compliance audit for the LRVs was conducted on November 14, 2022. In January, CAF provided additional documentation requested to assist with evaluation of Buy America compliance. ***On August 17, 2023, MTA provided the Post-delivery Buy America Audit, dated April 21, 2023, to FTA. On that same day, Maryland Department of Transportation (MDOT) also provided the Certificate of Compliance to FTA for the Post-delivery Audit of Rolling Stock Purchases. The audit indicates that the percentage of U.S. domestic content is 66.74 percent, which meets FTA requirements.***

- MTA is responsible for providing offsite stormwater mitigation in Montgomery County. To date, MTA has accumulated a credit for more than 10 acres of designed, Maryland Department of the Environment (MDE)-approved, offsite stormwater management (SWM) capacity in its "bank." MTA has determined that there is a need for additional mitigation in Prince George's County, and a project to construct additional mitigation is included in the scope of work for MTS.
- ROW acquisition activities continue for the original required 464 private parcels and 137 public parcels (a total of 601 parcels). All of the private parcels related to the original P3 contract Exhibit 9 FFGA scope are in MTA's possession for construction. ***As of August 9, 2023***, ***423*** of the 464 private parcels have completed settlement, and an additional ***11*** parcels have settlements pending.
- MTA has identified 188 small property acquisitions that are required for utility relocations, of which 134 are private and 54 are public. As of April 25, 2023, all of the additional properties were in MTA's possession through Right of Entry (ROE), through options, and/or through agreements. ***As of August 9, 2023***, MTA estimated that approximately ***$36.2 million*** of exposure remains in the acquisition process. This amount is included in the risk assessment and in the available project contingency.
- To date, all 177 required property relocation agreements are complete. Costs for the completed relocations continue to be processed in accordance with the applicable procedures. ***As of August 9, 2023, there is only one relocation property that the former owner still occupies. Two additional relocations may be required.***
- MTA estimates that approximately $13 million of risk exposure remains due to necessary extensions of Temporary Construction Easements (TCEs). Allowance for this amount has been included in the risk assessment.
- Preparation for safety certification is an ongoing process for MTA, including the development of the appropriate checklists for both design and construction. Design Criteria Conformance Checklists (DCCCs) are more than 98 percent validated. Construction Specification Conformance Checklists (CSCCs) are ***22 percent*** validated.
- MTA has adjusted staffing of management personnel to address the varying activities that MTA is managing and to integrate new team members as needed. On May 25, 2023, MTA communicated the departure of Executive Director Matthew Pollack, Deputy Project Director and Contracting Officer Anita Rodgers, and Director of Communications David Abrams, from the Purple Line project team. Project Director Ray Biggs, Jim Mitchell of the PMC, and MDOT Chief Financial Officer Jaclyn Hartman have been leading the project while those vacated positions are being filled. Ken Forsythe's role will change from his current role as Deputy Director to the interim Communications Director role. A new Deputy Project Director, Alexa Heidrich, started with the Purple Line project team on July 26, 2023. ***Kathryn (Kat) Lamb joined the team in August 2023 as the Communications Director, which***

completes the hiring for open senior staff positions for the Purple Line project. A search for a new MTA Transit Development and Delivery (TDD) Executive Director is in progress. ***The TDD Executive Director will be responsible for the Purple Line project in addition to other State of Maryland transit projects.*** The PMOC has expressed concern related to MTA staff continuity and will continue to monitor MTA's management capacity and capabilities.

- MTA carefully considered a request from Montgomery County to single-track the Purple Line through the Bethesda tunnel. MDOT/MTA determined that it would not be able to accommodate the request.
- MTA and PLTP coordinated to obtain a modified version of the existing TIFIA loan for the project. On April 14, 2022, the TIFIA loan closed, and all bonds were marketed. MTA was required to update the Transportation Investment Program and State Transportation Investment Program plans to reflect changes in the project.
- MTA's Equal Employment Opportunity Officer assigned to the project is Marcques Washington. He is supporting MTS in its hiring program and monitoring project adherence to hiring of specific companies and personnel. As MTS ramps up construction, it is making significant progress toward achieving the project's hiring, wage, and Disadvantaged Business Enterprise (DBE) goals. In ***August 2023***, the PMOC continues to recommend that MTA report the projected values for these goals at the end of the project in addition to the current values to allow for a more comprehensive evaluation of progress toward meeting the goals. ***MTA states that due to the D-B contracting method being utilized to deliver the project, continuous diligence is required to monitor contracted DBE work in the current and upcoming work packages, making it challenging to project future values of DBE participation. However, MTA is confident that MTS is making the necessary efforts to meet goals. In the opinion of the PMOC, MTA presented a sufficient DBE goal tracking methodology during the August 2023 PMOC Monthly Meeting. MTA was encouraged to use this methodology when reporting DBE status to FTA.***
- MTA hired a consultant team that is analyzing alternatives for providing security and fare enforcement services for the Purple Line. MTA does not currently have existing facilities or staff that can adequately provide these services because the distance from their location to the Purple Line light rail facilities is too far. In late April 2023, MTA provided FTA with the alternatives study for review. The study indicates that the preferred alternative is the development of a Southern District of the MTA Police Department and recommends several next steps toward implementation of the new district, including hiring a commander, developing operating procedures, working on Memorandums of Understanding (MOUs) with other local jurisdictions, and developing a facility to house the district. ***As of August 2023,*** the PMOC ***continues to recommend*** that MTA develop a written implementation plan that includes schedule milestones and a budget.

- ***During August 2023,*** MTA continued to conduct public outreach to interested groups by providing general and specific project updates. MTA has begun planning for Community Advisory Team meetings that are scheduled for October 2023.

1.3. Major Issues and/or Concerns

Table 2 discusses any major issues or concerns impacting the project's scope, schedule, cost, risks, quality, safety, etc.

Table 2 – Current Major Issues and Concerns

Issue/Concern	Continuation of the project after PLTC's departure was a significant challenge for the project. The replacement D-B contractor, MTS, has now been under contract to PLTP for more than one year.
Date Identified	September 2020.
Status	The IRP was approved in January 2021, and an update was approved in July 2021. Implementation is nearly complete. MTA has now completed the FRP, which FTA reviewed and accepted in April 2023.
Project Sponsor Action	Management of a transition plan and support of PLTP in the replacement of the D-B contractor was the focus of the Project Sponsor. Another focus was the management of MTA's contractors to continue key activities that maintained the integrity of the schedule under OSF.
PMOC Recommendation	The PMOC recommends that MTA ensure that sufficient staff is dedicated to completing OSF project activities and assessing the remaining potential impacts to the MTS schedule. In addition, now that MTS is under contract, MTA and the PMC should emphasize its oversight of PLTP and MTS.
Issue/Concern	According to the PMP, the master project schedule should be updated monthly.
Date Identified	2022.
Status	Ongoing.
Project Sponsor Action	FTA accepted the FRP schedule in April 2023 as the new project baseline schedule. Two significant change orders, both of which are based on delays to OSF activities, have caused a substantial utilization of the schedule contingency outlined in the FRP. ***Additional delays have been identified, and MTA is coordinating potential schedule mitigation with MTS.***
PMOC Recommendation	The PMOC recommends that MTA track all schedule elements according to the FRP and report status to FTA and the PMOC each month. MTA should employ additional methods of evaluating schedule progression and performance, including earned-value metrics, to identify issues as soon as possible. The PMOC recommends that MTA develop a procedure to monitor the OSF schedule more closely, because delayed OSF activities have caused and may still cause additional utilization of the schedule contingency.
Issue/Concern	Changes in the project have significantly impacted the project cost as reflected in the original FFGA. The April 2023 FRP includes a revised project cost estimate and a reasonable cost contingency to address remaining project risks.
Date Identified	September 2020.
Status	Ongoing.
Project Sponsor Action	MTA should continue to monitor project progress against the total project cost estimate. As of July 2023, two significant change orders, both of which are based on delays to OSF activities, have caused a substantial utilization of the cost contingency outlined in the FRP. ***Additional delays have been identified, and MTA is coordinating potential schedule mitigation (which would support cost mitigation) with MTS.*** Outstanding disputes between MTA and MTS also could impact contingencies.

PMOC Recommendation	The PMOC recommends that MTA continuously monitor project cost and utilization of project contingencies. The budget contingency must reflect potential additional costs required to address potential schedule delays and support a realistic EAC.
Issue/Concern	MTA does not have a police force located in proximity to the Purple Line.
Date Identified	September 2022.
Status	As of May 2023, MTA has determined a preferred alternative for providing security and fare enforcement, and has identified several next steps for implementation.
Project Sponsor Action	MTA's preferred security alternative includes the creation of a new Southern District of the MTA Police Department and will require associated staff, operating procedures, and a facility.
PMOC Recommendation	Although the currently forecasted RSA date is in 2027, the PMOC recommends that MTA promptly move toward implementation of the preferred alternative. MTA should identify the parties responsible for implementing the preferred alternative and determine a detailed schedule and budget in a written plan. The PMOC also recommends that the State Safety Oversight Agency be included in the review and comment process for security and fare enforcement.
Issue/Concern	Lost Time Injury and Total Case Incident Rates have increased significantly since 2022. The current rates are significantly higher than the stated project goals.
Date Identified	April 2023.
Project Sponsor Action	MTA has increased coordination with MTS through additional biweekly coordination meetings. MTA has acknowledged the need for safety process improvements.
PMOC Recommendation	The PMOC recommends that MTA and MTS review the safety procedures and the implementation of those procedures to identify opportunities for improvement. The PMOC also recommends that MTA and MTS complete the safety process review as soon as practical and that MTA prepare a written summary. The summary should include the action items and the responsible parties for each.

1.4. Status of Key Indicators Dashboard (Post-grant)

Table 3 shows the project Key Indicators Dashboard after the FFGA was awarded.

Table 3 – Key Indicators Dashboard

Project Sponsor:				Maryland Transit Administration	
Project Name:				MTA National Capital Purple Line Light Rail Transit Project	
Date:				***August 31, 2023***	
Project Detail					
Oversight Frequency:				**Monthly**	
Element	**Status**			**Prior Status**	**Issue or Concern**
	●	●	●		
	G	**Y**	**R**		
Project Management Plan		●		●	MTA has developed an updated PMP that reflects revised project conditions, and in October 2022, MTA submitted a revised PMP to the PMOC and FTA for review. On February 1, 2023, FTA provided its review comments on the PMP, and on April 28, 2023, MTA submitted the second revision of the PMP to FTA. In May 2023, MTA announced significant changes to the Purple Line leadership staff, including departure of the staff in the TDD Executive Director, Communications Director, and Deputy Project Director positions. ***As of August 2023, MTA filled the vacant Purple Line Deputy Project Director position, but the TDD Executive Director position remains open.*** This concern also

					applies to the Management Capacity and Capability (MCC) element below.
Management Capacity and Capability			●	●	Recent staff departures, along with significant change orders driven by MTA-managed construction, have magnified the need for MTA to focus on MCC issues. See also Safety, below.
Cost*		●		●	MTA has developed a revised cost estimate that reflects new project conditions. Based on PMOC and FTA review comments and a revised MTA Quantitative Risk Analysis, MTA established a budget contingency ***that appeared appropriate for the current stage of the project at the time. However, large change orders and potential change orders have required commitment of a significant portion of the contingency budget.*** MTA should track project status according to the FRP and the updated PMP and management plans. ***The PMOC is concerned that significant additional change orders could further reduce the project cost contingency.***
Schedule			●	●	A revised project schedule that incorporates the current project status is in place. Despite the execution of several change orders with significant contract extensions, there has not been a mutually agreed-to construction schedule since the Initial Baseline Schedule in September 2022. MTA has rejected MTS's schedule updates each month, citing technical issues. ***It is the PMOC's opinion that change orders that include adjustments to the RSA date should not be executed unless a mutually agreed-to revised baseline schedule is included with the change order.***
Quality			●	●	***There are a significant number of nonconforming items from the PLTC-constructed work and the work performed under MTA's management of OSF. The PMOC finds that the quality reporting related to OSF activities is inconsistent. Also, it appears that some key quality management staff have not participated in the project for some time due to contractual issues.*** The PMOC requires that MTA refine the QAP in order to meet FTA requirements. ***MTA submitted an updated QAP to FTA and the PMOC in August 2023 that is under review.***
Safety			●	●	In April 2023, the PMOC noted to MTA that both the Lost Time Injury Rate and the Total Case Incident Rate had significantly increased, particularly for the MTA-managed OSF activities. In addition to the increase in the incident rates, there is an apparent lack of tracking and reporting of safety issues. MTA recognizes the issue and reports that it has scheduled additional safety coordination efforts. In May 2023, the PMOC requested documentation on these additional efforts, and in July 2023, the PMOC questioned the effectiveness of the efforts. MTA acknowledges the need for safety process improvement. It is the opinion of the PMOC that there may be a lack of emphasis on safety or MCC issues that are affecting safety. ***As of August 2023, the PMOC again asked MTA for written documentation related to safety process improvements.***
Risk		●		●	MTA updated the RCMP and the Risk Register to reflect the changes driven by the FRP and updates to the project management plans. In May 2023, FTA accepted the RCMP but also noted additional comments that MTA should address in future updates to the plan. ***As of August 2023, MTA has indicated that it will conduct a risk workshop and perform a Quantitative Risk Analysis in conjunction with the completion of OSF activities (Fall 2023). In the opinion of the PMOC, this is a prudent approach by MTA.***

Legend	
Green	Satisfactory: No Corrective Action necessary.
Yellow	Caution: Risk/Issues exist. Corrective Action may be necessary.
Red	Elevated for immediate Corrective Action: Significant risk to the health of the project.

*Note: With regard to cost, the colors indicate the following status:
Yellow – Forecast cost exceeds the project budget by up to 3%.
Red – Forecast cost exceeds the project budget by more than 5%.

1.5. Core Accountability Items

Table 4 shows the core accountability items for the project, including the current status of the project and the major issues and how they are being addressed.

Table 4 – Core Accountability Items

		Original (Grant)	Current Forecast	PMOC Assessment of Current Forecast
Cost	Capital Cost Estimate	$2,407,030,289	$5,116,020,380	Acceptable
Contingency	Unallocated Contingency	$90,535,748	***$169,680,083***	Acceptable
	Allocated Contingency	$59,500,464	$0	Acceptable
	Total Contingency	$150,036,212	***$169,680,083***	Acceptable
Schedule	Revenue Service Date	12/31/2022	02/24/2028	Acceptable

Project Progress		**Amount ($)**	**Percent of Total**
Total Expenditures	Actual cost of all eligible expenditures completed to date	***$2,980,070,356.82***	***57.4%***
Planned Value to Date[1]	Estimated value of work planned to date	Not Applicable (N/A)	N/A
Actual Value to Date[1]	Actual value of work completed to date	N/A	N/A

Contract Status		**Amount ($)**	**Percent of Total**
Total Contracts Awarded	Value of all contracts (design, support, construction, equipment) awarded; % of total value to be awarded	To Be Determined (TBD)	TBD
Construction Contracts Awarded	Value of construction contracts awarded; % of total construction value to be awarded	TBD	TBD
Physical Construction Completed	Value of physical construction (infrastructure) completed; % of total construction value completed	***$937,381,846***	***46.3%***

Rolling Stock Vehicle Status	**Date Awarded**	**No. Ordered**	**No. Delivered**
28 total car sets[2]	First 26 LRVs: 2016 Additional 2 LRVs: January 2022	28 car sets	0

Next Quarterly Progress Review Meeting Date:	***November 8, 2023***

[1]Earned value information is not available.
[2]The approved FFGA includes a total of 25 LRVs.

2. OBSERVATIONS AND FINDINGS

2.1. Summary of Monitoring Activities

The PMOC received an update from the Purple Line project team during ***the August 23, 2023, monthly meeting with MTA, the PMC, and the PMOC.*** Information from the FTA/MTA/PMOC Biweekly Progress Conference Call held on ***August 22, 2023,*** also contributes to this report. ***On August 8, 2023, the PMOC and FTA attended the FTA-MTA Quarterly Progress Review Meeting (QPRM), where MTA presented a Purple Line project update. Following the QPRM, the PMOC participated in a site tour coordinated by MTA.*** In addition, MTA provides supplementary information before the PMOC monthly meeting. PMOC monitoring activities include review of MTA-provided scope, schedule, risk, financial, construction, safety and security, and real estate information.

After the U.S. Court of Appeals reversed the vacation of the ROD in July 2017 (refer to the **NEPA Process and Environmental Mitigation** section, below, for details), the FFGA was executed on August 22, 2017. In September 2020, the construction (D-B) contractor, PLTC, left the project, and a new project delivery plan was developed, including replacement of the D-B contractor. During the period when the replacement D-B contractor was being solicited, MTA managed specific construction and design activities (OSF activities) in order to reduce uncertainty and support the project schedule. On November 5, 2021, MTS was selected as the replacement D-B contractor, and financial and commercial close occurred on April 14, 2022. MTA continues to manage OSF construction and design activities. MTS is performing construction activities across the entire project corridor.

MTA and MTS held initial partnering activities during which they developed relationships, general project priorities for teamwork, and an understanding of key issues for different stakeholders. MTA provided partnering process information to FTA and the PMOC on March 29, 2023. ***As of August 2023, MTA has replaced the consultant who was leading partnering activities and is developing new processes to facilitate the coordination and relationship between MTA and the MTS/PLTP team.***

2.2. Oversight Triggers

The oversight triggers most applicable to the project are the Oversight Procedure (OP) 25 cost and schedule triggers. The project did not have a mutually agreed-upon baseline schedule between March 2017 and September 2022. Significant schedule delays and a significant increase in project cost keep the project eligible for rigorous oversight. Project schedule delays typically impact project cost, another significant indicator of project health. MTA has developed a revised project EAC in conjunction with development of the project's schedule and FRP. ***Significant utilization of schedule and budget contingencies has occurred since development of the FRP. In the opinion of the PMOC, significant additional cost and schedule impacts could occur.***

2.3. Project Management Plan and Sub-plans

2.3.1. Project Management Plan

The PMOC reviewed the Purple Line PMP Version 10 in accordance with OP 20 for a PMP at the FFGA execution stage of a project. Subsequently, FTA and the PMOC reviewed PMP Versions 11, 12, and 13. Due to significant project team changes since those versions, another update to the PMP was required. In October 2022, MTA provided an updated PMP (Version 14) to FTA and the PMOC for review, and FTA and the PMOC provided comments on PMP Version 14 to MTA. On April 27, 2023, MTA provided PMP Version 15, which FTA accepted, with comment, on June 21, 2023.

2.3.2. Safety and Security Management Plan

In February 2016, the PMOC reviewed the project's SSMP Version 6, dated October 22, 2014, in accordance with OP 22 for a project at the FFGA execution stage. The PMOC review found that the SSMP was compliant with FTA content requirements for execution of the FFGA, but the PMOC requested that MTA resubmit the SSMP after execution of the FFGA and address the comments in the PMOC report with updated information from the P3 concessionaire. Subsequently, FTA and the PMOC reviewed SSMP Versions 7 through 11 over the next four years. MDOT, which is the State Safety Oversight Agency (SSOA) for the project, also reviewed SSMP Versions 8 through 11. On January 13, 2022, FTA provided comments on SSMP Version 12 to MTA. MTA submitted SSMP Version 13 as well as Version 5 of the Purple Line SSCP to FTA and the PMOC for review in October 2022. FTA and the PMOC reviewed the SSCP and SSMP updates and provided their comments to MTA in February 2023. ***MTA submitted a revised SSMP to FTA on June 28, 2023, and submitted a revised SSCP on August 28, 2023. The SSMP was approved by FTA in August 2023.***

2.3.3. Quality Assurance Plan

In October 2022, MTA submitted QAP Version 10 to FTA and the PMOC for review, and on March 8, 2023, FTA provided review comments on QAP Version 10 to MTA. MTA then submitted a revised QAP to FTA for review in May 2023, and FTA and the PMOC provided comments to MTA in June 2023. In July 2023, MTA provided a response to each specific comment and committed to submitting a revised QAP in August 2023. ***On August 11, 2023, MTA resubmitted the QAP as Version 12.***

MTA displayed several quality documents on the screen during the August 23, 2023 virtual monthly meeting with the PMOC. The PMOC noted that no recent MTS audits or training had been performed. The PMOC requested that MTA provide more complete documentation on OSF quality-related activities before the PMOC's September 2023 monthly call with MTA. A technical work session to resolve concerns will be requested by the PMOC.

MTA meets with PLTP, the PMC, and the General Engineering Consultant (GEC) monthly to review quality status. In ***August 2023,*** MTA reported the following quality management activities by MTA, PMC, or GEC staff that took place ***in July 2023***:

- Field inspections of OSF activities to verify compliance and close outstanding Nonconformance Reports and Deficiency Notices.
- Witnessing of subcontractors' testing procedures.
- Validation of the calibration of measuring and testing equipment.
- Participation in MTA/MTS Quality Meetings.

MTS also performs significant Quality Assurance/Quality Control (QA/QC) activities and reports having more than 60 full-time quality staff assigned to the project. ***In July 2023***, those QA/QC activities by MTS included:

- ***Offsite inspections of structural steel girders and canopies, Overhead Contact System (OCS) poles and hardware, special trackwork, and other items.***
- ***18*** Design Services During Construction reviews and ***27*** design submittal reviews.
- Completion of ***0*** Quality Audits ***(which stands out to the PMOC as mentioned above)***
- Approximately ***500*** materials tests.
- Approximately ***600*** materials samples.

In 2022, MTA frequently provided notes from monthly CAF and SNC-Lavalin LRV manufacturing quality meetings for PMOC review. The information provided a summary of issues and corrective actions, and upcoming quality audits. MTS is now responsible for preparing these notes.

One manufacturing quality issue, the recurring failure of a bolt in multiple vehicles, has not been resolved. MTA determined that the issue does not impact safety, and the solution is likely the use of a higher strength bolt. The final report on this issue was expected in May 2023, although ***as of August 2023,*** the PMOC has not yet received it. ***CAF currently is validating the results of the report. Once it is complete, MTA will ask CAF to release its confidential report to FTA.***

2.3.4. Real Estate Acquisition Management Plan

The PMOC reviewed the project's Real Estate Acquisition Management Plan (RAMP) Versions 10, 11, and 12. The PMOC reviewed the plans with respect to the guidelines in OP 23 for a project in the construction phase. MTA submitted an updated RAMP Version 13 to FTA and the PMOC in October 2022. FTA provided review comments on RAMP Version 13 to MTA on February 27, 2023, and accepted RAMP Version 13 with comments.

2.3.5. Fleet Management Plans

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 on March 4, 2016, issued its final OP 37 BFMP review report, concluding that the BFMP met the requirements of OP 37 for the execution of an FFGA for the Purple Line project.

2.3.6. Risk and Contingency Management Plan

In early 2020, MTA commenced another update to the RCMP to incorporate the results of the latest Quantitative Risk Analysis that, in turn, incorporated the results of the replacement D-B contractor resolicitation and the revised project implementation details. MTA held a risk management workshop on January 26, 2021, that focused on the interim period.

MTA provided a comprehensive Risk Register and risk mitigation activities in conjunction with the draft FRP. In preparation for a risk analysis, MTA held risk assessment interviews with individual risk owners to review existing risk items and identify new risks. In December 2021, MTA prepared an updated Risk Register that includes over 100 risk items, including PLTP and MTS risks.

At a risk workshop held the week of May 2, 2022, the PMOC and FTA participated in an OP 40 risk and contingency review that evaluated cost, schedule, and project contingency. MTA confirmed and finalized the Risk Register, and prepared the Quantitative Risk Analysis and an update of the RCMP. The PMOC developed a draft summary of the risk and contingency review results. FTA provided a risk summary to MTA on June 22, 2022, for MTA's consideration while it was updating the RCMP. MTA provided responses to FTA's comments on the risk summary on July 15, 2022, and provided further clarification on August 25, 2022. MTA submitted RCMP Version 15 to FTA and the PMOC for review in October 2022. In February 2023, FTA and the PMOC provided comments on the revised RCMP, which supported MTA's development of the project's budget and schedule contingency. MTA subsequently submitted the revised RCMP Version 16, dated April 21, 2023, and FTA accepted it on May 22, 2023.

As of August 2023, MTA has indicated that it will conduct a risk workshop and Quantitative Risk Analysis in the fall of 2023 in conjunction with the completion of OSF activities. The PMOC's opinion is that this is a prudent approach by MTA.

2.3.7. Safety and Security Certification Plan

Version 3 of the Purple Line SSCP is dated November 4, 2014. The PMOC review found that the SSCP Version 3 met the FTA requirements in support of the FFGA application. MTA submitted SSCP Version 4 on February 3, 2020, in conjunction with the updated SSMP submittal (see the **Safety and Security Management Plan** subsection, above). The SSOA completed its review of SSCP Version 4 and discussed its comments with the PMOC. MTA decided that the new emergency management working group would be a subcommittee to the Fire Life Safety and Security Committee, and this decision would be reflected in the next revisions of the SSMP and the SSCP, which were planned for after the replacement D-B contractor was in place. MTA submitted SSMP Version 13 and SSCP Version 5 to FTA and the PMOC in October 2022. In February 2023, FTA and the PMOC completed their reviews and provided comments on these plan documents to MTA. MTA provided a response to the SSCP review comments to FTA and the PMOC in May 2023. On July 12, 2023, the PMOC and MTA held a call to review and reconcile PMOC/FTA comments on the SSCP. ***MTA submitted a revised SSMP to FTA on June 28, 2023, and submitted a revised SSCP on August 28, 2023. FTA approved the SSMP in August 2023 and will review the SSCP in September 2023.***

2.4. Management Capacity and Capability

MTA continues to identify and assign sufficient Management Capacity and Capability (MCC), as needed, to complete the project in compliance with applicable FTA requirements. These efforts have included bringing staff, either MTA or MDOT personnel or consultants, onto the project to manage the current needs, such as planning, P3 procurement and contracting, real estate acquisition, and construction.

In November 2021, MTA's quality lead for the Purple Line project, Rene Schroeder, retired. It was proposed that Roland Carroll, the Purple Line systems safety and construction safety lead, add the quality lead role to his other Purple Line roles. In February 2022, MTA provided a white paper outlining Mr. Carroll's experience, his recent training, and the proposed supporting staff related to the new quality management role. The PMOC has evaluated this change as a part of the PMP review and will continue to monitor management capacity for this function and all positions through ongoing oversight activities. Specific to safety, the PMOC is concerned that there may a lack of emphasis on safety or on management capacity or capability. Injury rates, particularly for OSF activities, are higher than the MTA goals. Also, reporting of injury and incident statistics is inconsistent. See Section 2.16, below, for more detail.

In March 2023, MTA hired John Donovan in the role of Construction Manager. MTA is also forming a commercial project controls team, and Anita Rodgers was to assume the role of Contracting Officer. These changes were in response to: (1) the near completion of OSF and (2) the need to support the management of MTS's increasing amount of work.

On May 25, 2023, MTA communicated the departure of Executive Director Matthew Pollack, Deputy Project Director and Contracting Officer Anita Rodgers, and Communications Director David Abrams from the Purple Line project team. Project Director Ray Biggs, Jim Mitchell of the PMC, and MDOT Chief Financial Officer Jaclyn Hartman have been leading the project while those vacated positions were being filled. Ken Forsythe's role changed from his role as Deputy Director to the interim Director of Communications role. A new Deputy Project Director, Alexa Heidrich, started with the Purple Line project team on July 26, 2023. ***Kathryn (Kat) Lamb joined the team in August 2023 as the Communications Director, which completes the hiring for open senior staff positions for the Purple Line project. In August 2023, MTA provided an updated Purple Line organizational chart that included these newly hired staff.***

A search for a new MTA TDD Executive Director also is in progress. ***The TDD Executive Director will be responsible for the Purple Line project in addition to other State of Maryland transit projects.***

2.5. NEPA Process and Environmental Mitigation

2.5.1. NEPA Process

FTA issued a ROD on March 19, 2014. The National Park Service issued its ROD on July 16, 2014.

MTA has continued to submit environmental re-evaluations as required based on design advancement and other causes. To date, PLTC (before it left the project) 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. The most recent status ***(as of August 2023)*** of NEPA items is:

- All formally submitted LOD cases have been approved. MTA currently expects one additional LOD case and is preparing a submittal for review by FTA. MTA intends to submit the new LOD to FTA after MTA has obtained all applicable information from MTS. This additional LOD case submittal has been delayed, because MTA is awaiting necessary clarification from MTS.
- The ATC for the Bethesda Station jet fan has been vetted, and final documentation is being prepared for submittal to FTA for concurrence that the ATC meets project requirements. Final documentation for the ATC is still pending as of ***August 2023***. MTA will schedule a review of the documentation with FTA as soon as it is complete. MTA and MTS optimistically predict that the ATC will have no Section 4(f) impacts or other impacts to the project's ROD.

On August 3, 2016, in response to the lawsuit filed by the Friends of the Capital Crescent Trail against FTA, a federal judge filed his Order and accompanying Memorandum Opinion. In those documents, it was ordered that the ROD for the Purple Line project be 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 whether 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 in 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 U.S. Court of Appeals issued its ruling on December 19, 2017, in which the judges ruled in favor of FTA and the project, and ruled that the transit agencies would not have to conduct a new environmental study to examine other potential routes for the Purple Line.

The Friends of the Capital Crescent Trail filed a second lawsuit after the FFGA signing and after the groundbreaking ceremony was held on August 28, 2017. The September 19, 2017, Preliminary Hearing for this suit resulted in no temporary injunctions or restraining orders, and project construction proceeded as the case progressed 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 FTA.

The Friends of the Capital Crescent Trail filed a third lawsuit in January 2019, this time against USACE. The USACE legal staff and the Office of the Attorney General provided the defense. 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 USACE. In October 2019, USACE filed for a Summary Judgment to Dismiss the case, and the plaintiffs filed their response; a hearing date was set for March 23, 2020. However, in late February 2020, the assigned judge recused himself from the case, and the scheduled hearing was canceled. In mid-April 2020, the District Court ruled in favor of the USACE/MTA motion for a Summary Judgement to Dismiss, and the case was dismissed. The plaintiff subsequently filed an appeal on May 11, 2020, and the case continued in the legal process. Oral arguments related to the appeal occurred on March 11, 2021. The District Court denied the appeal on May 13, 2021. The decision resolved the last remaining lawsuit related to the project.

2.5.2. Environmental Mitigation

The project achieved the required mitigation for reforestation through the purchase of 82.5 acres of offsite credits (combined, in both Montgomery County and Prince George's County). This amount of offsite credits is expected to be more than needed, and the P3 concessionaire will monitor that this remains the case. PLTP's Forest Conservation Plan (FCP), which documented a need of 75.73 acres, 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. In Maryland, need is based on land disturbance rather than only forest removal. MTA's tracking of additional disturbance due to the progress of design and construction indicated that the total need is still within the amount of available offsite credits.

The Joint Permit Application for Wetlands and Stream Mitigation was formally submitted to USACE and 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, because time had passed since the permit was drafted, MDE updated and issued the finalized permit the first week of April 2018. USACE completed its NEPA and conditions review as well as its 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 the longer construction periods resulting from construction moratoriums for forests and streams. The project received approval from MDE during the week of December 3, 2018, and received the USACE approval letter in mid-June 2019.

The project team has been addressing the environmental mitigation for wetlands through the development of the offsite Ken-Gar location, which is implemented through 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 the bids underwent MTA Procurement Department review. BPW approval of the award was received on September 4, 2019. As of June

2021, the Ken-Gar wetlands mitigation project was complete and had completed its one-year warranty period. See the **Construction** section of this report, below, for further discussion of the status of this Ken-Gar Wetlands Mitigation construction contract.

The project team has addressed the environmental mitigation for streams through the development of the offsite Paint Branch location, which is implemented through 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 the award was received on September 4, 2019. The Paint Branch stream restoration is complete, and warranty corrections (partial replanting) occurred in December 2022. See the **Construction** section of this report, below, for further discussion of the status of this contract.

The project has plans to address stormwater mitigation, beyond what can be mitigated on the project site, through retrofitting offsite locations in both Montgomery County and Prince George's County. On November 12, 2021, MTA determined that there is a need for additional stormwater mitigation in Prince George's County. A project to construct additional stormwater mitigation is included in the scope of work for MTS.

The joint MTA and University of Maryland (UMD) technical board resumed meetings in December 2021 to coordinate efforts related to the mitigation of noise, vibration, and electromagnetic interference at the UMD facilities. Following this meeting, the members of the joint technical board voted to approve the outstanding design packages. This action effectively ended the activities of the technical board until the LRT is in trial running.

The Purple Line project team submits quarterly Environmental Mitigation Monitoring Reports for the project. MTA managed the environmental mitigation and monitoring activities as the project transitioned to the replacement D-B contractor, MTS. Because MTS is now performing construction, MTA will monitor the environmental activities performed by MTS. On July 13, 2023, MTA provided the Second Quarter 2023 Environmental Commitment and Mitigation Monitoring Program Report. The report conveys the status of progress toward meeting commitments in the ROD that was issued in March 2014 and any pending actions required. In the report, MTA notes that "no problems, gaps, nonconformances, or NEPA issues of any sort were found during this quarterly assessment."

The MTA Purple Line team communicated that MDE is implementing a change to the state's construction dewatering monitoring and turbidity requirements. Pumped water discharge from construction sites will need to meet specific requirements — something that Maryland lacked but is common in many states. MTS has indicated that these requirements are a change to the project scope of work and is developing a change order request.

2.6. Project Delivery Method and Procurement

The majority of the capital cost of the Purple Line project has been packaged into a Design-Build-Finance-Operate-Maintain 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") in which appropriate risks and benefits are allocated in a cost-effective manner between the contractual partners. The P3 concessionaire is intended to perform some functions normally undertaken by the transit agency, but MTA remains ultimately accountable for the Purple Line project 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 PLTP had been selected as the P3 concessionaire. Commercial close of the P3 contract occurred on April 7, 2016, and financial close occurred on June 17, 2016.

In late April 2020, PLTC notified PLTP that due to PLTC's forecasted schedule delays on the project (which did not receive agreement from MTA), PLTC intended to exercise the clause that allowed it to terminate its contract with PLTP for the design and construction services under the P3 contract if delays exceed 365 days. MTA sent a formal request to PLTP for a response that would include a definitive path forward. On the response due date of May 14, 2020, PLTP submitted its response, which stated that PLTP intended to continue to negotiate with PLTC to retain PLTC as part of the P3 concessionaire team. On June 23, 2020, PLTP sent a formal Notice of Unconditional Election to Terminate the P3 Agreement to MTA, although PLTP indicated a willingness to negotiate a settlement. On June 24, 2020, MTA sent a Formal Notice of Concessionaire Default. This notice essentially refuted the validity of the PLTP delay claims and stated that if PLTP fails to perform, MTA has a number of options related to the P3 Agreement. Through July 2020, construction activities continued at the levels previously planned and were not affected by the dispute.

In early August 2020, PLTC and subcontractors demobilized equipment, materials, and personnel. In response, the Maryland Attorney General filed a motion for a Temporary Restraining Order (TRO) that prevented PLTP from abandoning the work or demobilizing. Upon issuance of the TRO, the contractor and subcontractors remobilized some equipment and restarted many construction activities. A hearing to uphold or rescind the TRO occurred before the expiration of the TRO on September 14, 2020, and the court rescinded the TRO, allowing PLTP to leave the project. If the TRO had been upheld, PLTP would have been required to continue working until the contractual dispute resolution procedures were followed.

When an agreement was not reached, the bond holder firms had the first right to take over the project. However, MTA planned an alternate path forward based on its exercise of step-in rights. To that end, MTA assumed the contracts of over 100 subcontractors, indicating MTA's intent to continue the project. MTA adjusted staffing for construction management, resident engineers, and inspectors to move forward with the project.

On November 24, 2020, MTA and the P3 concessionaire, PLTP, reached a settlement agreement to release the project's D-B contractor from the P3 consortium and continue the project with the remaining parties. The state's BPW approved the settlement agreement on December 17, 2020. Activities set out in the agreement and the IRP have proceeded with multiple modifications to milestone dates as needed.

The agreement included the following key aspects, as MTA has communicated to the PMOC:

- PLTP agreed to procure a replacement D-B contractor to complete the project and to obtain project financing. The selection of the preferred replacement D-B contractor, MTS, occurred on November 5, 2021. The TIFIA loan for the project closed on April 14, 2022, allowing financial close and commercial close on that same day. MTS is now the D-B contractor for the project.
- The settlement agreement provided a mutual release from all disputed and undisputed amounts (incurred before September 28, 2020) for PLTP, PLTC, and subcontractors. The agreement also released outstanding litigation among the parties.

2.7. Design

2.7.1. MTA Design

MTA's GEC completed the project design to approximately the 30 percent design level in fall of 2013 and provided incremental enhancements through late 2015. This design formed the basis of the RFP for the P3 contract. See the **P3 Design** subsection, below, for a discussion of the advancement of this design by PLTC, the former PLTP partner that was responsible for the design and construction of the capital project, and continued design under MTA.

MTA was responsible for the design and construction contracts under a Design-Bid-Build delivery method (separate from the P3 scope) for the following projects:

- Stream mitigation – MTA completed the 100 percent design packages in June 2017 and received approval from MDE in May 2018. Construction of the stream mitigation is now complete. See the **Environmental Mitigation** subsection of this report, above, for additional details.
- Wetlands mitigation – MTA completed the 100 percent design packages in June 2017. Several design adjustments were subsequently made based on MDE and Montgomery County comments. The construction contract was advertised on May 3, 2019. Construction of the original wetlands mitigation is now complete. See the **Environmental Mitigation** subsection of this report, above, for additional details.
- Offsite SWM sites – MTA completed design and obtained MDE approval of more than the P3 contract-required 5 acres of offsite mitigation in Montgomery County on May 29, 2018. In late October 2019, MTA received MDE approvals for the next 5 acres to be added to the mitigation credit "bank," thus satisfying the contract requirements for 2019. MTA has determined that there is a need for additional mitigation in Prince George's County, and a project to construct additional mitigation is included in the scope of work for MTS.
- See the **Environmental Mitigation** subsection of this report, above, for the current requirements.

MTA also completed the design to support a D-B contract for the replacement of the existing Parks Maintenance Facility with a facility on Polk Street. Construction of the facility is now complete.

See the **Real Estate Acquisition and Relocation** and the **Construction** (MTA Scope) sections of this report, below, for further details.

2.7.2. P3 Design

PLTC's design progress was forecasted to achieve substantial design completion of Civil packages in August 2020, substantial design completion of Systems packages (except for Fare Collection) in September 2020, and completion of the Fare Collection design package in 2021. The original baseline schedule anticipated design completion by late fall 2017. As of August 2020, the number of planned Civil, Systems, and Utility design packages was 218.

Upon the departure of PLTC, MTA contracted with the project's engineer of record, Atkins, to continue to advance the design of limited aspects of the project.

The current progress through ***August 23, 2023,*** is that 212 of the 218 total planned design packages have been issued as RFC. Civil and Utility packages that remain in design or approval include traffic signal pre-emption, grade crossing safety systems, lighting, signage, and stations. Systems packages were scheduled to be complete by the end of the first quarter of 2022; however, as noted above, six packages remain to be completed. The State Highway Administration ***had not given its approval*** of the final traffic signal package ***as of August 23, 2023. Train control and fare collection are the two significant outstanding design packages. MTA estimates that the train control package is 65 percent complete and that there is significant uncertainty about completion of the fare collection package.***

A new item related to design has been added to the Risk Register regarding an intelligent interface device that could impact implementation and operational costs. MTA and MTS have agreed to put this design change item before the Dispute Resolution Board for feedback, ***because MTA believes that the change in question would be a betterment that PTLP selected***.

PLTC reached resolution on the final remaining ATC identified during the proposal process. The ATC is related to the use of jet fans at the Bethesda Station in lieu of vent shafts. In accordance with the established process, MTA is reviewing the design package for NEPA compliance. Final documentation for the ATC is still pending as of ***August 2023***. MTA and MTS are coordinating to address the noise and aesthetic impacts of the fans, and they optimistically report that the ATC will have no Section 4(f) impacts or associated impacts to the ROD.

MTA and CSX worked to resolve issues related to the applicable design criteria and which project areas were affected until, in July 2019, a mutually agreeable path forward was defined for all areas. 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 SSTC 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 May 2020, CSX indicated that the final design is acceptable. Revised documents, providing some minor clarifications related to ROW, were submitted to CSX on September 8, 2020,

and ultimately CSX approved the design. The revised documents were submitted to WMATA several times in early 2021.

- WMATA's comments on design plans for the SSTC mezzanine connector pedestrian bridge (over CSX ROW) will result in what MTA deems are betterments. Resolution of WMATA comments continues as of ***August 2023*** for the SSTC and for other locations where WMATA and Purple Line stations coincide. MTA reports that the slow resolution of these comments has not impacted critical path activities.
- An encroachment into the CSX vertical clearance was discovered upon installation of girders at the SSTC. Although the designer believed the loading of the bridge deck might alleviate the issue, shimming was discussed as a potential solution. Shimming was not MTA's preferred solution; therefore, an exception was requested from CSX to allow the ¾-inch encroachment to remain. CSX denied the exception. MTA and the designer prepared for a contractor to jack and shim the structure to create the required clearance. Construction of this work was completed in August 2021.
- Proposed construction near the SSTC will require significant coordination with both WMATA and CSX. Track protection (flagging) and planning of a shutdown of the railroads to allow Purple Line activities near the SSTC in 2024 have been identified as schedule risk items.
- CSX provided review comments disallowing revised drainage networks, related to the Capital Crescent Trail work, which would connect to CSX's existing drainage culverts. The work on the Capital Crescent Trail is not part of the FFGA and is separately funded by Montgomery County. As a result of work with Montgomery County, the connections were relocated from CSX property to Montgomery County property and therefore are no longer a CSX issue. To fully accomplish this approach, two connections required resolution. Montgomery County acquired two parcels of land from CSX (not FFGA-funded) and then accepted responsibility for one connection currently under the responsibility of CSX. Storm sewer construction under the CSX railroad was required in several locations. Two jack-and-bore installations of culvert pipes were completed in November 2022. ***As of August 2023,*** completion of another 72-inch-diameter culvert is pending construction by MTS. ***The work plan for the culvert installation is in the approval process at CSX.***

2.8. Real Estate Acquisition and Relocation

As of ***August 9, 2023,*** the total number of planned property acquisitions is 601, including 464 privately owned properties and 137 public acquisitions. For the private properties, to date, a total of 476 offers were made, including for parcels that were subsequently eliminated, and 234 offers were accepted. All of the original Exhibit 9 FFGA-scope private parcels in the P3 contract are in MTA's possession, some of which are properties that continue in condemnation under the State Highway Administration process. To date, ***423*** of the original 464 private properties have

completed settlement, ***11*** additional properties (not part of the original 464 private properties) are pending settlement, and ***39*** condemnations remain to be settled.

All required public properties have been available for construction when needed. Several public property rights transfers are currently being coordinated to accommodate sidewalk changes, utility easements, and ROW exchanges.

As the project has progressed and new utility relocation needs have been identified, additional small parcel acquisitions have been added to the total as utility down-guys. In December 2017, PLTC initially submitted a list of approximately 280 such parcels related to utility relocations and subsequently added to that list. MTA resolved that it would acquire these properties, rather than execute amendments to the utility agreement that would 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 has been expediting the process somewhat. ***As of August 9, 2023,*** the list of additional acquisitions totals 188 parcels, and several more acquisitions potentially may be needed for stormwater facilities. Of these parcels, 54 are public property and will be acquired by agreement, and 134 are private acquisitions. Sixty-six of the 188 properties are filed for condemnation, excluding those that were subsequently optioned or settled, and ***100*** are settled. MTA estimates that approximately ***$36.2*** million of exposure remains in the acquisition process. This amount has been included in the Quantitative Risk Analysis.

The project required a total of 177 relocations, of which 57 were residential and 120 were businesses. To date, all 177 of those identified relocations have been completed in accordance with the applicable procedures, and no active claims remain to be settled. Also, MTA is monitoring terms of agreement of the property acquisitions discussed above that have not yet completed settlement, because some of them could potentially result in the need for additional relocations. As of October 2022, there were two new relocations related to commercial properties that potentially will be needed.

In August 2023, MTA indicated that the goal for completion of all real estate transactions is December 2024.

On April 25, 2023, MTA reported that BPW has approved the last of seven critical project acquisitions. These acquisitions were required to allow MTS access to construction areas that include activities on or near the critical path.

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 MTA shares this information with the PMOC. Based on actual settlement amounts and projected amounts for those not yet closed, settlement/condemnation values are ***55.3 percent higher*** than the original 2014 SCC budget for ROW. MTA included current ROW cost projections in its development of a FRP project cost estimate (see the **Project Cost** section of this report, below).

Due to the extended project duration, some agreements will expire before the expected RSA date. MTA and MTS have started the process of identifying the end dates now needed for the agreements and will begin the process of obtaining extensions. MTA has evaluated the risks, estimated the

cost of the extensions, and included those costs in a budget contingency. MTA estimates that approximately $13 million of risk exposure remains due to necessary TCE extensions.

2.9. Third-party Agreements and Utilities

All major third-party agreements (specifically, those agreements with Washington Gas, Verizon, Potomac Electric Power Company [PEPCO], CSX, UMD, Montgomery County Parks, Prince George's County Parks, WMATA, 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 lines that are currently overhead be placed underground when they cross the light rail alignment. To minimize the total cost impact of this change, MTA and Verizon reduced the number of locations where Verizon lines cross the alignment to 34. MTA is of the opinion that this reduction 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 for placing 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 upon in early March 2019. MTA had planned to negotiate the cost responsibility with PLTC and Verizon after all major Verizon relocations were completed. However, since the departure of PLTC, MTA carries this cost as a betterment outside of the FFGA scope.

In early June 2018, MTA and PLTP completed the negotiation of all remaining third-party agreements with the smaller utility and telecommunications (telecom) 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 to existing executed agreements continues to be evaluated. The significant items include:

- To date, the design differences with CSX, as discussed earlier in this report, have been adequately resolved through design review and concurrences, and have not resulted in the need to amend the CSX agreement.
- WSSC proposed that the project relocate a 66-inch underground water main that runs through the Glenridge OMF site. In March 2020, MTA and WSSC agreed on a water main alignment primarily in the median of Veterans Parkway, as well as a strategy for completing the relocation. The original Purple Line project GEC performed the design; WSSC provided the material; and MTA separately contracted for the construction, thus avoiding impact to the P3 concessionaire's scope of work. On May 21, 2021, WSSC authorized work, and mobilization began August 9, 2021. Energizing of the cathodic protection is the only remaining item of this relocation as of ***July 2023.*** WSSC is currently using the line and is responsible for the cathodic protection.
- In late July 2022, MTA and MDOT held a summit with the many utility providers that experience relocations related to transportation projects to discuss best practices and

improvements to the utility relocation process. As of May 2023, some of the utility providers are experiencing staff shortages that limit construction production rates. These staff shortages present an ongoing challenge for both MTA's OSF work and MTS's scope of work.

The project has been addressing its interface with 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 MOU with the Montgomery County Schools system, which was approved by the School Board and signed by the School Superintendent, Montgomery County, and MTA. A similar MOU was negotiated between MTA and the Rosemary Hills School and was approved at the School Board meeting on February 12, 2019. MTA submitted a draft second MOU to Montgomery County Schools on November 3, 2022, and is awaiting a response from Montgomery County Schools. Work will continue under ROE agreements with these parties through 2024.

As MTS commenced construction work, coordination meetings were held to ensure that prior agreements with third parties (utility companies and others) are followed. It is MTA's position that the transfer of third-party agreements from PLTC to MTA and now to MTS should not allow for a change in the terms of the agreements.

2.10. Construction

2.10.1. 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 replacement Parks Maintenance Facility (which is part of the real estate effort and budget), wetlands mitigation, stream mitigation, and possibly some offsite SWM sites. MTA has accomplished forest mitigation without the need for additional construction. The following discussion presents the current status of the MTA construction contracts:

- **Prince George's County Parks Polk Street Replacement Maintenance Facility** – This D-B contract was awarded after the BPW approved the construction contract award on March 20, 2019. Forrester Construction Company completed construction, and Parks has taken possession of the facility.
- **Offsite Wetlands Mitigation (Ken-Gar)** – The Wetlands Mitigation construction contract was awarded after the BPW approved the award on September 4, 2019, and NTP was issued to Environmental Quality Resources, LLC on September 5, 2019. The contractor mobilized in December 2019 and completed site surveys and the installation of Erosion and Sedimentation (E&S) controls. Clearing and grubbing began in February 2020. Prince George's County took partial acceptance of the entire project on March 3, 2021. Acceptable growth of vegetation has been achieved, allowing for closure of this project. The one-year warranty review occurred on January 9, 2022, and now the project requires MTA quarterly monitoring until closeout in 2028.

- **Offsite Stream Mitigation (Paint Branch)** – The Stream Mitigation construction contract was awarded after the BPW approved the award on September 4, 2019, 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. The one-year warranty inspection occurred on August 4, 2022, and 1,700 plants were replaced in November 2022.

2.10.2. P3 Scope

Highlights of construction activities ***through August 2023*** throughout the alignment include*:*

- General: As a result of the dispute with PLTC (see the **Project Delivery Method and Procurement** section, above), all project activities slowed in the fall of 2020. In early August 2020, contractor forces, equipment, and materials were demobilized, and work in some areas ceased. Upon legal action from MTA, partial remobilization occurred. Following the court's rescission of the TRO, demobilization and safe-up activities in the construction area began in earnest in mid-September 2020 and continued into October 2020. Following PLTC's exit, MTA engaged a number of former PLTC subcontractors to continue select project activities. This work has been progressing under MTA management with a goal of advancing critical path activities and reducing risk for the replacement D-B contractor.
- Status of ongoing P3 construction items that MTA manages:
  - Utility installations of all types are underway, including construction by the electric provider, PEPCO, and the communications company (Verizon). Water, storm sewer, sanitary sewer, and gas lines are also being constructed.
  - As a part of OSF, MTA ordered rail, ties, special trackwork, and turnouts to mitigate supply chain risks. MTA also secured materials previously procured by PLTC for use by the replacement D-B contractor (MTS). As of July 2023, MTS indicated that not all of these materials are available, as prescribed by the updated P3 Agreement. MTA has added this dispute to the Risk Register.
  - Building construction at the Glenridge OMF is essentially complete; however, construction of civil items outside of the building continues, as does final commissioning of systems inside the building. MTS was scheduled to assume control of the facility in early 2023; however, as of July 2023, there was a dispute over the completeness of the OMF that was delaying turnover from MTA to MTS. The PMOC recommends that this issue be added to the Risk Register, and mitigation plans and an estimate of cost and schedule impacts be developed. ***As of August 2023, MTA indicates that it has developed a punch list of items that must be completed before MTS will accept the building.*** MTS is currently installing rail and other features both inside and outside of the building. MTS will complete the tracks for storage and testing of LRVs.

- Based on the status of construction, MTA determined which items would be completed before mobilization of the replacement D-B contractor. OSF construction activities were expected to be completed before September 1, 2022, but schedules provided by MTA indicated completion of most OSF activities in mid-2023, with some activities continuing ***into November 2023.*** OSF utility relocations that are behind schedule continue to cause impacts to MTS's work, and as of July 2023, delays in OSF activities have driven two change orders. MTA and PLTP have mobilized the Tiger Team to develop schedule alternatives to mitigate additional delays driven by OSF work between March 2023 and July 2023. ***MTS asserts that there are at least 88 days of additional delay due to incomplete OSF work.***
- MTA's Equal Employment Opportunity Officer assigned to the project is Marcques Washington, and he is supporting MTS in its hiring program. The former contractor, PLTC, left the project with a shortfall in meeting the requirements of its DBE program, and MTS is required to address this shortfall of approximately $12 million in contract value. In March 2023, MTA reported that the design portion and the nationally targeted worker program of the P3 contract had exceeded the DBE program goal, but the percentage DBE participation for general construction is below the goal. In April 2023, Mr. Washington reported that the DBE participation statistics are improving as construction continues. In July 2023, the PMOC continues to recommend that MTA report the projected values for these goals at the end of the project in addition to the current achieved values to allow for a better evaluation of progress toward meeting the goals. MTA has been performing audits each month to monitor the Davis Bacon prevailing wage requirements. ***To date, only very minor issues have been identified during these audits.***

2.11. Vehicle Technology and Procurement

The LRVs are five-car vehicles consisting of 136-foot-long, articulated units. Twenty-five vehicles (22 in operation and 3 spares) will be provided under the FFGA for the opening year. PLTP executed the LRV contract with CAF on June 17, 2016, and issued NTP to CAF on July 5, 2016, for the 25 FFGA vehicles. NTP to CAF also included one LRV outside of the FFGA.

Later, MTA added two additional vehicles (outside of the FFGA) by change order to CAF's contract, for a total of 28 vehicles to be supplied by CAF. The two additional LRVs will support better operations. MTS has incorporated these two additional LRVs into its scope of work (in addition to the cost and terms of LRV storage in Elmira).

Vehicle carshell manufacturing activities, which are coordinated with design progress, occurred until the facility in Spain was shut down in late March 2020 due to supply chain issues and to limit the spread of COVID-19. The final assembly facility in Elmira, New York, was shut down in early April 2020 due to New York State restrictions related to COVID-19 and reopened on May 18, 2020, at 50 percent of its workforce capacity. As of early August 2020, both the Spain facility and the Elmira facility were back to 100 percent staffing levels.

The final assembly of vehicles is being performed in CAF's facility in Elmira. MTA, its PMC, and SNC-Lavalin are meeting weekly with CAF to resolve all open items for design, testing, and manufacturing activities. First Article Inspections (FAIs) for Interior and Cab were completed on March 18, 2021, and FAIs for Exterior, Roof, and Undercar were completed on April 2, 2021.

Shipment of the first vehicle to the project site was expected in late spring of 2021. The lack of available storage at the yet-to-be-completed Glenridge OMF requires use of an offsite storage facility where vehicles can be stored, occasionally powered, and occasionally "exercised" or moved on tracks. MTA and CAF negotiated an agreement for CAF to store the completed LRVs in Elmira. That storage agreement subsequently transferred to MTS, and its terms are part of MTS's agreement. Twenty-six LRVs have been designated as Ready for Shipment and have been placed into storage in Elmira. MTS's proposed construction schedule establishes when the test tracks will be available for acceptance of the railcars at the Glenridge OMF. Currently, the schedule indicates that initial deliveries of LRVs will occur in early 2024.

The status of the LRV manufacturing as of ***August 23, 2023,*** is:

- To date, 130 carshell segments have been assembled in Spain.
- All 130 carshells have been delivered to CAF's facility in Elmira, New York.
- All 25 full LRVs in the FFGA are designated as Ready for Shipment and are in storage at CAF's Elmira facility. One additional LRV (outside of the FFGA) is also Ready for Shipment and in storage.
- Two additional LRVs are under contract. These LRVs are not a part of the FFGA, but rather are an addition to the contract by MTA to support rail operations. Manufacture of the two additional vehicles (ten cars) in Spain is now complete. ***All ten cars have been delivered to Elmira for final assembly and static testing.***

2.12. Project Cost

Table 5 summarizes the project's current actual expenditures and EAC, and compares them to the project budget as reported in MTA's SCC Workbook dated June 1, 2016, which is the basis of the project's FFGA. The project's documented expenditures total ***$2,980,070,357 through July 31, 2023.*** Refer also to **Table 4 – FFGA Core Accountability Items** in the **Executive Summary** section of this report for details on the project's planned and actual expenditures. The following table shows project budgets, actual expenditures, and forecast at completion amounts through ***July 31, 2023***, compared with the project budget as reported in MTA's SCC Workbook dated June 1, 2016, and MTA's current working budget.

Table 5 – Project Cost Versus Budget

SCC	Cost Category	Budget (June 1, 2016 Original FFGA)	Working Budget[1] (April 3, 2023 Final Recovery Plan)	Expenditures *(as of July 31, 2023)*[2]	Forecast at Completion[1]
10	Guideway and Track	$280,620,726	$371,508,682	***$184,629,297***	$371,508,682
20	Stations	$114,857,016	$161,159,923	***$18,816,166***	***$164,782,273***
30	Maintenance Facility	$94,155,591	$93,454,387	***$85,852,032***	$93,329,787
40	Sitework	$521,968,990	$796,081,289	***$507,089,434***	***$888,050,668***
50	Systems	$263,887,313	$517,256,196	***$140,597,829***	***$506,294,782***
	Subtotal 10–50	$1,275,489,636	$1,939,460,477	***$937,381,846***	***$2,024,013,192***
60	Right-of-Way	$229,600,000	$329,126,214	***$289,550,289***	$329,126,214
70	Vehicles	$212,940,927	$292,780,600	***$149,702,109***	$292,780,600
80	Professional Services (total)	$571,658,114	$2,247,359,915	***$1,603,436,112***	$***2,300,420,291***
80.01	Project Development	$87,149,878	$85,469,312	$85,469,312	$85,469,312
80.02	Engineering	$139,766,036	$196,722,013	***$211,206,226***	$219,864,607
80.03	Project Management for Design and Construction	$148,555,323	$655,185,988	***$383,445,374***	$640,202,588
80.04	Construction Administration and Management	$83,269,280	$734,209,735	***$483,832,551***	$794,838,017
80.05	Professional Liability; Other Non-construction Insurance	$34,534,796	$85,701,891	***$78,771,856***	$78,780,490
80.06	Legal; Permits; Review Fees by Other Agencies, Cities, etc.	$5,805,117	$341,013,320	***$304,471,852***	$338,965,520
80.07	Surveys, Testing, Investigation, Inspection	$15,164,346	$92,504,023	***$51,457,417***	***$87,621,523***
80.08	Startup	$57,413,338	$56,553,635	$4,781,535	$54,742,600
	Subtotal 10–80	$2,289,688,678	$4,808,727,206	***$2,980,070,357***	***$4,946,340,297***
90	Unallocated Contingency[2]	$90,535,748	$307,293,174	***$0***	***$169,680,083***
100	Finance Charges	$0	$0	$0	$0
	Total	$2,407,030,288	$5,116,020,381	***$2,980,070,357***	$5,116,020,380

[1]The Purple Line project Working Budget and Forecast at Completion are based on the accepted FRP, dated April 3, 2023, ***and subsequent change orders.***

[2]The Unallocated Contingency Expenditures will be reflected in SCC10-80 expenditures as they occur. As of July 31, 2023 the committed unallocated contingency amount is $137,613,091.

MTA developed the FRP unallocated contingency amount of $307,293,174 by utilizing a Quantitative Risk Analysis, and the RCMP dated April 21, 2023, recommended that amount for unallocated contingency.

On July 15, 2021, the PMOC requested that MTA provide revised budget tracking information that accurately reflected the combined IRP and OSF expenditures. MTA prepared a summary of actual versus planned expenditures for high-level OSF activities for review by the PMOC. MTA submitted the latest version of the summary that provides information through December 2022.

MTA forecasted OSF expenditures of $556.15 million, which exceed the original OSF budget by approximately $136 million. In May, June, ***July, and August*** 2023, the PMOC requested an OSF budget update. The extended OSF schedule and other changes have added cost since the December 2022 budget update. ***To date, MTA has not provided the requested OSF budget information.***

In July 2023, the Maryland BPW approved a change order that had a total addition of $204,954,610 of cost and 207 additional days of contract time. The net budget impact to the capital construction portion of the project was $137,144,705, and the balance of the total amount was applied to the financing and lost return on investment for PLTP. The $137,144,705 will be expended over the course of construction; therefore, this amount does not immediately show up in the MTA budget reports. However, that amount, plus the amount of the earlier change order included in the FRP, represents significant utilization of the budget contingency. The PMOC recommends that MTA closely monitor these cost overruns and the potential need for contingency.

2.12.1. Project Funding

The funding for the project, as reflected in Attachment 3 of the FFGA, is shown in Table 6.

Table 6 – Baseline Cost Estimate by Source Funding

Initial New Starts Project Cost	Total FFGA Cost in Year of Expenditure (YOE) Dollars	Federal 5309 New Starts in YOE Dollars	Federal 5307 in YOE Dollars	Federal American Rescue Plan Act (ARPA) in YOE Dollars	Federal Surface Transportation Program (STP) in YOE Dollars	Local in YOE Dollars
10 Guideway & Track Elements	$280,620,726	$106,464,907	$0	$0	$0	$174,155,819
20 Stations, Stops, Terminals, Intermodal	$114,857,016	$43,747,594	$0	$0	$0	$71,109,422
30 Support Facilities, Yards, Shops, Admin. Bldgs.	$94,155,591	$35,721,760	$0	$0	$0	$58,433,831
40 Sitework & Special Conditions	$521,968,989	$197,858,301	$0	$0	$0	$324,110,688
50 Systems	$263,887,313	$100,116,405	$0	$0	$0	$163,770,908
60 ROW, Land, Existing Improvements	$229,600,000	$87,108,116	$0	$0	$0	$142,491,884
70 Vehicles	$212,940,927	$80,787,818	$0	$0	$0	$132,153,109
80 Professionals Services	$571,658,113	$216,881,800	$36,000,000	$0	$0	$318,776,313
90 Unallocated Contingency	$90,535,748	$31,313,299	$0	$0	$0	$59,222,449
100 Finance Charges	$26,805,863	$0	$0	$0	$0	$26,805,863
Total Project Cost (10-100)	**$2,407,030,286**	**$900,000,000**	**$36,000,000**	**$0**	**$0**	**$1,471,030,286**

Source: Maryland Purple Line Project Recovery Plan dated April 3, 2023.

2.13. Project Schedule

The March 15, 2017 progress update of the master project schedule served as the only approved version of the schedule until September 2022. Numerous submissions of schedule updates from PLTC were not approved for various reasons, but the primary reason was the inability of MTA and the P3 concessionaire to agree on the schedule impacts of the approximately one-year delay in the execution of the FFGA. In response to a letter that FTA issued to MTA in early August 2018 expressing concerns about the amount of time that the project had advanced without an

approved schedule, MTA prepared a working schedule update of the master project schedule. The working schedule update was based on the negotiations of the P3 contract schedule occurring at the time, but the update was not based on a mutually agreed-upon P3 contract schedule.

In late April 2020, PLTC notified PLTP that, based on its forecasting of schedule delays on the project (which were not mutually agreed upon), PLTC intended to exercise the clause in its P3 contract with PLTP that allows it to terminate the contract for design and construction services under the P3 contract if delays exceed 365 days. MTA sent a formal request to PLTP for a response that included a definitive path forward for PLTP's intended management of the P3 contract. On May 14, 2020 (the date the response to the formal request was due), PLTP submitted its response, which stated that PLTP intended to continue to negotiate with PLTC to retain PLTC as part of the P3 concessionaire team. On June 23, 2020, PLTP sent a formal Notice of Unconditional Election to Terminate the P3 Agreement, although PLTP indicated a willingness to negotiate a settlement. On June 24, 2020, MTA sent a Formal Notice of Concessionaire Default. This notice refuted the validity of the PLTP delay claims and stated that if PLTP failed to perform, MTA had a number of options related to the agreement. Through late July 2020, construction activities continued at the level previously planned, and construction progress was not affected.

In early August 2020, PLTC and subcontractors demobilized equipment, materials, and personnel. In response, the Maryland Attorney General filed a motion for a TRO that prevented PLTP from abandoning the work or demobilizing. Upon issuance of the TRO, the contractor and subcontractors remobilized some equipment and restarted many construction activities. A hearing to uphold or rescind the TRO was held on September 14, 2020. The court rescinded the TRO, allowing PLTP to leave the project. Through negotiation, it was determined that PLTP would remain on the project, although PLTC would not.

MTA contracted with numerous subcontractors to continue the project. MTA developed organizational options with respect to construction management, resident engineers, inspectors, and other staff needed to move forward select project activities.

It was certain that the project schedule as reflected in the FFGA would be negatively affected, and a Recovery Plan for the project, including a revised project schedule with adequate schedule contingency to address remaining project risks, would be required. MTA submitted its draft IRP to FTA in December 2020, and FTA approved the IRP on January 12, 2021. A schedule for the period during which the D-B contractor was to be replaced was developed, and MTA monitored project progress against the schedule.

PLTP and MTA continued to coordinate during the financial process and State of Maryland approvals for the replacement D-B contractor. In addition, MTA successfully coordinated other key issues that needed to be resolved before PLTP could execute the contract with MTS.

The following is a summary of IRP milestones:

- January 6, 2021 – PLTP issued a Request for Qualifications (RFQ) for replacement D-B contractors.

- March 8, 2021 – PLTP issued a Request for Proposals (RFP) to the short list of replacement D-B contractors based on the RFQ.
- October 15, 2021 – PLTP received RFP responses.
- November 5, 2021 – PLTP and MDOT/MTA selected the replacement D-B contractor firm (MTS).
- January 26, 2022 – BPW approved the replacement D-B contractor, contract amendments, schedule, cost, and financing.
- April 11, 2022 – Private activity bonds went to market.
- September 12, 2022 – MTA approved the Initial Baseline Schedule (IBS).
- October 14, 2022 – MTS was required to have commenced action on the 11 critical elements that are specified in the D-B contract. At the December 2022 PMOC meeting, MTA confirmed that MTS missed the 180-day window to commence action on 3 of the 11 critical elements.
- October 28, 2022 – MTA was required to have submitted a draft FRP to FTA and the PMOC for review and comment. On October 4, 2022, MTA submitted the draft FRP to FTA and the PMOC for review.

A milestone not specifically mentioned in the IRP is the requirement to extend the current RSD. The PMOC therefore added the following milestone to this list:

- December 31, 2022 – The RSD in the original FFGA is December 31, 2022. MTA requested an extension to the current RSD identified in the original FFGA. FTA has now accepted the FRP, which indicates a revised RSD of February 24, 2028.

The schedule included in the FRP was considered to be the new baseline schedule. The MTS master schedule incorporated the schedule recovery of implementing Maintenance of Traffic and construction activity resequencing, at a cost of $21,343,588, they were able to reduce schedule delays from 218 days to 81 days. These schedule delays are a result of OSF utility adjustments that fell behind schedule. MTS has indicated that delays continue as a result of the MTA-managed OSF work. The second OSF-delay-driven change order, as approved by the BPW in July 2023, added 207 days to MTS's RSA date.

This addition to the RSA date represents a significant use of schedule contingency, which is a concern considering the remaining duration of the project. In an effort to mitigate continuing OSF delays**,** MTA has resumed the Tiger Team process to develop schedule alternatives. OSF construction activities were expected to be completed before September 1, 2022, but schedules provided by MTA indicated completion of most OSF activities in mid-2023, with some activities continuing through ***November 2023***. OSF utility relocations that are behind schedule continue to cause impacts to MTS's work, and as of July 2023, delays in OSF activities have driven two change orders. MTA and PLTP have mobilized the Tiger Team process to develop schedule alternatives to mitigate additional delays driven by OSF work between March 2023 and July 2023***, which are currently forecasted by MTS to reach 88 days of delay.***

2.13.1 Key Milestones

Table 7 shows the current key milestone dates for the project for the prior approved (March 15, 2017) progress update of the master project schedule and the MTA master schedule incorporated in the FRP dated April 3, 2023. Issuance of NTP to PLTP on April 14, 2022, triggered the contract requirement that an MTA-approved MTS IBS for the full project be in place within 120 days of financial close (by August 14, 2022). In January 2022, MTA submitted a draft version of the master schedule for FTA and PMOC review, and FTA and the PMOC transmitted their review comments to MTA in April 2022. MTS submitted its IBS, and on September 12, 2022, MTA approved it. MTS submitted the 120-day mobilization schedule, which MTA also approved.

In August 2022, MTA and the PMOC discussed the current state of the baseline schedule, particularly the inclusion of adequate float to address schedule risk. The P65 date that MTA proposed before the risk workshop held in May 2022 included approximately seven months of float and an RSA date in October 2026. After MTA performed the Quantitative Risk Analysis for the updated RCMP, MTA added additional float to address known and unknown schedule risk. The RSD proposed in the FRP is February 24, 2028, ***and the August 2023 master schedule currently indicates that only six months of schedule float remain.***

The PMOC recommends that MTA closely monitor schedule contingency and the corresponding budget contingency when evaluating the RSA date/RSD and the EAC that have been incorporated into the FRP. The information in Table 7 will be updated once the schedule reviews and approvals are complete.

Table 7 – Key Milestone Dates

Activity	Prior Approved Master Project Schedule (March 15, 2017)	MTA Master Schedule (July 2023) (working schedule)
Locally Preferred Alternative Approval Date	08/04/2009 (A)[1]	---
FTA Approval to Enter Preliminary Engineering	10/07/2011 (A)	---
FTA ROD	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 through 03/02/2016 (A)	---
BPW Approval of P3	04/06/2016 (A)	---
P3 Commercial Close	04/07/2016 (A)	---
Limited NTP for P3 Engineering	04/07/2016 (A)	---
MTA Submit FFGA Application	05/24/2016 (A)	---
P3 Financial Close	06/17/2016 (A)	---

Activity	Prior Approved Master Project Schedule (March 15, 2017)	MTA Master Schedule (July 2023) (working schedule)
FFGA Signed	08/22/2017 (A)	---
Start of First Major Construction Activity	08/28/2017 (A)	---
All Significant ROW Acquisition and Relocation	As needed by construction	---
Commencement of Contract Work for Replacement D-B Contractor (MTS)	---	04/14/2022 (A)
Commencement of Integration Testing	---	07/28/2025
All Segments Complete Construction (with Contingency)	---	02/19/2027
Revenue Service Availability per P3 Amendment (with Contingency)	---	***06/07/2027***
FFGA RSD Date (Includes Contingency)	12/31/2022	02/24/2028

[1] A = Actual.

2.13.2 90-day Look-ahead

The critical 90-day (***September 2023 through November 2023***) look-ahead includes activities that MTA highlighted in the recent monthly meeting with the PMOC. MTA and MTS also are preparing four-week look-ahead schedules to manage interim activities. Key activities that MTA has identified for the short term are:

- Retaining wall, OCS foundation, and bridge structure construction in multiple locations.
- Water, sanitary sewer, and storm sewer construction in multiple locations.
- Completion of MTA-managed OSF activities.
- Station construction.
- Overhead electrical line, communications line, and buried gas line relocations.
- TPSS installation and commissioning.
- MTA's closeout of Glenridge OMF punch lists and turnover of the facility to MTS.
- Blasting at the Bethesda shaft. Construction of the Bethesda Enclosed Trainway grade beam.
- Track construction at and around the Glenridge OMF.

2.13.3 Critical Path Activities

In the MTA master schedule update ***dated August 17, 2023***, the critical path runs through the activities in Segments 7 and 8 of ***Utility Relocations***, Civil, and Systems packages, and then ***Trial Running and Systems Testing***.

2.14 Project Risk

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

During the approximately one-year period during 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 Quantitative Risk Analyses, or perform formal updates of the Risk Register. However, the Purple Line project management team did assess and respond to the risks associated with the unforeseen chain of events related to the lawsuit.

The project team resumed formal risk management 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 in draft form in January 2018, and was updated further and reissued in March 2018. As an ongoing process, MTA currently is performing updates of the Risk Register periodically, though somewhat less frequently than bimonthly (the frequency established in its RCMP). The current status of the RCMP is discussed in the **Project Management Plan and Sub-plans** section of this report, above.

MTA provides copies of significant updates of the Risk Register to FTA and the 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; the project's top five project risks are included as Attachment C of this report and are updated quarterly. A risk management workshop was held on January 26, 2021, at which the PMOC and FTA participated. The workshop focused on the resolicitation period for the replacement D-B contractor (January through October 2021).

Once the replacement D-B contractor was under contract, risk updates were prepared. The project held a risk workshop the week of May 2, 2022, at which the PMOC and FTA participated in an OP 40 risk and contingency review that evaluated cost, schedule, and project contingency. Confirmation and finalization of the Risk Register, the Quantitative Risk Analysis, and an update of the RCMP are components of the required FRP. FTA provided a summary of the risk workshop to MTA on June 22, 2022, for MTA's consideration and incorporation into its management plans and contingency evaluation. MTA provided responses to FTA comments on the risk workshop summary on July 15, 2022, and clarification on August 25, 2022. In October 2022, MTA submitted RCMP Version 15 to FTA and the PMOC for review. In February 2023, FTA and the PMOC provided comments on RCMP Version 15 to support MTA's development of the project's budget contingency and schedule contingency. On April 21, 2023, MTA provided a revised RCMP to FTA and the PMOC for review, and on May 22, 2023, FTA accepted the revised RCMP with comment. In June 2023, MTA held its quarterly Risk Management Committee meeting, at which it updated the Risk Register to reflect retired and new risk items. Five of the seven new risk items are related to disputes with MTS. Two significant risks were added to the Risk Register—

one related to numerous design changes that occurred during OSF but were not reflected in the amended P3 Agreement and one related to a very specific intelligent interface device.

As of August 2023, MTA has indicated that it will conduct a risk workshop and a Quantitative Risk Analysis in the fall of 2023 in conjunction with the completion of OSF activities.

2.15 Quality Assurance/Quality Control

The project's QA/QC is addressed in Section 10 of the PMP, the Quality Program Plan, and the updated MTA QAP Revision 8.0, which incorporates the quality plans prepared by PLTC. The **Project Management Plan and Sub-plans** section of this report, above, discusses the most current versions of the PMP and the QAP. MTA also submitted to FTA the package of inter-related quality plans prepared by the P3 concessionaire after the package was reviewed and approved by MTA.

MTA obtained and used PLTP's quality logs and other applicable documents and procedures for use during the transition to the replacement D-B contractor. Several former subcontractors are now under contract with MTA and conducted QA/QC activities during the replacement D-B contractor solicitation period. The budget to address nonconforming construction by PLTC remains a concern as of July 2023. MTA incorporated known defects into the MTS contract; however, MTA has not clarified the specific budget that will be used to rectify defects found since the contract with MTS was executed. MTA estimates that the potential magnitude of this budget impact will be no more than $10 million, and the current Risk Register carries this risk item.

In October 2022, MTA submitted QAP Version 10 to FTA and the PMOC for review, and on March 8, 2023, FTA provided review comments on the QAP to MTA. MTA provided a revised QAP to FTA and the PMOC in May 2023.

The project has continued to conduct its monthly meeting to review the QA/QC activities performed by the Purple Line project team, including those activities performed by the PMC and the GEC. Documentation from this meeting is distributed and maintained. The project's Monthly Progress Report to FTA also contains a summary of the significant current QA/QC activities and events, including quality audits and quality reviews.

In August 2023, quality management topics included quality process improvements, records storage, field inspections to close open issues, equipment testing inspections, design submittal reviews, records spot checks, approval of MTS's quality management plans, MTS offsite inspections at the fabrication location for OCS poles, and planning of the monthly QC meetings.

In November 2021, MTA's quality lead for the Purple Line project, Rene Schroeder, retired. Roland Carroll, the Purple Line systems and construction safety lead, added the quality lead role to his other Purple Line roles. In February 2022, MTA provided a white paper outlining Mr. Carroll's experience, his recent training, and the proposed supporting staff related to his new quality management role. The PMOC has evaluated this change as a part of the PMP review and will continue to monitor MTA's management capacity for this function and all positions through ongoing oversight activities.

MTA displayed several quality documents on the screen during the August 23, 2023 virtual meeting with the PMOC. The PMOC noted that no recent MTS audits or quality training had been performed. The PMOC requested that MTA provide more complete documentation on OSF quality activities before the September PMOC call with MTA.

The PMOC finds that the quality reporting related to OSF activities is inconsistent and has requested that MTA provide additional detail related to OSF-specific quality efforts. A technical work session will be requested by the PMOC in September 2023.

2.16 Safety and Security

PLTP has conducted 44 Preliminary Hazards Analysis (PHA) workshop sessions to date. These workshops were held to resolve MTA's comments on the PHAs completed to date.

To support the ultimate Safety and Security Certification of the Purple Line project, the PLTP System Safety team completed development of its first DCCC in May 2017 and submitted it to MTA for approval. MTA (assisted by the PMC) reviews the DCCCs as part of the Final Design package, according to the established submittal review process. According to PLTP, the DCCCs were being verified before the issuance of RFC packages. To date, an estimated ***98 percent*** of the DCCCs have been verified. All previous comments on PLTP's Certified Elements List (CEL), which includes operations and maintenance and system integration testing elements, have been resolved, and CEL Revision 2 was accepted in March 2020. The Certified Items List (CIL) Revision 1 has been accepted. The next revision of the CIL is expected after MTS completes the design. MTA will provide the revised CIL to FTA and the PMOC as soon as it is completed. Approximately 10.6 percent of the CSCCs have been verified to date.

MTA chairs a Safety and Security Certification Committee (SSCC) that reviews, comments on, and approves any PLTP hazard management and safety and security certification issues. The first meeting of the MTA SSCC was conducted on March 20, 2018. Since July 11, 2018, the SSCC meeting has been held regularly and will continue as a monthly meeting until the level of activity requires more frequent meetings. ***As of August 2023,*** monthly SSCC meetings continue.

PLTC submitted a Threat and Vulnerability Assessment, and on July 15, 2019, MTA accepted and verified the comment responses and approved PLTC's Threat and Vulnerability Assessment. PLTC then completed its Threat and Vulnerability Assessment process.

MTA continues to conduct bimonthly Fire/Life Safety meetings with Montgomery County and Prince George's County. The meetings provide a basis for the counties' emergency responders to understand the features of the Purple Line systems and to resolve any concerns. Topics of discussion include: Police Department MOUs; Fire Department connection and hydrant locations; access, signage, and station naming conventions; MOUs for training; the PHA at the Glenridge OMF maintenance gate; station names; and addresses/emergency phone numbers for locations along the corridor. Other topics of discussion have included closed circuit television cameras and Mobile Emergency Vehicle Response access. It is the opinion of the PMOC that MTA should emphasize resolving the project's outstanding Fire/Life Safety issues, because progress on the resolution of these issues is not apparent.

MTA police continue coordinating MOUs with local safety agencies and developing MOUs with police jurisdictions (such as the Maryland National Capital Park Police) along the Purple Line. These MOUs are related to training the existing police agencies on how to respond to transit situations. ***During August 2023, the PMOC reiterated that these processes have been ongoing for several years and that milestones for resolution of issues should be established.***

During the September 2022 MTA/PMOC meeting, a larger related issue was discussed at length. The SSOA staff participated in this discussion as well. The crux of the issue is that MTA does not have a police force located in proximity to the Purple Line. MTA hired a consultant team to analyze alternatives for providing security and fare enforcement services for the Purple Line. Alternatives include: expanding MTA's enforcement services geographically, bringing on a third party to provide these services through a contract, or sharing police services with another party. On February 23, 2023, MTA submitted its prepared draft recommendation for providing security and fare enforcement to several State of Maryland departments. Representatives from MDOT, which is the SSOA, who are monitoring the Purple Line project development provided comments on the draft recommendation before MTA submitted it to MTA's upper management and the several state departments. In late April 2023, MTA provided FTA with the alternatives study for review. The study indicates that the preferred alternative is the development of a new Southern District of the MTA Police Department and recommends several next steps toward implementation of the new district, including hiring a commander, developing operating procedures, working on MOUs with other local jurisdictions, and developing a facility to house the district. ***The PMOC continues to recommend as of August 2023 that MTA develop a written implementation plan that includes schedule milestones and a budget for providing security and fare enforcement services.***

As required by the P3 contract, PLTP was responsible for directly implementing many of the safety and security requirements for the project, including those for construction safety and the collection and maintenance of the Occupational Safety and Health Administration (OSHA) safety statistics for the project. PLTC performed this work until its departure from the project, at which time MTA assumed responsibility. MTS transitioned into the safety and security role that PLTC held. MTS and MTA are holding regular safety and security coordination meetings.

Safety is a PMOC concern. ***The rate of recordable incidents remains above project goals, and MTA appears to be having difficulties with incident documentation.*** For the period from January 1, 2022, through ***July 2023***, the OSHA statistics are:

- TCIR (Total Case Incident Rate) (Recordable Rate) – MTS and OSF activities:
  - Actual: ***3.65/***8.04 (MTS/OSF)
  - MTA goal: 0.45
  - National average: 2.8 (for heavy civil construction)
- LTIR (Lost Time Injury Rate) (Recordable Rate) – MTS and OSF activities:
  - Actual: ***3.65/***8.04 (MTS/OSF)

- MTA goal: 0.00
- National average: 0.9 (Construction – heavy civil)

MTA had assumed responsibility for safety oversight until MTS assumed control of the project. As of December 2022, MTA reported that MTS needs coaching on expectations for the required reporting of safety statistics. In April 2023, the PMOC noted to MTA that both the LTIR and the TCIR have significantly increased, particularly for the MTA-managed OSF activities. In addition to the increase in incident rates, there is an apparent lack of tracking and reporting of safety issues. MTA recognizes the issue and reports that it has scheduled additional safety coordination efforts. In May 2023, the PMOC requested documentation on these additional efforts, and in July 2023, the PMOC questioned the effectiveness of the efforts. MTA acknowledges the need for safety process improvement. The PMOC recommends that MTA and MTS complete a safety process review as soon as practical and that MTA prepare a written summary. The summary should include the action items and the responsible parties for each. It is the opinion of the PMOC that there may be a lack of emphasis on safety or lack of safety-related MCC. ***Due to the inconsistent reporting and high incident rate of safety issues, as of August 2023, the PMOC once again requested the MTA provide written documentation related to safety process improvements.***

In late October 2022, MTA submitted updated SSMP and SSCP documents in conjunction with the updated PMP. On February 13, 2023, and March 8, 2023, FTA provided review comments to MTA on the SSMP and SSCP, respectively. ***MTA submitted a revised SSMP to FTA on June 28, 2023, and submitted a revised SSCP on August 28, 2023. The SSMP was approved by FTA in August 2023 and the SSCP will be reviewed in September 2023.***

See the **Project Management Plan and Sub-plans** section of this report, above, for the status of the sub-plans of the PMP related to safety and security. Attachment B of this report includes additional quarterly safety- and security-related information for the Purple Line project.

2.17 Americans with Disabilities Act

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

Accessibility and compliance with the ADA are required as part of the functional requirements for stations and guideway, and as part of the codes and standards for LRVs within the P3 contract (Book 2, Part 2) for the Purple Line project. Based on project reviews conducted by the PMOC, MTA has confirmed that it included ADA compliance in its QA oversight reviews of PLTC's design packages. A full-time Purple Line project Maintenance of Traffic construction representative also monitors whether temporary pedestrian accommodations during construction continue to comply with ADA requirements. ADA compliance is included in the PMOC's periodic project reviews, during which the PMOC discusses timely project ADA-related items with the project team. Such discussions during the PMOC's most recent reviews identified no current ADA-related issues.

MTA indicates that the project is maintaining ADA accessibility along the project corridor during construction. In addition to planning for ADA accessibility, MTA and MTS respond to public concerns due to construction activities and temporary accessibility features.

2.18 Buy America

MTA understands that Buy America compliance applies not only to the rail vehicles but also to the 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 regulations is contained in MTA's standard clauses for its procurements, and the P3 contract contains explicit Buy America language in its Appendix 16.

Virginkar and Associates, Inc. conducted the Buy America pre-award audit and concluded that there is reasonable certainty that CAF will satisfy the Buy America requirements as stated in 49 Code of Federal Regulations (CFR) 661. MTA's interpretation is that, because the vehicle RFP was advertised before December 4, 2015 (which is the date of passage of the Fixing America's Surface Transportation Act, also known as the FAST Act), the 49 CFR 661 Public Interest Waiver that limits domestic content to a minimum of 60 percent, as opposed to the escalating domestic content requirements of the FAST Act, applies in this case. During the week of October 2, 2017, an intermediate post-award Buy America audit was conducted of CAF's facility in Elmira, New York, for added confidence that the post-delivery audit would not identify issues. CAF targeted 65 percent domestic content in the completed LRVs.

The project's Buy America compliance audit for the LRVs was conducted on November 14, 2022. In January 2023, CAF provided additional documentation requested to assist with evaluation of Buy America compliance. ***On August 17, 2023, MTA provided the Post-delivery Buy America Audit, dated April 21, 2023, to FTA. On that same day, MDOT also provided the Certificate of Compliance to FTA for the Post-delivery Audit of Rolling Stock Purchases. The audit indicates that the percentage of U.S. domestic content is 66.74 percent, which meets FTA requirements.***

2.19 Start-up, Commissioning, Testing

MTA will begin documentation for the "Roadmap to Revenue Operations," which will include both MTA and MTS information on integration, testing, and commissioning.

2.20 Before-and-After Study Reporting

TBD

2.21 Lessons Learned

The resolicitation of a D-B contractor gave MTA the opportunity to apply several lessons learned to the new D-B contract documents and to amend the P3 agreement. After the May 2022 risk workshop with MTA and the PMOC, MTA provided an update on opportunities for improvement that MTA had identified during the resolicitation and is incorporating into the project. ***MTA and the PMOC will include discussion of Lessons Learned at future monthly meetings.***

2.22 Action Items

Action Items are identified at MTA/FTA QPRMs, at MTA/PMOC Monthly Update Meetings, and at MTA/FTA Biweekly New Starts Progress Conference Calls. Action Items from the PMOC monthly call in ***August 2023*** are as follows:

1. ***MTA will provide updates to the OSF budget and cash flow. – OPEN***
2. ***MTA will provide documentation of the steps being taken with respect to improving the safety process. – OPEN***
3. ***MTA will provide an increased level of detail with respect to the quality process results, with particular focus on OSF efforts. – OPEN***
4. ***The monthly MTA/PMOC meetings will include a Lessons Learned agenda item. – OPEN***
5. ***MTA will begin documentation for the "Roadmap to Revenue Operations," which will include MTS and MTA information on testing, commissioning, and the Integration Engineer. – OPEN***
6. ***MTA will provide the expected date that the written plan, budget, and schedule for development of police and fare enforcement services will be ready. – OPEN***

ATTACHMENT A – LIST OF ACRONYMS

ADA	Americans with Disabilities Act
ARPA	American Rescue Plan Act
ATC	Alternate Technical Concept
BFMP	Bus Fleet Management Plan
BPW	Board of Public Works
CAF	Construcciones y Auxiliar de Ferrocarriles
CEL	Certified Elements List
CFR	Code of Federal Regulations
CIL	Certified Items List
CSCC	Construction Specification Conformance Checklist
CSX	CSX Corporation
D-B	Design-Build
DBE	Disadvantaged Business Enterprise
DCCC	Design Criteria Conformance Checklist
DNR	Maryland Department of Natural Resources
E&S	Erosion and Sedimentation
EAC	Estimate at Completion
FAI	First Article Inspection
FCP	Forest Conservation Plan
FFGA	Full Funding Grant Agreement
FRP	Final Recovery Plan
FTA	Federal Transit Administration
GEC	General Engineering Consultant
IBS	Initial Baseline Schedule
IRP	Interim Recovery Plan
LOD	Limits of Disturbance
LRT	Light Rail Transit
LRV	Light Rail Vehicle
LTIR	Lost Time Injury Rate

MCC	Management Capacity and Capability
MDE	Maryland Department of the Environment
MDOT	Maryland Department of Transportation
MOU	Memorandum of Understanding
MTA	Maryland Transit Administration
MTS	Maryland Transit Solutions
N/A	Not Applicable
NEPA	National Environmental Policy Act
NTP	Notice to Proceed
O&M	Operations and Maintenance
OCS	Overhead Contact System
OHA	Operational Hazard Analysis
OMF	Operation and Maintenance Facility
OP	Oversight Procedure
OSF	Operation Step Forward
OSHA	Occupational Safety and Health Administration
P3	Public-Private Partnership
PEPCO	Potomac Electric Power Company
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
QPRM	Quarterly Progress Review Meeting
RAMP	Real Estate Acquisition Management Plan
RCMP	Risk and Contingency Management Plan
RFC	Released for Construction
RFP	Request for Proposals

RFQ	Request for Qualifications
ROD	Record of Decision
ROE	Right of Entry
ROW	Right-of-Way
RSA	Revenue Service Availability
RSD	Revenue Service Date
SCC	Standard Cost Category
SCIL	Safety Certifiable Item List
SEIS	Supplemental Environmental Impact Statement
SIT	Systems Integration Test
SOP	Standard Operating Procedure
SSCC	Safety and Security Certification Committee
SSCP	Safety and Security Certification Plan
SSCVR	Safety and Security Certification Verification Report
SSMP	Safety and Security Management Plan
SSOA	State Safety Oversight Agency
SSP	Safety and Security Plan
SSPP	System Safety Program Plan
SSTC	Silver Spring Transit Center
STP	Surface Transportation Program
SWM	Stormwater Management
TBD	To Be Determined
TCE	Temporary Construction Easement
TCIR	Total Case Incident Rate
TDD	Transit Development and Delivery
TIFIA	Transportation Infrastructure Finance and Innovation Act
TPSS	Traction Power Substation
TRO	Temporary Restraining Order
TVA	Threat and Vulnerability Analysis
UMD	University of Maryland
USACE	U.S. Army Corps of Engineers

WMATA	Washington Metropolitan Area Transit Authority
WSSC	Washington Suburban Sanitary Commission
YOE	Year of Expenditure

ATTACHMENT B – SAFETY AND SECURITY CHECKLIST

Note: References to the System Safety Program Plan (SSPP), Safety and Security Plan (SSP), and 49 Code of Federal Regulations (CFR) Part 659 as they are contained in the FTA standard checklist form have been retained in the following update. However, it is recognized that Maryland Transit Administration is transitioning to the Public Transportation Agency Safety Plan and 49 CFR Parts 673 and 674.

Refer to the July 2020 PMOC Monitoring Report for the most recent update.

ATTACHMENT C – TOP PROJECT RISKS

An internal risk workshop to support the Interim Recovery Plan (IRP) was held on January 26, 2021. Maryland Transit Administration (MTA) and Purple Line Transit Partners (PLTP) used information from the meeting as they solicited a replacement Design-Build (D-B) contractor. At the time of the workshop, the MTA Risk Management was tracking the following risks identified during development of the IRP:

Procurement/Settlement Risks:

- PLTP solicitation of replacement D-B contractor:
  - Market resolicitation in a compressed time frame
  - Delay in finalizing solicitation
  - Weak bidder interest – two or fewer proposals
- D-B contract and other contract negotiations

Schedule Risks:

- Inability of MTA subcontractors to meet the Operation Step Forward (OSF) schedule dates, causing delay to certain activities to be performed by the replacement D-B contractor
- Unanticipated delay to the replacement D-B contractor "ramp up" of activities, resulting in impacts to the critical path anticipated by MTA

Design and Construction Risks:

- Performance risk assumed by MTA by contracting for and performing work during the replacement D-B contractor resolicitation period (subcontracting risk)
- Quality, commercial, coordination, and unforeseen conditions unknown to MTA at the time of assumption of former Purple Line Transit Constructors subcontracts

A risk workshop was held May 3 through May 5, 2022. After the risk workshop, MTA prepared supplementary or updated documents for review, including an updated Risk Register. FTA provided a risk summary to MTA on June 22, 2022, for MTA's consideration when updating risk, contingency, and other project management plans. MTA provided a response to each of the comments on the risk summary to FTA on July 18, 2022, and provided further clarifications on August 25, 2022. MTA incorporated the FTA comments in the revised Risk and Contingency Management Plan (RCMP) that is a part of the Final Recovery Plan.

On October 7, 2022, MTA submitted RCMP Version 15 to FTA and the PMOC for review. FTA provided review comments to MTA on February 16, 2023, and MTA prepared a revised RCMP and submitted it to FTA on April 21, 2023. On May 22, 2023 FTA accepted the revised RCMP with conditions.

In April 2023, MTA presented the following top project risks:

1. Construction – Exhibit 24 Utility Adjustments – Significant
2. Construction – RCO1 and RCO7 Utility Delays – Significant
3. Design – Temporary Construction Easement Extensions – High

4. Construction – Exhibit 24 Utility Adjustments Verizon – High
5. Construction – Unknown Existing Construction Defects – High
6. Market – Unknown Unknowns – High
7. Construction – Utility Relocation – High
8. CSX Flaggers – High

In June 2023 at the Quarterly Risk Management Committee Meeting, MTA added the following top project risks:

9. Design – Intelligent Interface Device – Significant
10. Construction – Owner Furnished Materials – Significant

As of August 2023, MTA has indicated that it will conduct a risk workshop and a Quantitative Risk Analysis in the fall of 2023 in conjunction with the completion of OSF activities.

ATTACHMENT D – AWARDED CONTRACTS

A significant update to awarded contracts is forthcoming due to the transition within the original Public-Private Partnership concessionaire and Maryland Transit Administration's (MTA's) assumption of some, but not all, subcontracts. Included below is information that MTA prepared for the May 15, 2023 Quarterly Progress Review Meeting packet. The same information was provided for the August 9, 2023 Quarterly Progress Review Meeting, but it does not reflect the recent change order attributed to the OSF delays ***or several other smaller change orders that MTA is tracking.*** Please note that the figures shown are in thousands of dollars, and the total shown in this table of contracts awarded does not reflect the full project value.

Major Contracts:

Company	Vendor Type	Contract No.	Baseline Amount	Change Order Totals	Current Amount	Pending Change Orders
PB/RK&K	Engineers/ Architects	MTA-1054A	$12,000	$1,850	$13,850	
STV/Jacobs	Engineers/ Architects	MTA-1054B	$8,000	$1,300	$9,300	
AECOM/ RK&K/PB	Engineers/ Architects	MTA-1264A	$60,000	$338,500	$398,500	
Gannett Fleming/WRA	Engineers/ Architects	MTA-1265B	$80,000	$71,000	$151,000	
Purple Line Transit Partners	P3 Concession (design build portion only)	PUR16032PP	$1,988,816	$1,341,310	$3,330,126	
Total			**$2,148,816**	**$1,753,960**	**$3,902,776**	**0**

ATTACHMENT E – ROLLING STOCK VEHICLE STATUS REPORT

Date: August 31, 2023

Vendor: Construcciones y Auxiliar de Ferrocarriles (CAF)

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

Year: The first vehicle was completed in 2021, and currently 26 vehicles are designated as "Ready for Shipment." Completion of the storage and testing facilities at the Glenridge Operation and Maintenance Facility (OMF) has been delayed, so Maryland Transit Administration (MTA) and CAF negotiated terms for storage of vehicles at the CAF facility in Elmira, New York. The storage agreement has now transferred to the replacement Design-Build (D-B) contractor, Maryland Transit Solutions (MTS).

Quantity: 25 vehicles (125 cars) original contract (Full Funding Grant Agreement [FFGA]). One vehicle (5 cars) was added to the original CAF authorization by MTA, outside of the FFGA.

2 vehicles (10 cars) were added in July 2021 via change order, also outside of the FFGA.

Identification: The original light rail vehicles (LRVs) will be numbered from 101 through 126. The numbering of the two additional LRVs is to be determined.

New Technologies: None planned (all major suppliers have service-proven equipment).

Status and Significant Activities:

- As a part of the original order, 130 cars were assembled in Spain, all of which were delivered to CAF's facility in Elmira, New York for final assembly and static testing. Manufacture of the additional 2 vehicles (10 cars) in Spain is complete. All 10 of those 10 cars have been delivered to Elmira for final assembly and static testing.
- Delivery of finished vehicles was expected to begin in spring 2021; however, because the Glenridge OMF is not ready to accept railcars, MTA and CAF have negotiated an agreement for CAF to store the completed cars in Elmira.
- Cost risk for delivery of the finished vehicles has been transferred to MTS. If delays in construction cause a delay, then MTS is responsible to CAF for additional storage cost.
- Twenty-six LRVs have passed static testing, have been designated as Ready for Shipment, and have been placed into storage in Elmira. These include vehicle 110, which was returned to Ready for Shipment status after a second period in static testing.
- Delivery of the first of the original 26 vehicles is currently scheduled for early 2024. Approximately one vehicle per week will be delivered thereafter. The Glenridge OMF will be able to store three or four vehicles on the yard and in the building, so track must

be available for additional storage. The Overhead Contact System and Traction Power Substation (TPSS) Q7 and TPSS QYG must also be completed and installed before delivery of vehicles.

- SNC-Lavalin (now an MTS subcontractor) prepares a monthly quality report documenting safety, production, and quality items at both the Spain and New York production facilities.
- MTA, the Project Management Consultant, and CAF are holding weekly coordination meetings to review all outstanding testing and factory/shop activities, including onsite testing procedures for when the vehicles are delivered to Maryland.
- MTS, which has assumed the CAF contract, is preparing and submitting to MTA reports on LRV maintenance activities required during the storage period.
- The project's Buy America compliance audit for the LRVs was conducted on November 14, 2022. In January 2023, CAF provided additional documentation requested to assist with the evaluation of Buy America compliance. On August 17, 2023, MTA provided the Post-delivery Buy America Audit, dated April 21, 2023 to Federal Transit Administration (FTA). On that same day, Maryland Department of Transportation also provided the Certificate of Compliance to FTA for the Post-delivery Audit of Rolling Stock Purchases. The audit indicates that the percentage of U.S. domestic content is 66.74 percent, which meets FTA requirements.
- The resolution of the previously identified quality issue related to the M33 bolt on the LRVs and the associated final report was expected in May 2023, but submittal to FTA has been deferred until MTA coordinates confidentiality issues with CAF. MTA determined that the issue does not impact safety, and the solution is likely the use of a higher strength bolt. The effort included a significant amount of work to determine whether a bolt failure would cause debris to fall on the track.

ATTACHMENT F – PROJECT MILESTONES/KEY EVENTS

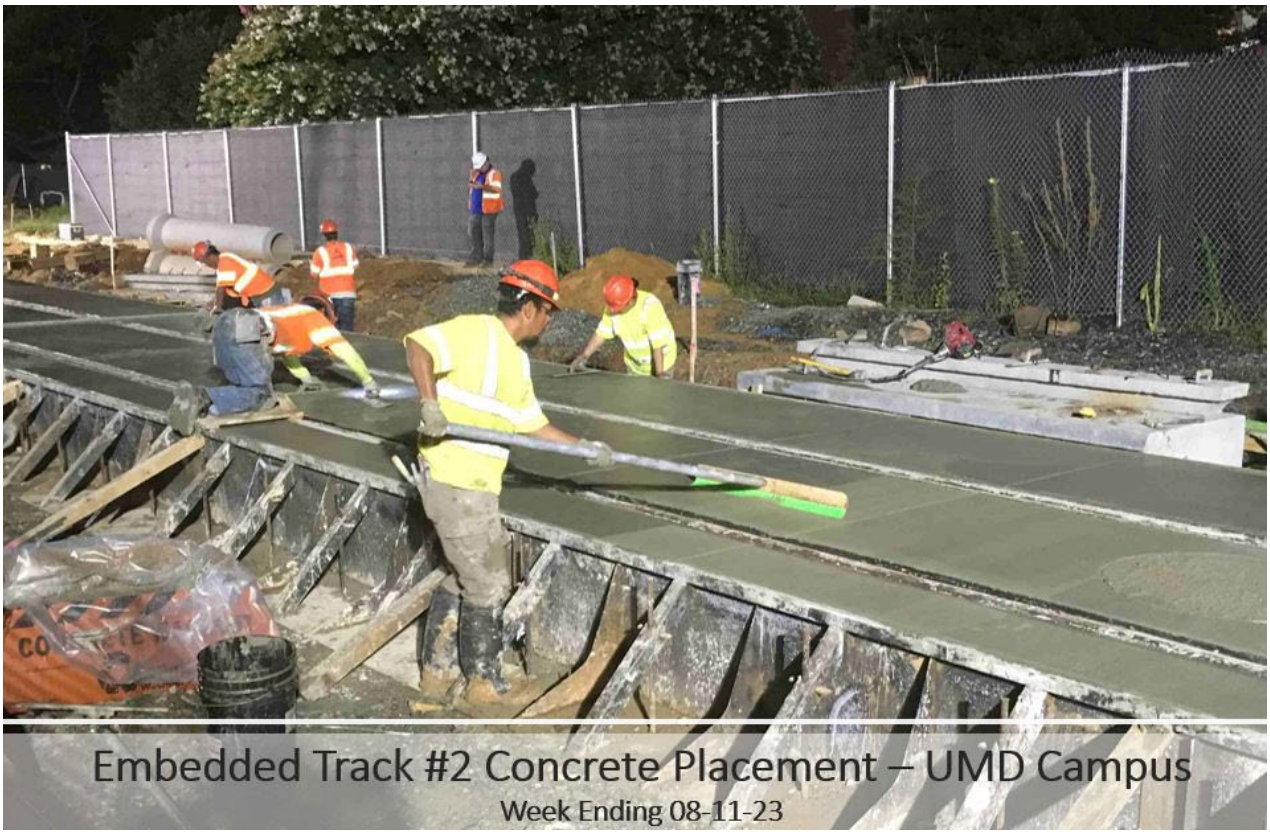
Photos courtesy of Maryland Transit Administration.





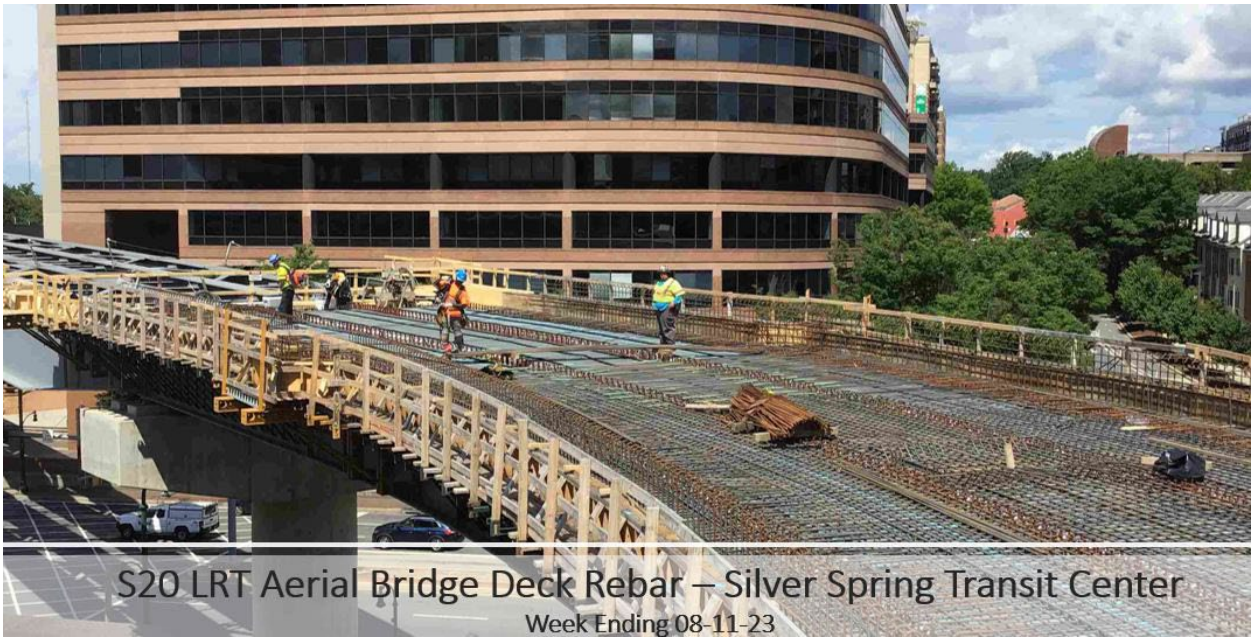


Concrete Placement for Roadway Restoration – Campus Dr.
Week Ending 08-11-23



Embedded Track #2 Concrete Placement – UMD Campus
Week Ending 08-11-23


Setting Rail for Ballast Track#2 – Glenridge Yard
Week Ending 08-18-23


S20 LRT Aerial Bridge Deck Rebar – Silver Spring Transit Center
Week Ending 08-11-23



Hot Mix Asphalt Placement Middle Parking Lot – SIMMS
Week Ending 08-25-23



CIH Power Conduit Concrete Placement – Glenridge Yard
Week Ending 08-25-23

ATTACHMENT G – ROADMAP TO REVENUE OPERATIONS

In accordance with Oversight Procedure (OP) 25, the Project Sponsor will prepare the Roadmap to Revenue Operations template based on the current master project schedule, in the general format presented below. The PMOC will provide this template to the Project Sponsor as a separate electronic file for its use.

Due to the transition to a new Design-Build contractor, quarterly updates have not been made for some time. This quarterly update process for the roadmap is being reinstated as of August 2023, and the Project Sponsor is requested to provide quarterly updates, beginning in October 2023, for review and discussion.

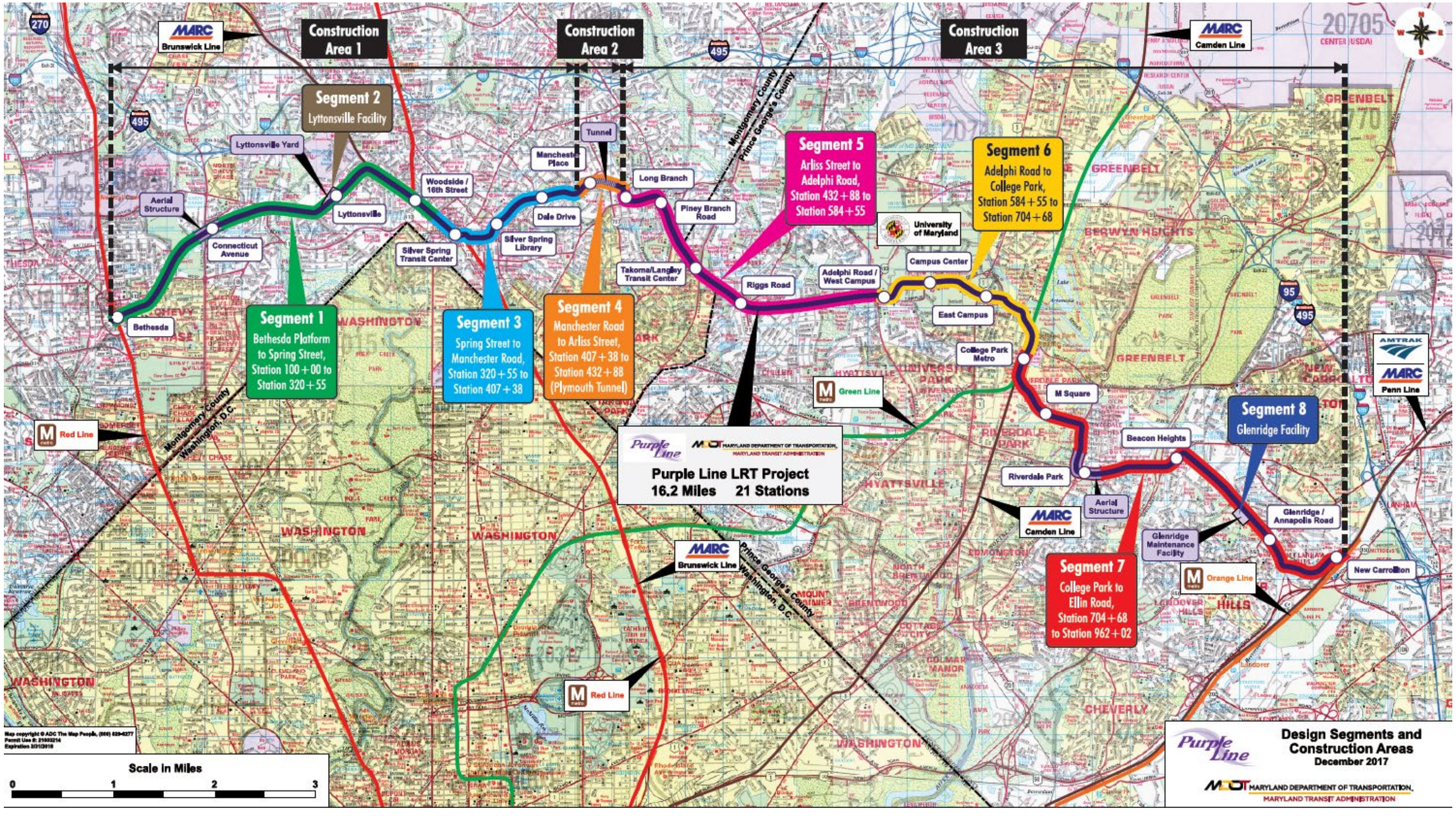
ROADMAP TO REVENUE OPERATIONS (MTA to provided updates)

Description	Responsible Party	Status	Early Start Date	Estimated Completion Date	Actual Completion Date	Agency Notes	PMOC Notes	Additional Information Required
Testing								
Finalize Comprehensive Test Plan								
Finalize / Update Systems Integration Test (SIT) Plan								
Develop Testing Schedule and Monitoring Tools								
Develop Operating Rules for Testing								
Conduct System Integrated Testing - Prioritized Traffic Signal Systems								
Certificates of Occupancy / Substantial Completion								
Finalize Operating Plan								
Finalize / Revise Standard Operating Procedures (SOPs), manuals, and rulebook as applicable								
Complete Staffing Plan							***1.***	
Obtain Required Staff								
Training of Operations and Maintenance (O&M) personnel								
Emergency response plan, training and drills								
Finalize Revenue Operations Plan								
Develop / Revise Safety and Security Certification Plan								

Description	Responsible Party	Status	Early Start Date	Estimated Completion Date	Actual Completion Date	Agency Notes	PMOC Notes	Additional Information Required
(SSCP) & Safety and Security Management Plan (SSMP)								
Federal Transit Administration (FTA) Office of Safety & Security Readiness Review								
PMOC OP-54 Readiness for Revenue Operations Review Report								
Conduct Operational Hazard Analysis (OHA) and resolve other hazards / vulnerabilities								
Pre-Revenue Operations								
Develop Safety Outreach Plan								
Provide Community Outreach								
Public Timetables / Maps / Website Updates, etc.								
Grand Opening Plan								
Update / Finalize SSMP								
Finalize and/or update Safety Certifiable Item List (SCIL) and SSCP								
Implement Safety and Security Certification Committee								
Implement Fire Life Safety Committee								
Verify design criteria, Preliminary Hazards Analysis (PHA), Threat and Vulnerability Analysis (TVA), change orders are implemented within the project								
Review status of quality non-conformances								
Closeout of non-safety critical items/non-conformances								
Closeout of safety critical items/nonconformances								
Complete Safety and Security Certification Verification Report (SSCVR)								
Document Workarounds / Open Items List								

Description	Responsible Party	Status	Early Start Date	Estimated Completion Date	Actual Completion Date	Agency Notes	PMOC Notes	Additional Information Required
Verify emergency drills, tabletops, training, etc. are completed								
SSO final certification / signature								
Revenue Service								
Target Revenue Service Date (RSD)								
Public RSD								
Full Funding Grant Agreement (FFGA) RSD								

ATTACHMENT H – PROJECT MAP



PMOC MONITORING REPORT
September 2023

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

Maryland Transit Administration
Baltimore, Maryland
Final

Draft Report Delivered to FTA on ***October 12, 2023***
Final Report Delivered to FTA on ***October 19, 2023***

PMOC Contract No.: 69319519D000016
Task Order No.: 69319520F300095
Project No.: 69319519D000016/69319520F300095
Requisition/Reference No.: FTA-TPM20-20-0106
OPs Referenced: 20, 22, 23, 24, 25, 26, 37, 40
CLINs 0001, 0002, and 0005

David Evans and Associates, Inc.
Pete Hankovszky, Task Order Manager
Voice –720.448.6730; Email – pzh@deainc.com
Time on Project: 05/18/2020 through 05/17/2025

REPORT FORMAT AND FOCUS

This report is submitted in compliance with the terms of the Federal Transit Administration (FTA) Contract #69319519D000016, Task Order #69319520F300095. Its purpose is to provide information and data to assist FTA as it continually monitors the management capacity and capability of the Maryland Transit Administration (MTA) (the Project Sponsor) to execute the project efficiently and effectively, and hence, whether the Project Sponsor continues to be ready to receive federal funds for further project development. This report covers the project management activities on the National Capital Purple Line Light Rail Transit Project managed by MTA as the Project Sponsor and financed by the FTA Full Funding Grant Agreement (FFGA). The cost and schedule information in this report was extracted from MTA's submitted information except where noted. The report is organized to comply with the requirements of updated Oversight Procedure 25 – Recurring Oversight and Related Reports, dated June 2020.

THIRD-PARTY DISCLAIMER

This report and all subsidiary reports are prepared solely for FTA. This report should not be relied upon by any party, except FTA or the Project Sponsor, in accordance with the purposes as described below.

For projects funded through the FTA FFGA program, FTA and its Project Management Oversight Contractor (PMOC) use a risk-based assessment process to review and validate a Project Sponsor's budget and schedule. This risk-based assessment process is a tool for analyzing project development and management. Moreover, the assessment process is iterative in nature; any results of an FTA or PMOC risk-based assessment represent a "snapshot in time" for a particular project under the conditions known at that same point in time. The status of any assessment may be altered at any time by new information, changes in circumstances, or further developments in the project, including any specific measures a Project Sponsor may take to mitigate the risks to project costs, budget, and schedule, or the strategy a Project Sponsor may develop for project execution. Therefore, the information in the monthly reports will change from month to month, based on relevant factors for the month and/or previous months.

TABLE OF CONTENTS

1. EXECUTIVE SUMMARY 1
1.1. Project Description 1
1.2. Project Status 1
1.3. Major Issues and/or Concerns 10
1.4. Status of Key Indicators Dashboard (Post-grant) 11
1.5. Core Accountability Items 13
2. OBSERVATIONS AND FINDINGS 14
2.1. Summary of Monitoring Activities 14
2.2. Oversight Triggers 14
2.3. Project Management Plan and Sub-plans 15
2.4. Management Capacity and Capability 18
2.5. NEPA Process and Environmental Mitigation 18
2.6. Project Delivery Method and Procurement 22
2.7. Design 23
2.8. Real Estate Acquisition and Relocation 25
2.9. Third-party Agreements and Utilities 27
2.10. Construction 28
2.11. Vehicle Technology and Procurement 30
2.12. Project Cost 31
2.13. Project Schedule 33
2.14 Project Risk 38
2.15 Quality Assurance/Quality Control 39
2.16 Safety and Security 40
2.17 Americans with Disabilities Act 42
2.18 Buy America 43
2.19 Start-up, Commissioning, Testing 43
2.20 Before-and-After Study Reporting 44
2.21 Lessons Learned 44
2.22 Action Items 44
ATTACHMENT A – LIST OF ACRONYMS 45
ATTACHMENT B – SAFETY AND SECURITY CHECKLIST 47

ATTACHMENT C – TOP PROJECT RISKS....48
ATTACHMENT D – AWARDED CONTRACTS....50
ATTACHMENT E – ROLLING STOCK VEHICLE STATUS REPORT....51
ATTACHMENT F – PROJECT MILESTONES/KEY EVENTS....53
ATTACHMENT G – ROADMAP TO REVENUE OPERATIONS....58
ATTACHMENT H – PROJECT MAP....61

LIST OF TABLES

Table 1 – MTA Master Project Schedule Dates....4
Table 2 – Current Major Issues and Concerns....10
Table 3 – Key Indicators Dashboard....11
Table 4 – Core Accountability Items....13
Table 5 – Project Cost Versus Budget....32
Table 6 – Baseline Cost Estimate by Source Funding....33
Table 7 – Key Milestone Dates....36

1. EXECUTIVE SUMMARY

1.1. 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, Maryland, to New Carrollton in Prince George's County, Maryland. The Purple Line will operate largely at street level in a combination of dedicated and semi-exclusive right-of-way (ROW) and 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) service at Bethesda, Silver Spring, College Park, and New Carrollton, Maryland. The project will also connect to all three Maryland Area Regional Commuter rail lines, Amtrak, and local bus routes. The project includes 21 stations, 2 operations control/vehicle storage and maintenance facilities, and 25 light rail vehicles (LRVs). Maryland Transit Administration (MTA) is executing the project using a Public-Private Partnership (P3) method of project delivery.

As documented in the Federal Transit Administration (FTA) Full Funding Grant Agreement (FFGA), the original estimated project cost was $2,407,030,289, and the scheduled Revenue Service Availability (RSA) date was December 31, 2022. On January 26, 2022, the Maryland Board of Public Works (BPW) approved significant revisions to the project cost and the RSA date. The Transportation Infrastructure Finance and Innovation Act (TIFIA) loan closed on April 14, 2022. Financing approvals and subsequent financial close allowed Purple Line Transit Partners (PLTP), the P3 concessionaire, to issue Notice to Proceed (NTP) to the replacement Design-Build (D-B) contractor, Maryland Transit Solutions (MTS). MTA prepared a Final Recovery Plan (FRP), which FTA accepted on April 17, 2023, and which had a revised project cost of $5,116,020,380 and a revised Revenue Service Date (RSD) of February 28, 2028. MTA has submitted multiple management plan updates for FTA and Project Management Oversight Contractor (PMOC) review. Several of these management plans have been reviewed and accepted, while several updates remain in progress.

1.2. Project Status

The FFGA was executed on August 22, 2017. The Purple Line project is currently in the construction phase. Due to a contractual dispute, PLTP demobilized the assets/staff and subcontractors of the original D-B contractor, Purple Line Transit Constructors (PLTC), from the project in September 2020.

On November 24, 2020, MTA and PLTP reached a settlement agreement to release PLTC from the P3 consortium and continue the project with the remaining parties. The BPW approved the agreement on December 17, 2020. PLTP agreed to procure a replacement D-B contractor to complete the project and to obtain project financing.

Despite changes within the P3 consortium, MTA intends to complete the full scope of the project as envisioned in the original contract documents, with some minor exceptions such as the addition of three more LRVs. After a procurement process for a replacement D-B contractor, PLTP

selected MTS (a joint venture of Dragados USA and OHL USA) on November 5, 2021. The contract with MTS was executed on April 14, 2022.

MTA submitted a draft Interim Recovery Plan (IRP), dated December 15, 2020, to FTA, and subsequently prepared and submitted the FRP to FTA. FTA and the PMOC have reviewed the Project Management Plan (PMP) and other MTA management plans, along with the FRP. FTA accepted the FRP on April 17, 2023.

MTA made deliberate choices about how to proceed with the major project elements once PLTC was released from the project. MTA's planning criteria included schedule, budget, and the reduction of risk for the replacement D-B contractor. To address budget constraints, some project activities that were identified for completion in the IRP were deferred. MTA and its Project Management Consultant (PMC) added staff to support subcontractor invoicing, payment processes, and other administrative tasks.

MTA is managing a significant number of construction activities that are currently scheduled for completion in early November 2023. During MTA's IRP period, called Operation Step Forward (OSF), several activities fell behind schedule. Delays related to third-party utility relocations and other unforeseen issues continue to cause MTA to miss milestone dates included in MTA's revised agreements with PLTP that were executed in April 2022. Evaluation and recovery of the impacts on schedule and budget from these missed milestones by MTA continue. ***Through September 2023***, MTA has executed two change orders caused by delays in OSF activities, and until all OSF activities are complete, there is potential for additional cost and schedule claims from MTS related to OSF.

Construction work continues under the management of both MTA and MTS, including activities and elements such as erosion and sediment control maintenance, bridge structures, retaining walls, the Glenridge Operation and Maintenance Facility (OMF), and utility installation. The Polk Street Maintenance Facility (for Prince George's County Parks), the Paint Branch stream restoration, and the Ken-Gar wetlands mitigation projects are complete with the exception of warranty periods.

Completion of the Glenridge OMF has been on or near the critical path and continues to be a focus. MTA completed the majority of the OMF building and utilities, but construction of track that accommodates LRV storage and testing was deferred for completion by MTS. Currently, a dispute over the completeness of the OMF is delaying turnover of the facility from MTA to MTS. MTS was scheduled to assume control of the facility in early 2023, but as ***of September 2023,*** the date of the turnover of the facility from MTA to MTS is still being determined. MTS is installing rail and other features both inside and outside of the building.

Delayed completion of the OMF construction upon PLTC's departure required finding an alternative location to store completed LRVs. MTA reached an agreement with Construcciones y Auxiliar de Ferrocarriles (CAF) to store the LRVs at CAF's Elmira, New York facility until track is ready for acceptance of the LRVs. MTS assumed the storage agreement with CAF upon finalization of the replacement D-B contract.

MTA has revised and submitted the PMP, Risk and Contingency Management Plan (RCMP), Quality Assurance Plan (QAP), project schedule, Safety and Security Management Plan (SSMP),

and Safety and Security Certification Plan (SSCP). FTA and the PMOC have reviewed these revised plan documents in conjunction with their review of the FRP. ***As of September 2023,*** FTA had accepted MTA revisions to the SSMP, and the PMOC continued its reviews of the SSCP and the QAP.

MTA provides FTA and the PMOC with updates on the progress of MTA and MTS construction activities and monthly updates that track project milestones.

- Scope: There have been no significant reductions or changes to project scope. Three LRVs were added to the project scope (non-FFGA) to support improved operations once service commences.
- Schedule:
    - PLTC never developed an approved recovery schedule to address the delayed start of construction caused by the environmental lawsuit (please see the **NEPA Process and Environmental Mitigation** section, below, for a discussion of the environmental lawsuit). In fall 2019, the P3 concessionaire submitted a revised, fully cost-loaded schedule reflecting a phased project opening (with the first phase opening at the end of 2022 and the second phase opening in mid-2023). This schedule was never incorporated into the working master project schedule.
    - In accordance with the IRP, MTA developed a schedule for the period during which the D-B contractor was being replaced. PLTP and MTA identified several milestones and the requirement to establish a full project schedule before the end of the D-B contractor replacement period. The IRP included project milestones for PLTP to procure a replacement D-B contractor, obtain new financing, and execute contract amendments with MTA. The IRP period also included development of the FRP. In early 2023, MTA submitted an FRP and requested an extension to the RSD in the original FFGA of December 31, 2022. FTA accepted the FRP that includes a revised RSD of February 24, 2028.
    - See also the **Significant Project Activities and/or Key Milestones** subsection of this Executive Summary, below.
    - Table 1 presents MTA's key milestone dates for the project. This table has been updated to show the dates included in the FRP. The schedule in the FRP is considered the baseline schedule for the project. Through the Quantitative Risk Analysis and processes described in MTA's RCMP, a schedule contingency of 16 months was deemed appropriate. However, delays to OSF activities continue to have the potential to further consume the contingency. The utilization of a large portion of the schedule contingency at the early stages of MTS's contract is a concern.
    - To clarify schedule terminology used by MTA: The RSA date is a contractual date critical to the agreement between MTA and PLTP. The RSD is the contractual date tied to FTA FFGA funding and other project approvals.

- MTA and MTS ***have agreed to two change orders related to delays attributed to OSF activities. These change orders extended the project RSA date to May 24, 2027.*** MTA and MTS are currently reviewing additional potential delays and opportunities for schedule recovery. ***The current RSA date in MTA's master project schedule is July 2, 2027, and the current float for the RSD milestone is 172 days.***

Table 1 – MTA Master Project Schedule Dates

Activity	Current MTA Master Project Schedule (Dated *September 1, 2023)* Milestone
Original FFGA	August 22, 2017
Financial Close / NTP / Amendment Agreement Effective Date for Revised PLTP Agreement	April 14, 2022
Commencement of Integration Testing	September 2, 2025
Commencement of Trial Running	May 27, 2026
Construction Complete All Segments	November 12, 2026
RSA	***July 2, 2027***
FFGA RSD (includes contingency)	February 28, 2028

- Cost:
  - The project's documented expenditures are ***$3,038,142,529.26 through August 30, 2023***. The current Estimate at Completion (EAC) for the project (construction, management, and LRVs) is $5,116,020,380. This budget has been accepted by FTA, and MTA has adopted it as the project cost.
  - The accepted project cost includes $307,293,174 of unallocated contingency, of which ***$205,068,002.42*** have been committed through change orders (although not yet expended).
  - Refer to **Table 4 – Core Accountability Items**, in Section 1.5 below, for additional project cost information.
  - MTA prepared a summary of actual versus planned expenditures for high-level OSF activities in Standard Cost Category (SCC) format and is updating this summary each month. Through December 31, 2022, MTA forecasted OSF expenditures of $556.15 million, which exceeds the original OSF budget by approximately $136 million. A significant portion of the overrun previously had been incorporated into the project budget, but additional contingency may be needed to address the increase of $35 million to $45 million that has occurred since the final recovery budget was developed. MTA states that these overruns are due to labor and material cost inflation as well as the extended duration of the OSF activities. The PMOC recommends that MTA closely monitor these cost overruns. The PMOC has requested an update on the OSF expenditures. MTA has indicated that it will prepare a revised EAC for OSF and provide it to FTA and the PMOC. ***On September 28, 2023, MTA verbally reported (i.e., not in writing) to FTA and the PMOC an EAC***

for OSF of approximately $469 million. This amount does not include the previously executed and potential future MTS change orders related to OSF delays.

- The budget includes funds to address nonconforming construction by PLTC. MTA incorporated known defects into the contract with MTS. However, MTA must pay to address any defects unknown at the time of execution of the MTS contract. In February 2023, MTA estimated the total cost of these unknown defects to be approximately $10 million. As with the OSF overruns, the PMOC continues to recommend that MTA closely monitor utilization of contingency to cover these costs. Many instances of PLTC's nonconforming construction and/or defects have been discovered. ***As of September 2023, a dispute between MTA and MTS over the availability of MTA-supplied materials has been resolved. The materials were located along the project corridor, resolving the dispute. The issue of PLTC nonconforming construction and defects is included in the Risk Register,*** and the parties are negotiating a resolution of the dispute.

- Significant Project Activities and/or Key Milestones:

  The COVID-19 pandemic impacted the project in different ways and at different levels. These impacts were primarily related to availability of resources and labor. MTA, PMC, and other project staff followed recommended COVID-19 protocols. On January 30, 2023, MTA stated that COVID-19 protocols for the project had been suspended.

  - The third lawsuit filed by the Friends of the Capital Crescent Trail in January 2019 against U.S. Army Corps of Engineers (USACE) was dismissed in April 2020. The plaintiff subsequently filed an appeal on May 11, 2020. The District Court denied the appeal on May 13, 2021. The decision resolved the last active lawsuit related to the project.

  - The original baseline schedule indicated design completion by late fall 2017. The progress through ***September 28, 2023***, is that ***213*** of the 218 total planned design packages have been issued as Released for Construction (RFC). The six Civil and Utility packages that remain in design or approval include traffic signal pre-emption, grade crossing safety systems, lighting, signage, stations, and fare collection. Although Systems packages were scheduled to be complete by the end of the first quarter of 2022, those packages remain in progress. There is a dispute pending related to the cost of design changes that were made after execution of the agreement with MTS. MTA's team estimates that the disputed amount is approximately $15 million. The Design Review Board will consider the dispute.

  - WMATA's comments on design plans for the Silver Spring Transit Center (SSTC) mezzanine connector pedestrian bridge (over CSX Corporation [CSX] ROW) will result in what MTA deems are betterments. Resolution of WMATA comments continued as of July 2023 at the SSTC and at other locations where WMATA and

Purple Line stations coincide. MTA reports that the slow resolution of these issues has not impacted critical path activities.

- Storm sewer construction under the CSX railroad is required in several locations. Two jack-and-bore installations of culvert pipes were completed in November 2022. One jack-and-bore installation remains to be completed by MTS as of August 2023.
- Proposed construction near the SSTC will require significant coordination with both WMATA and CSX. Track protection (flagging) and planning of a shutdown of the railroads to allow Purple Line activities near the SSTC in 2024 have been identified as schedule risk items.
- MTA and Washington Suburban Sanitary Commission (WSSC) reached agreement on the relocation of the 66-inch water main that was under the Glenridge OMF. Energizing the cathodic protection is the only remaining item and is ***now*** expected to be complete in ***October 2023***. WSSC is currently using the line and is responsible for finishing the cathodic protection.
- PLTC reached resolution on the final remaining Alternate Technical Concept (ATC) identified during the proposal process, which is related to the use of jet fans at the Bethesda Station in lieu of vent shafts. In accordance with the established process, MTA reviewed PLTC's design package for National Environmental Policy Act (NEPA) compliance. Final documentation for the ATC is still pending as of ***September 2023.*** MTA will schedule a review of the documentation with FTA as soon as it is complete. MTA and MTS optimistically predict that the ATC will have no Section 4(f) impacts or other impacts to the project's Record of Decision (ROD).
- MTA has completed its non-P3 construction contract activities, as follows:
  - Prince George's County Parks (Parks) Polk Street Maintenance Facility D-B – A substantial completion letter was issued to the contractor on March 30, 2021. Parks has taken possession of the facility, and ***the warranty period has expired.***
  - Offsite Wetlands Mitigation (Ken-Gar) – The Design-Bid-Build construction NTP was issued on September 5, 2019. The one-year warranty review occurred on January 9, 2022, and the project is now in quarterly monitoring and annual reporting by MTA that will continue through 2028.
  - Offsite Stream Mitigation (Paint Branch) – The Design-Bid-Build construction NTP was issued on September 5, 2019, and the contractor mobilized in late November 2019. Quarterly monitoring and annual reporting by MTA will continue through 2028.
- Building construction at the Glenridge OMF is essentially complete; however, construction of items outside of the building continues, as does final commissioning of systems inside the building. MTS was scheduled to take possession of the Glenridge OMF on December 31, 2022, but that did not occur because MTA had several remaining items to complete. Although transfer of the facility has not

occurred, MTS is working in and around the OMF, installing track and conduit outside the building, and completing other interior features. The turnover letter to transfer possession of the facility from MTA to MTS is on hold as ***of September 2023,*** pending resolution of disputes and punch list items.

- Preparation of Traction Power Substations (TPSSs) Q6, Q7, Q8, and QYG continues. As of ***September 2023***, both TPSS Q7 and TPSS QYG have been placed on their foundations and are being commissioned. The foundation for TPSS QY8 has been backfilled in preparation for substation installation, and TPSS Q6 is in storage at the Glenridge OMF.
- The following is the status of LRV manufacturing as of ***September 28, 2023:***
  - All 25 of the vehicles in the FFGA project scope description and one additional vehicle are designated as "Ready for Shipment" and are in storage at CAF's facility in Elmira, New York. These vehicles are under a schedule of inspection and maintenance until delivery can occur.
  - MTA has added three vehicles by change order to CAF's contract. The additional LRVs will support better operations at the RSA date. It is important to note that these three additional LRVs are not a part of the FFGA between MTA and FTA. One of the three additional vehicles is in storage in Elmira along with the 25 FFGA LRVs. All ten railcars that make up the two remaining vehicles have been transported to Elmira for final assembly.
  - The previously identified quality issue related to the M33 bolt on the LRVs is nearly resolved. MTA determined that the issue does not impact safety, and the solution is likely the use of a higher strength bolt. The final report on this issue was expected in May 2023, although the PMOC has not yet received it. ***As of September 2023, CAF has identified additional occurrences of the M33 bolt quality issue. CAF does not believe the issue will impact delivery of the vehicles, which is scheduled for spring of 2024.***
  - Delivery of vehicles was expected to begin in spring of 2021; however, the location for their delivery was uncertain because the Glenridge OMF was not ready to accept railcars. MTA and CAF negotiated an agreement for CAF to store the completed railcars in Elmira to await delivery. The terms of the agreement became a part of MTS's agreement. Deliveries of LRVs to the Glenridge OMF have been delayed to early 2024.
  - The project's Buy America compliance audit for the LRVs was conducted on November 14, 2022. In January, CAF provided additional documentation requested to assist with evaluation of Buy America compliance. On August 17, 2023, MTA provided the Post-delivery Buy America Audit, dated April 21, 2023, to FTA. On that same day, Maryland Department of Transportation (MDOT) also provided the Certificate of Compliance to FTA for the Post-delivery Audit of

Rolling Stock Purchases. The audit indicates that the percentage of U.S. domestic content is 66.74 percent, which meets FTA requirements.

- ***MTA staff will visit the CAF facility in Elmira, New York, in October 2023 to observe the stored vehicles and the two vehicles currently being assembled.***

- MTA is responsible for providing offsite stormwater mitigation in Montgomery County. To date, MTA has accumulated a credit for more than 10 acres of designed, Maryland Department of the Environment (MDE)-approved, offsite stormwater management (SWM) capacity in its "bank." MTA has determined that there is a need for additional mitigation in Prince George's County, and a project to construct additional mitigation is included in the scope of work for MTS.
- ROW acquisition activities continue for the original required 464 private parcels and 137 public parcels (a total of 601 parcels). All of the private parcels related to the original P3 contract Exhibit 9 FFGA scope are in MTA's possession for construction. ***As of September 15, 2023***, ***424*** of the 464 private parcels have completed settlement, and an additional ***10*** parcels have settlements pending.
- MTA has identified 188 small property acquisitions that are required for utility relocations, of which 134 are private and 54 are public. As of April 25, 2023, all of the additional properties were in MTA's possession through Right of Entry (ROE), through options, and/or through agreements. As of August 9, 2023, MTA estimated that approximately $36.2 million of exposure remains in the acquisition process. This amount is included in the risk assessment and in the available project contingency.
- To date, all 177 required property relocation agreements are complete. Costs for the completed relocations continue to be processed in accordance with the applicable procedures. As of August 9, 2023, there is only one relocation property that the former owner still occupies. Two additional relocations may be required.
- MTA estimates that approximately $13 million of risk exposure remains due to necessary extensions of Temporary Construction Easements (TCEs). Allowance for this amount has been included in the risk assessment and in the project contingency.
- Preparation for safety certification is an ongoing process for MTA, including the development of the appropriate checklists for both design and construction. Design Criteria Conformance Checklists (DCCCs) are more than 98 percent validated. Construction Specification Conformance Checklists (CSCCs) are ***23 percent*** validated.
- MTA has adjusted staffing of management personnel to address the varying activities that MTA is managing and to integrate new team members as needed. On May 25, 2023, MTA communicated the departure of Executive Director Matthew Pollack, Deputy Project Director and Contracting Officer Anita Rodgers, and Director of Communications David Abrams, from the Purple Line project team. Project Director Ray Biggs, Jim Mitchell of the PMC, and MDOT Chief Financial Officer Jaclyn

Hartman have been leading the project while those vacated positions are being filled. A new Deputy Project Director, Alexa Heidrich, started with the Purple Line project team on July 26, 2023. Kathryn (Kat) Lamb joined the team in August 2023 as the Communications Director, which completes the hiring for open senior staff positions for the Purple Line project. A search for a new MTA Transit Development and Delivery (TDD) Executive Director is in progress. The TDD Executive Director will be responsible for the Purple Line project in addition to other State of Maryland transit projects. The PMOC has expressed concern related to MTA staff continuity and will continue to monitor MTA's management capacity and capabilities.

- MTA carefully considered a request from Montgomery County to single-track the Purple Line through the Bethesda tunnel. MDOT/MTA determined that it would not be able to accommodate the request.
- MTA and PLTP coordinated to obtain a modified version of the existing TIFIA loan for the project. On April 14, 2022, the TIFIA loan closed, and all bonds were marketed. MTA was required to update the Transportation Investment Program and State Transportation Investment Program plans to reflect changes in the project.
- MTA's Equal Employment Opportunity Officer assigned to the project is Marcques Washington. He is supporting MTS in its hiring program and monitoring project adherence to hiring of specific companies and personnel. As MTS ramps up construction, it is making significant progress toward achieving the project's hiring, wage, and Disadvantaged Business Enterprise (DBE) goals. In ***September 2023***, the PMOC continues to recommend that MTA report the projected end-of-project values for these goals in addition to the current values to allow for a more comprehensive evaluation of progress toward meeting the goals. MTA states that due to the D-B contracting method being utilized to deliver the project, continuous diligence is required to monitor contracted DBE work in the current and upcoming work packages, making it challenging to project future values of DBE participation. However, MTA is confident that MTS is making the necessary efforts to meet goals. MTA presented its DBE goal tracking methodology during the August 2023 PMOC Monthly Meeting. The PMOC encouraged MTA to use this methodology when reporting DBE status to FTA.
- MTA hired a consultant team that is analyzing alternatives for providing security and fare enforcement services for the Purple Line. MTA does not currently have existing facilities or staff that can adequately provide these services because the distance from their location to the Purple Line light rail facilities is too far. In late April 2023, MTA provided FTA with the alternatives study for review. The study indicates that the preferred alternative is the development of a Southern District of the MTA Police Department and recommends several next steps toward implementation of the new district, including hiring a commander, developing operating procedures, working on Memorandums of Understanding (MOUs) with other local jurisdictions, and developing a facility to house the district. ***As of September 2023,*** the PMOC

continues to recommend that MTA develop a written implementation plan that includes schedule milestones and a budget.

- MTA is planning for Community Advisory Team meetings that are scheduled for October 2023.

1.3. Major Issues and/or Concerns

Table 2 discusses any major issues or concerns impacting the project's scope, schedule, cost, risks, quality, safety, etc.

Table 2 – Current Major Issues and Concerns

Issue/Concern	Continuation of the project after PLTC's departure was a significant challenge for the project. The replacement D-B contractor, MTS, has now been under contract to PLTP for more than one year.
Date Identified	September 2020.
Status	The IRP was approved in January 2021, and an update was approved in July 2021. Implementation is nearly complete. MTA has now completed the FRP, which FTA reviewed and accepted in April 2023.
Project Sponsor Action	Management of a transition plan and support of PLTP in the replacement of the D-B contractor was the focus of the Project Sponsor. Another focus was the management of MTA's contractors to continue key activities that maintained the integrity of the schedule under OSF.
PMOC Recommendation	The PMOC recommends that MTA ensure that sufficient staff is dedicated to completing OSF project activities and assessing the remaining potential impacts to the MTS schedule. In addition, now that MTS is under contract, MTA and the PMC should emphasize its oversight of PLTP and MTS.
Issue/Concern	According to the PMP, the master project schedule should be updated monthly.
Date Identified	2022.
Status	Ongoing.
Project Sponsor Action	FTA accepted the FRP schedule in April 2023 as the new project baseline schedule. Two significant change orders, both of which are based on delays to OSF activities, have caused a substantial utilization of the schedule contingency outlined in the FRP. Additional delays have been identified, and MTA is coordinating potential schedule ***recovery*** with MTS. ***Compensation for the delays will be negotiated between PLTP/MTS and MTA, as appropriate.***
PMOC Recommendation	The PMOC recommends that MTA track all schedule elements according to the FRP and report status to FTA and the PMOC each month. MTA should employ additional methods of evaluating schedule progression and performance, including earned-value metrics, to identify issues as soon as possible. The PMOC recommends that MTA develop a procedure to monitor the OSF schedule more closely, because delayed OSF activities have caused and may still cause additional utilization of the schedule contingency.
Issue/Concern	Changes in the project have significantly impacted the project cost as reflected in the original FFGA. The April 2023 FRP includes a revised project cost estimate and a reasonable cost contingency to address remaining project risks.
Date Identified	September 2020.
Status	Ongoing.
Project Sponsor Action	MTA should continue to monitor project progress against the total project cost estimate. As of July 2023, two significant change orders, both of which are based on delays to OSF activities, have caused a substantial utilization of the cost contingency outlined in the FRP. Additional delays have been identified, and MTA is coordinating potential schedule mitigation (which would support cost mitigation) with MTS. Outstanding disputes between MTA and MTS also could impact contingencies.

PMOC Recommendation	The PMOC recommends that MTA continuously monitor project cost and utilization of project contingencies. The budget contingency must reflect potential additional costs required to address potential schedule delays and support a realistic EAC.
Issue/Concern	MTA does not have a police force located in proximity to the Purple Line.
Date Identified	September 2022.
Status	As of May 2023, MTA has determined a preferred alternative for providing security and fare enforcement, and has identified several next steps for implementation.
Project Sponsor Action	MTA's preferred security alternative includes the creation of a new Southern District of the MTA Police Department and will require associated staff, operating procedures, and a facility.
PMOC Recommendation	Although the currently forecasted RSA date is in 2027, the PMOC recommends that MTA promptly move toward implementation of the preferred alternative. MTA should identify the parties responsible for implementing the preferred alternative and determine a detailed schedule and budget in a written plan. The PMOC also recommends that the State Safety Oversight Agency be included in the review and comment process for security and fare enforcement.
Issue/Concern	Lost Time Injury and Total Case Incident Rates have increased significantly since 2022. The current rates are significantly higher than the stated project goals.
Date Identified	April 2023.
Project Sponsor Action	MTA has increased coordination with MTS through additional biweekly coordination meetings. MTA has acknowledged the need for safety process improvements.
PMOC Recommendation	The PMOC recommends that MTA and MTS review the safety procedures and the implementation of those procedures to identify opportunities for improvement. The PMOC also recommends that MTA and MTS complete the safety process review as soon as practical and that MTA prepare a written summary. The summary should include the action items and the responsible parties for each.

1.4. Status of Key Indicators Dashboard (Post-grant)

Table 3 shows the project Key Indicators Dashboard after the FFGA was awarded.

Table 3 – Key Indicators Dashboard

Project Sponsor:				Maryland Transit Administration	
Project Name:				MTA National Capital Purple Line Light Rail Transit Project	
Date:				***September 30, 2023***	
Project Detail					
Oversight Frequency:				**Monthly**	
Element	**Status**			**Prior Status**	**Issue or Concern**
	●	●	●		
	G	**Y**	**R**		
Project Management Plan		●		●	MTA has developed an updated PMP that reflects revised project conditions, and in October 2022, MTA submitted a revised PMP to the PMOC and FTA for review. On February 1, 2023, FTA provided its review comments on the PMP, and on April 28, 2023, MTA submitted the second revision of the PMP to FTA. In May 2023, MTA announced significant changes to the Purple Line leadership staff, including departure of the staff in the TDD Executive Director, Communications Director, and Deputy Project Director positions. As of ***September 2023***, MTA has filled the vacant Purple Line Deputy Project Director position, but the TDD Executive Director position remains open. This concern also

					applies to the Management Capacity and Capability (MCC) element below.
Management Capacity and Capability			●	●	Recent staff departures, along with significant change orders driven by MTA-managed construction, have magnified the need for MTA to focus on MCC issues. See also Safety, below.
Cost*		●		●	MTA has developed a revised cost estimate that reflects new project conditions. Based on PMOC and FTA review comments and a revised MTA Quantitative Risk Analysis, MTA established a budget contingency that appeared appropriate for the stage of the project at the time. However, large change orders and potential change orders have required commitment of a significant portion of the contingency budget. MTA should track project status according to the FRP and the updated PMP and management plans. The PMOC is concerned that significant additional change orders could further reduce the project cost contingency.
Schedule			●	●	A revised project schedule that incorporates the current project status is in place. Despite the execution of several change orders with significant contract extensions, there has not been a mutually agreed-to construction schedule since the Initial Baseline Schedule in September 2022. MTA has rejected MTS's schedule updates each month, citing technical issues. It is the PMOC's opinion that change orders that include adjustments to the RSA date should not be executed unless a mutually agreed-to revised baseline schedule is included with the change order.
Quality			●	●	There are a significant number of nonconforming items from the PLTC-constructed work and the work performed under MTA's management of OSF. The PMOC finds that the quality reporting related to OSF activities is inconsistent. Also, it appears that some key quality management staff have not participated in the project for some time due to contractual issues. The PMOC requires that MTA refine the QAP in order to meet FTA requirements. MTA submitted an updated QAP to FTA and the PMOC in August 2023, and it is under review.
Safety			●	●	In April 2023, the PMOC noted to MTA that both the Lost Time Injury Rate and the Total Case Incident Rate had significantly increased, particularly for the MTA-managed OSF activities. In addition to the increase in the incident rates, there is an apparent lack of tracking and reporting of safety issues. MTA recognizes the issue and reports that it has scheduled additional safety coordination efforts. In May 2023, the PMOC requested documentation on these additional efforts, and in July 2023, the PMOC questioned the effectiveness of the efforts. MTA acknowledges the need for safety process improvement. It is the opinion of the PMOC that there may be a lack of emphasis on safety or MCC issues that are affecting safety. ***On September 28, 2023, MTA provided to the PMOC a brief document that indicated it had performed an audit and proposed several safety process improvements. Additional detail is needed for the PMOC to evaluate the proposed changes to the safety process. In the opinion of the PMOC, MTA's processes related to construction safety need significant improvement.***
Risk		●		●	MTA updated the RCMP and the Risk Register to reflect the changes driven by the FRP and updates to the project management plans. In May 2023, FTA accepted the RCMP but also noted additional comments that MTA should address in future updates to the plan. As of August 2023, MTA has indicated that it will conduct a risk workshop and perform a Quantitative Risk Analysis in conjunction with the completion of OSF activities (in fall of

					2023). In the opinion of the PMOC, this is a prudent approach by MTA.
Legend					
Green	Satisfactory: No Corrective Action necessary.				
Yellow	Caution: Risk/Issues exist. Corrective Action may be necessary.				
Red	Elevated for immediate Corrective Action: Significant risk to the health of the project.				

*Note: With regard to cost, the colors indicate the following status:
Yellow – Forecast cost exceeds the project budget by up to 3%.
Red – Forecast cost exceeds the project budget by more than 5%.

1.5. Core Accountability Items

Table 4 shows the core accountability items for the project, including the current status of the project and the major issues and how they are being addressed.

Table 4 – Core Accountability Items

		Original (Grant)	Current Forecast	PMOC Assessment of Current Forecast
Cost	Capital Cost Estimate	$2,407,030,289	$5,116,020,380	Acceptable
Contingency	Unallocated Contingency	$90,535,748	***$102,225,171***	Acceptable
	Allocated Contingency	$59,500,464	$0	Acceptable
	Total Contingency	$150,036,212	***$102,225,171***	Acceptable
Schedule	Revenue Service Date	12/31/2022	02/28/2028	Acceptable

Project Progress		**Amount ($)**	**Percent of Total**
Total Expenditures	Actual cost of all eligible expenditures completed to date	***$3,038,142,529***	***60.6%***
Planned Value to Date[1]	Estimated value of work planned to date	Not Applicable (N/A)	N/A
Actual Value to Date[1]	Actual value of work completed to date	N/A	N/A

Contract Status		**Amount ($)**	**Percent of Total**
Total Contracts Awarded	Value of all contracts (design, support, construction, equipment) awarded; % of total value to be awarded	To Be Determined (TBD)	TBD
Construction Contracts Awarded	Value of construction contracts awarded; % of total construction value to be awarded	TBD	TBD
Physical Construction Completed	Value of physical construction (infrastructure) completed; % of total construction value completed	***$972,309,291***	***47.1%***

Rolling Stock Vehicle Status	**Date Awarded**	**No. Ordered**	**No. Delivered**
28 total car sets[2]	First 26 LRVs: 2016 Additional 2 LRVs: January 2022	28 car sets	0

Next Quarterly Progress Review Meeting Date:	November 8, 2023

[1]Earned value information is not available.
[2]The approved FFGA includes a total of 25 LRVs.

2. OBSERVATIONS AND FINDINGS

2.1. Summary of Monitoring Activities

The PMOC received an update from the Purple Line project team during ***the September 28, 2023, virtual monthly meeting with MTA, the PMC, and the PMOC. On September 20, 2023, the PMOC and MTA held a virtual meeting to discuss the outstanding comments on the MTA QAP to help resolve those comments and to provide technical support to improve MTA quality processes.*** MTA provides supplementary information before the PMOC monthly meeting. PMOC monitoring activities include review of MTA-provided scope, schedule, risk, financial, construction, safety and security, and real estate information.

After the U.S. Court of Appeals reversed the vacation of the ROD in July 2017 (refer to the **NEPA Process and Environmental Mitigation** section, below, for details), the FFGA was executed on August 22, 2017. In September 2020, the construction (D-B) contractor, PLTC, left the project, and a new project delivery plan was developed, including replacement of the D-B contractor. During the period when the replacement D-B contractor was being solicited, MTA managed specific construction and design activities (OSF activities) in order to reduce uncertainty and support the project schedule. On November 5, 2021, MTS was selected as the replacement D-B contractor, and financial and commercial close occurred on April 14, 2022. MTA continues to manage OSF construction and design activities. MTS is performing construction activities across the entire project corridor.

MTA and MTS held initial partnering activities during which they developed relationships, general project priorities for teamwork, and an understanding of key issues for different stakeholders. MTA provided partnering process information to FTA and the PMOC on March 29, 2023. As of August 2023, MTA has replaced the consultant who was leading partnering activities and is developing new processes to facilitate the coordination and relationship between MTA and the MTS/PLTP team. ***MTA indicates that it has scheduled an internal partnering meeting to help align MTA and PMC staff. Partnering with PLTP will commence in November 2023.***

2.2. Oversight Triggers

The oversight triggers most applicable to the project are the Oversight Procedure (OP) 25 cost and schedule triggers. The project did not have a mutually agreed-upon baseline schedule between March 2017 and September 2022. Significant schedule delays and a significant increase in project cost keep the project eligible for rigorous oversight. Project schedule delays typically impact project cost, another significant indicator of project health. MTA has developed a revised project EAC in conjunction with development of the project's schedule and FRP. Significant utilization of schedule and budget contingencies has occurred since development of the FRP. In the opinion of the PMOC, significant additional cost and schedule impacts could occur.

2.3. Project Management Plan and Sub-plans

2.3.1. Project Management Plan

The PMOC reviewed the Purple Line PMP Version 10 in accordance with OP 20 for a PMP at the FFGA execution stage of a project. Subsequently, FTA and the PMOC reviewed PMP Versions 11, 12, and 13. Due to significant project team changes since those versions, another update to the PMP was required. In October 2022, MTA provided an updated PMP (Version 14) to FTA and the PMOC for review, and FTA and the PMOC provided comments on PMP Version 14 to MTA. On April 27, 2023, MTA provided PMP Version 15, which FTA accepted, with comment, on June 21, 2023.

2.3.2. Safety and Security Management Plan

In February 2016, the PMOC reviewed the project's SSMP Version 6, dated October 22, 2014, in accordance with OP 22 for a project at the FFGA execution stage. The PMOC review found that the SSMP was compliant with FTA content requirements for execution of the FFGA, but the PMOC requested that MTA resubmit the SSMP after execution of the FFGA and address the comments in the PMOC report with updated information from the P3 concessionaire. Subsequently, FTA and the PMOC reviewed SSMP Versions 7 through 11 over the next four years. MDOT, which is the State Safety Oversight Agency (SSOA) for the project, also reviewed SSMP Versions 8 through 11. On January 13, 2022, FTA provided comments on SSMP Version 12 to MTA. MTA submitted SSMP Version 13 as well as Version 5 of the Purple Line SSCP to FTA and the PMOC for review in October 2022. FTA and the PMOC reviewed the SSCP and SSMP updates and provided their comments to MTA in February 2023. MTA submitted a revised SSMP to FTA on June 28, 2023, and submitted a revised SSCP on August 28, 2023. FTA approved the revised SSMP in August 2023 and the PMOC SSCP review is approaching completion.

2.3.3. Quality Assurance Plan

In October 2022, MTA submitted QAP Version 10 to FTA and the PMOC for review, and on March 8, 2023, FTA provided review comments on QAP Version 10 to MTA. MTA then submitted a revised QAP to FTA for review in May 2023, and FTA and the PMOC provided comments to MTA in June 2023. In July 2023, MTA provided a response to each specific comment and committed to submitting a revised QAP in August 2023**.** On August 11, 2023, MTA resubmitted the QAP as Version 12. ***A technical work session with MTA and the PMOC to discuss outstanding issues related to the QAP was held September 20, 2023.***

The PMOC requested that MTA provide more complete documentation for quality-related activities. ***In September 2023, MTA presented the PMOC with a quality process dashboard that MTA had developed to display monthly statistics on audits, Deficiency Notices, Non-conformance Reports, and quality oversight assessment reports (QOARs). The PMOC requested that MTA provide documentation for PMOC review.***

MTA meets with PLTP, the PMC, and the General Engineering Consultant (GEC) monthly to review quality status. In ***September 2023,*** MTA reported the following quality management activities by MTA, PMC, or GEC staff that took place ***in August 2023***:

- Field inspections of OSF activities to verify compliance and close outstanding Nonconformance Reports and Deficiency Notices.
- The witnessing of subcontractors' testing procedures.
- Participation in MTA/MTS Quality Meetings.

MTS also performs significant Quality Assurance/Quality Control (QA/QC) activities and reports having more than 60 full-time quality staff assigned to the project***.*** ***In August 2023***, those QA/QC activities by MTS included:

- Offsite inspections of structural steel girders and canopies, Overhead Contact System (OCS) poles and hardware, ***traffic signal poles***, special trackwork, and other items.
- ***31*** Design Services During Construction reviews and ***32*** design submittal reviews.
- Completion of numerous Quality Audits of MTS and subcontractor work, testing, and quality plans.
- Approximately ***900*** materials tests.
- Approximately ***700*** materials samples.

In 2022, MTA frequently provided notes from monthly CAF and SNC-Lavalin LRV manufacturing quality meetings for PMOC review. The information provided a summary of issues and corrective actions, and upcoming quality audits. MTS is now responsible for preparing these notes.

One manufacturing quality issue, the recurring failure of a bolt in multiple vehicles, has not been resolved. MTA determined that the issue does not impact safety, and the solution is likely the use of a higher strength bolt. The final report on this issue was expected in May 2023, although ***as of August 2023,*** the PMOC had not yet received it. ***As of September 2023, CAF has identified additional occurrences of the M33 bolt quality issue. CAF does not believe the issue will impact delivery of the vehicles, which is scheduled for spring of 2024.***

2.3.4. Real Estate Acquisition Management Plan

The PMOC reviewed the project's Real Estate Acquisition Management Plan (RAMP) Versions 10, 11, and 12. The PMOC reviewed the plans with respect to the guidelines in OP 23 for a project in the construction phase. MTA submitted an updated RAMP Version 13 to FTA and the PMOC in October 2022. FTA provided review comments on RAMP Version 13 to MTA on February 27, 2023, and accepted RAMP Version 13 with comments.

2.3.5. Fleet Management Plans

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 on March 4, 2016, issued its final OP 37 BFMP review report, concluding that the BFMP met the requirements of OP 37 for the execution of an FFGA for the Purple Line project.

2.3.6. Risk and Contingency Management Plan

In early 2020, MTA commenced another update to the RCMP to incorporate the results of the latest Quantitative Risk Analysis that, in turn, incorporated the results of the replacement D-B contractor resolicitation and the revised project implementation details. MTA held a risk management workshop on January 26, 2021, that focused on the interim period.

MTA provided a comprehensive Risk Register and risk mitigation activities in conjunction with the draft FRP. In preparation for a risk analysis, MTA held risk assessment interviews with individual risk owners to review existing risk items and identify new risks. In December 2021, MTA prepared an updated Risk Register that includes over 100 risk items, including PLTP and MTS risks.

At a risk workshop held the week of May 2, 2022, the PMOC and FTA participated in an OP 40 risk and contingency review that evaluated cost, schedule, and project contingency. MTA confirmed and finalized the Risk Register, and prepared the Quantitative Risk Analysis and an update of the RCMP. The PMOC developed a draft summary of the risk and contingency review results. FTA provided a risk summary to MTA on June 22, 2022, for MTA's consideration while it was updating the RCMP. MTA provided responses to FTA's comments on the risk summary on July 15, 2022, and provided further clarification on August 25, 2022. MTA submitted RCMP Version 15 to FTA and the PMOC for review in October 2022. In February 2023, FTA and the PMOC provided comments on the revised RCMP, which supported MTA's development of the project's budget and schedule contingency. MTA subsequently submitted the revised RCMP Version 16, dated April 21, 2023, and FTA accepted it on May 22, 2023.

As of ***September 2023,*** MTA has indicated that it will conduct a risk workshop and Quantitative Risk Analysis in ***November 2023*** in conjunction with the completion of OSF activities. The PMOC's opinion is that this is a prudent approach by MTA.

2.3.7. Safety and Security Certification Plan

Version 3 of the Purple Line SSCP is dated November 4, 2014. The PMOC review found that the SSCP Version 3 met the FTA requirements in support of the FFGA application. MTA submitted SSCP Version 4 on February 3, 2020, in conjunction with the updated SSMP submittal (see the **Safety and Security Management Plan** subsection, above). The SSOA completed its review of SSCP Version 4 and discussed its comments with the PMOC. MTA decided that the new emergency management working group would be a subcommittee to the Fire Life Safety and Security Committee, and this decision would be reflected in the next revisions of the SSMP and the SSCP, which were planned for after the replacement D-B contractor was in place. MTA submitted SSMP Version 13 and SSCP Version 5 to FTA and the PMOC in October 2022. In February 2023, FTA and the PMOC completed their reviews and provided comments on these plan documents to MTA. MTA provided a response to the SSCP review comments to FTA and the PMOC in May 2023. On July 12, 2023, the PMOC and MTA held a call to review and reconcile PMOC/FTA comments on the SSCP. MTA submitted a revised SSMP to FTA on June 28, 2023, and submitted a revised SSCP on August 28, 2023. FTA approved the SSMP in August 2023 and the PMOC ***is nearing completion of the SSCP review.***

2.4. Management Capacity and Capability

MTA continues to identify and assign sufficient Management Capacity and Capability (MCC), as needed, to complete the project in compliance with applicable FTA requirements. These efforts have included bringing staff, either MTA or MDOT personnel or consultants, onto the project to manage the current needs, such as planning, P3 procurement and contracting, real estate acquisition, and construction.

In November 2021, MTA's quality lead for the Purple Line project, Rene Schroeder, retired. It was proposed that Roland Carroll, the Purple Line systems safety and construction safety lead, add the quality lead role to his other Purple Line roles. In February 2022, MTA provided a white paper outlining Mr. Carroll's experience, his recent training, and the proposed supporting staff related to the new quality management role. The PMOC has evaluated this change as a part of the PMP review and will continue to monitor management capacity for this function and all positions through ongoing oversight activities. Specific to safety, the PMOC is concerned that there may be a lack of emphasis on safety or on management capacity or capability. Injury rates, particularly for OSF activities, are higher than the MTA goals. Also, reporting of injury and incident statistics is inconsistent. See Section 2.16, below, for more detail.

In March 2023, MTA hired John Donovan in the role of Construction Manager. MTA is also forming a commercial project controls team, and Anita Rodgers was to assume the role of Contracting Officer. These changes were in response to: (1) the near completion of OSF and (2) the need to support the management of MTS's increasing amount of work.

On May 25, 2023, MTA communicated the departure of Executive Director Matthew Pollack, Deputy Project Director and Contracting Officer Anita Rodgers, and Communications Director David Abrams from the Purple Line project team. Project Director Ray Biggs, Jim Mitchell of the PMC, and MDOT Chief Financial Officer Jaclyn Hartman have been leading the project while those vacated positions were being filled. Ken Forsythe's role changed from his role as Deputy Director to the interim Director of Communications role. A new Deputy Project Director, Alexa Heidrich, started with the Purple Line project team on July 26, 2023. Kathryn (Kat) Lamb joined the team in August 2023 as the Communications Director, which completes the hiring for open senior staff positions for the Purple Line project. In August 2023, MTA provided an updated Purple Line organizational chart that included these newly hired staff.

A search for a new MTA TDD Executive Director also is in progress. The TDD Executive Director will be responsible for the Purple Line project in addition to other State of Maryland transit projects.

2.5. NEPA Process and Environmental Mitigation

2.5.1. NEPA Process

FTA issued a ROD on March 19, 2014. The National Park Service issued its ROD on July 16, 2014.

MTA has continued to submit environmental re-evaluations as required based on design advancement and other causes. To date, PLTC (before it left the project) 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. The most recent status ***(as of September 2023)*** of NEPA items is:

- All formally submitted LOD cases have been approved. MTA currently expects one additional LOD case and is preparing a submittal for review by FTA. MTA intends to submit the new LOD to FTA after MTA has obtained all applicable information from MTS. This additional LOD case submittal has been delayed because MTA is awaiting necessary clarification from MTS.
- The ATC for the Bethesda Station jet fan has been vetted, and final documentation is being prepared for submittal to FTA for concurrence that the ATC meets project requirements. Final documentation for the ATC is still pending as of ***September 2023***. MTA will schedule a review of the documentation with FTA as soon as it is complete. MTA and MTS optimistically predict that the ATC will have no Section 4(f) impacts or other impacts to the project's ROD.

On August 3, 2016, in response to the lawsuit filed by the Friends of the Capital Crescent Trail against FTA, a federal judge filed his Order and accompanying Memorandum Opinion. In those documents, it was ordered that the ROD for the Purple Line project be 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 whether 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 in 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 U.S. Court of Appeals issued its ruling on December 19, 2017, in which the judges ruled in favor of FTA and the project, and ruled that the transit agencies would not have to conduct a new environmental study to examine other potential routes for the Purple Line.

The Friends of the Capital Crescent Trail filed a second lawsuit after the FFGA signing and after the groundbreaking ceremony was held on August 28, 2017. The September 19, 2017, Preliminary Hearing for this suit resulted in no temporary injunctions or restraining orders, and project construction proceeded as the case progressed 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 FTA.

The Friends of the Capital Crescent Trail filed a third lawsuit in January 2019, this time against USACE. The USACE legal staff and the Office of the Attorney General provided the defense. 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 USACE. In October 2019, USACE filed for a Summary Judgment to Dismiss the case, and the plaintiffs filed their response; a hearing date was set for March 23, 2020. However, in late February 2020, the assigned judge recused himself from the case, and the scheduled hearing was canceled. In mid-April 2020, the District Court ruled in favor of the USACE/MTA motion for a Summary Judgement to Dismiss, and the case was dismissed. The plaintiff subsequently filed an appeal on May 11, 2020, and the case continued in the legal process. Oral arguments related to the appeal occurred on March 11, 2021. The District Court denied the appeal on May 13, 2021. The decision resolved the last remaining lawsuit related to the project.

2.5.2. Environmental Mitigation

The project achieved the required mitigation for reforestation through the purchase of 82.5 acres of offsite credits (combined, in both Montgomery County and Prince George's County). This amount of offsite credits is expected to be more than needed, and the P3 concessionaire will monitor that this remains the case. PLTP's Forest Conservation Plan (FCP), which documented a need of 75.73 acres, 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. In Maryland, need is based on land disturbance rather than only forest removal. MTA's tracking of additional disturbance due to the progress of design and construction indicated that the total need is still within the amount of available offsite credits.

The Joint Permit Application for Wetlands and Stream Mitigation was formally submitted to USACE and 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, because time had passed since the permit was drafted, MDE updated and issued the finalized permit the first week of April 2018. USACE completed its NEPA and conditions review as well as its 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 the longer construction periods resulting from construction moratoriums for forests and streams. The project received approval from MDE during the week of December 3, 2018, and received the USACE approval letter in mid-June 2019.

The project team has been addressing the environmental mitigation for wetlands through the development of the offsite Ken-Gar location, which is implemented through 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 the bids underwent MTA Procurement Department review. BPW approval of the award was received on September 4, 2019. As of June

2021, the Ken-Gar wetlands mitigation project was complete and had completed its one-year warranty period. See the **Construction** section of this report, below, for further discussion of the status of this Ken-Gar Wetlands Mitigation construction contract.

The project team has addressed the environmental mitigation for streams through the development of the offsite Paint Branch location, which is implemented through 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 the award was received on September 4, 2019. The Paint Branch stream restoration is complete, and warranty corrections (partial replanting) occurred in December 2022. See the **Construction** section of this report, below, for further discussion of the status of this contract.

The project has plans to address stormwater mitigation, beyond what can be mitigated on the project site, through retrofitting offsite locations in both Montgomery County and Prince George's County. On November 12, 2021, MTA determined that there is a need for additional stormwater mitigation in Prince George's County. A project to construct additional stormwater mitigation is included in the scope of work for MTS.

The joint MTA and University of Maryland (UMD) technical board resumed meetings in December 2021 to coordinate efforts related to the mitigation of noise, vibration, and electromagnetic interference at the UMD facilities. Following this meeting, the members of the joint technical board voted to approve the outstanding design packages. This action effectively ended the activities of the technical board until the LRT is in trial running.

The Purple Line project team submits quarterly Environmental Mitigation Monitoring Reports for the project. MTA managed the environmental mitigation and monitoring activities as the project transitioned to the replacement D-B contractor, MTS. Because MTS is now performing construction, MTA will monitor the environmental activities performed by MTS. On July 13, 2023, MTA provided the Second Quarter 2023 Environmental Commitment and Mitigation Monitoring Program Report. The report conveys the status of progress toward meeting commitments in the ROD that was issued in March 2014 and any pending actions required. In the report, MTA notes that "no problems, gaps, nonconformances, or NEPA issues of any sort were found during this quarterly assessment."

The MTA Purple Line team communicated that MDE is implementing a change to the state's construction dewatering monitoring and turbidity requirements. Pumped water discharge from construction sites will need to meet specific requirements—something that Maryland lacked but is common in many states. MTS has indicated that these requirements are a change to the project scope of work and is developing a change order request. ***In September 2023, MTA and MTS participated in training for managers on the new requirements, and a future round of training for field staff is being planned.***

2.6. Project Delivery Method and Procurement

The majority of the capital cost of the Purple Line project has been packaged into a Design-Build-Finance-Operate-Maintain 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") in which appropriate risks and benefits are allocated in a cost-effective manner between the contractual partners. The P3 concessionaire is intended to perform some functions normally undertaken by the transit agency, but MTA remains ultimately accountable for the Purple Line project 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 PLTP had been selected as the P3 concessionaire. Commercial close of the P3 contract occurred on April 7, 2016, and financial close occurred on June 17, 2016.

In late April 2020, PLTC notified PLTP that due to PLTC's forecasted schedule delays on the project (which did not receive agreement from MTA), PLTC intended to exercise the clause that allowed it to terminate its contract with PLTP for the design and construction services under the P3 contract if delays exceed 365 days. MTA sent a formal request to PLTP for a response that would include a definitive path forward. On the response due date of May 14, 2020, PLTP submitted its response, which stated that PLTP intended to continue to negotiate with PLTC to retain PLTC as part of the P3 concessionaire team. On June 23, 2020, PLTP sent a formal Notice of Unconditional Election to Terminate the P3 Agreement to MTA, although PLTP indicated a willingness to negotiate a settlement. On June 24, 2020, MTA sent a Formal Notice of Concessionaire Default. This notice essentially refuted the validity of the PLTP delay claims and stated that if PLTP fails to perform, MTA has a number of options related to the P3 Agreement. Through July 2020, construction activities continued at the levels previously planned and were not affected by the dispute.

In early August 2020, PLTC and subcontractors demobilized equipment, materials, and personnel. In response, the Maryland Attorney General filed a motion for a Temporary Restraining Order (TRO) that prevented PLTP from abandoning the work or demobilizing. Upon issuance of the TRO, the contractor and subcontractors remobilized some equipment and restarted many construction activities. A hearing to uphold or rescind the TRO occurred before the expiration of the TRO on September 14, 2020, and the court rescinded the TRO, allowing PLTP to leave the project. If the TRO had been upheld, PLTP would have been required to continue working until the contractual dispute resolution procedures were followed.

When an agreement was not reached, the bond holder firms had the first right to take over the project. However, MTA planned an alternate path forward based on its exercise of step-in rights. To that end, MTA assumed the contracts of over 100 subcontractors, indicating MTA's intent to continue the project. MTA adjusted staffing for construction management, resident engineers, and inspectors to move forward with the project.

On November 24, 2020, MTA and the P3 concessionaire, PLTP, reached a settlement agreement to release the project's D-B contractor from the P3 consortium and continue the project with the

remaining parties. The state's BPW approved the settlement agreement on December 17, 2020. Activities set out in the agreement and the IRP have proceeded with multiple modifications to milestone dates as needed.

The agreement included the following key aspects, as MTA has communicated to the PMOC:

- PLTP agreed to procure a replacement D-B contractor to complete the project and to obtain project financing. The selection of the preferred replacement D-B contractor, MTS, occurred on November 5, 2021. The TIFIA loan for the project closed on April 14, 2022, allowing financial close and commercial close on that same day. MTS is now the D-B contractor for the project.
- The settlement agreement provided a mutual release from all disputed and undisputed amounts (incurred before September 28, 2020) for PLTP, PLTC, and subcontractors. The agreement also released outstanding litigation among the parties.

2.7. Design

2.7.1. MTA Design

MTA's GEC completed the project design to approximately the 30 percent design level in fall of 2013 and provided incremental enhancements through late 2015. This design formed the basis of the Request for Proposals (RFP) for the P3 contract. See the **P3 Design** subsection, below, for a discussion of the advancement of this design by PLTC, the former PLTP partner that was responsible for the design and construction of the capital project, and continued design under MTA.

MTA was responsible for the design and construction contracts under a Design-Bid-Build delivery method (separate from the P3 scope) for the following projects:

- Stream mitigation – MTA completed the 100 percent design packages in June 2017 and received approval from MDE in May 2018. Construction of the stream mitigation is now complete. See the **Environmental Mitigation** subsection of this report, above, for additional details.
- Wetlands mitigation – MTA completed the 100 percent design packages in June 2017. Several design adjustments were subsequently made based on MDE and Montgomery County comments. The construction contract was advertised on May 3, 2019. Construction of the original wetlands mitigation is now complete. See the **Environmental Mitigation** subsection of this report, above, for additional details.
- Offsite SWM sites – MTA completed design and obtained MDE approval of more than the P3 contract-required 5 acres of offsite mitigation in Montgomery County on May 29, 2018. In late October 2019, MTA received MDE approvals for the next 5 acres to be added to the mitigation credit "bank," thus satisfying the contract requirements for 2019. MTA has determined that there is a need for additional mitigation in Prince George's County, and a project to construct additional mitigation is included in the scope of work for MTS.

- See the **Environmental Mitigation** subsection of this report, above, for the current requirements.

MTA also completed the design to support a D-B contract for the replacement of the existing Parks Maintenance Facility with a facility on Polk Street. Construction of the facility is now complete. See the **Real Estate Acquisition and Relocation** and the **Construction** (MTA Scope) sections of this report, below, for further details.

2.7.2. P3 Design

PLTC's design progress was forecasted to achieve substantial design completion of Civil packages in August 2020, substantial design completion of Systems packages (except for Fare Collection) in September 2020, and completion of the Fare Collection design package in 2021. The original baseline schedule anticipated design completion by late fall 2017. As of August 2020, the number of planned Civil, Systems, and Utility design packages was 218.

Upon the departure of PLTC, MTA contracted with the project's engineer of record, Atkins, to continue to advance the design of limited aspects of the project.

The current progress through ***September 28, 2023,*** is that ***213*** of the 218 total planned design packages have been issued as RFC. Civil and Utility packages that remain in design or approval include traffic signal pre-emption, grade crossing safety systems, lighting, signage, and stations. Systems packages were scheduled to be complete by the end of the first quarter of 2022; however, as noted above, six packages remain to be completed. The State Highway Administration ***is finalizing the last*** traffic signal package ***as of September 28, 2023.*** Train control and fare collection are the two significant outstanding design packages. MTA estimates that the train control package is 65 percent complete and that there is significant uncertainty about completion of the fare collection package, ***as of September 2023.***

A new item related to design has been added to the Risk Register regarding an intelligent interface device that could impact implementation and operational costs. MTA and MTS have agreed to put this design change item before the Dispute Resolution Board for feedback, because MTA believes that the change in question would be a betterment that PTLP selected.

PLTC reached resolution on the final remaining ATC identified during the proposal process. The ATC is related to the use of jet fans at the Bethesda Station in lieu of vent shafts. In accordance with the established process, MTA is reviewing the design package for NEPA compliance. Final documentation for the ATC is still pending as of ***September 2023***. MTA and MTS are coordinating to address the noise and aesthetic impacts of the fans, and they optimistically report that the ATC will have no Section 4(f) impacts or associated impacts to the ROD.

MTA and CSX worked to resolve issues related to the applicable design criteria and which project areas were affected until, in July 2019, a mutually agreeable path forward was defined for all areas. 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 SSTC 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 May 2020, CSX indicated that the final design is acceptable. Revised documents, providing some minor clarifications related to ROW, were submitted to CSX on September 8, 2020, and ultimately CSX approved the design. The revised documents were submitted to WMATA several times in early 2021.

- WMATA's comments on design plans for the SSTC mezzanine connector pedestrian bridge (over CSX ROW) will result in what MTA deems are betterments. Resolution of WMATA comments continues as of ***September 2023*** for the SSTC and for other locations where WMATA and Purple Line stations coincide. MTA reports that the slow resolution of these comments has not impacted critical path activities.
- An encroachment into the CSX vertical clearance was discovered upon installation of girders at the SSTC. Although the designer believed the loading of the bridge deck might alleviate the issue, shimming was discussed as a potential solution. Shimming was not MTA's preferred solution; therefore, an exception was requested from CSX to allow the ¾-inch encroachment to remain. CSX denied the exception. MTA and the designer prepared for a contractor to jack and shim the structure to create the required clearance. Construction of this work was completed in August 2021.
- Proposed construction near the SSTC will require significant coordination with both WMATA and CSX. Track protection (flagging) and planning of a shutdown of the railroads to allow Purple Line activities near the SSTC in 2024 have been identified as schedule risk items.
- CSX provided review comments disallowing revised drainage networks, related to the Capital Crescent Trail work, which would connect to CSX's existing drainage culverts. The work on the Capital Crescent Trail is not part of the FFGA and is separately funded by Montgomery County. As a result of work with Montgomery County, the connections were relocated from CSX property to Montgomery County property and therefore are no longer a CSX issue. To fully accomplish this approach, two connections required resolution. Montgomery County acquired two parcels of land from CSX (not FFGA-funded) and then accepted responsibility for one connection currently under the responsibility of CSX. Storm sewer construction under the CSX railroad was required in several locations. Two jack-and-bore installations of culvert pipes were completed in November 2022. ***As of September 2023,*** completion of another 72-inch-diameter culvert is pending construction by MTS. The work plan for the culvert installation is in the approval process at CSX.

2.8. Real Estate Acquisition and Relocation

As of ***September 2023,*** the total number of planned property acquisitions is 601, including 464 privately owned properties and 137 public acquisitions. For the private properties, to date, a total of 476 offers were made, including for parcels that were subsequently eliminated, and 234 offers were accepted. All of the original Exhibit 9 FFGA-scope private parcels in the P3 contract are in

MTA's possession, some of which are properties that continue in condemnation under the State Highway Administration process. To date, ***424*** of the original 464 private properties have completed settlement, ***10*** additional properties (not part of the original 464 private properties) are pending settlement, and ***37*** condemnations remain to be settled.

All required public properties have been available for construction when needed. Several public property rights transfers are currently being coordinated to accommodate sidewalk changes, utility easements, and ROW exchanges.

As the project has progressed and new utility relocation needs have been identified, additional small parcel acquisitions have been added to the total as utility down-guys. In December 2017, PLTC initially submitted a list of approximately 280 such parcels related to utility relocations and subsequently added to that list. MTA resolved that it would acquire these properties, rather than execute amendments to the utility agreement that would 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 has been expediting the process somewhat. ***As of September 15, 2023,*** the list of additional acquisitions totals 188 parcels, and several more acquisitions potentially may be needed for stormwater facilities. Of these parcels, 54 are public property and will be acquired by agreement, and 134 are private acquisitions. Sixty-six of the 188 properties are filed for condemnation, excluding those that were subsequently optioned or settled, and ***20*** condemnations remain. MTA estimates that approximately $36.2 million of exposure remains in the acquisition process. This amount has been included in the Quantitative Risk Analysis.

The project required a total of 177 relocations, of which 57 were residential and 120 were businesses. To date, all 177 of those identified relocations have been completed in accordance with the applicable procedures, and no active claims remain to be settled. Also, MTA is monitoring terms of agreement of the property acquisitions discussed above that have not yet completed settlement, because some of them could potentially result in the need for additional relocations. As of October 2022, there were two new relocations related to commercial properties that potentially will be needed.

In August 2023, MTA indicated that the goal for completion of all real estate transactions is December 2024.

On April 25, 2023, MTA reported that BPW has approved the last of seven critical project acquisitions. These acquisitions were required to allow MTS access to construction areas that include activities on or near the critical path.

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 MTA shares this information with the PMOC. Based on actual settlement amounts and projected amounts for those not yet closed, settlement/condemnation values are 55.3 percent higher than the original 2014 SCC budget for ROW. MTA included current ROW cost projections in its development of a FRP project cost estimate (see the **Project Cost** section of this report, below).

Due to the extended project duration, some agreements will expire before the expected RSA date. MTA and MTS have started the process of identifying the end dates now needed for the agreements and will begin the process of obtaining extensions. MTA has evaluated the risks, estimated the cost of the extensions, and included those costs in a budget contingency. MTA estimates that approximately $13 million of risk exposure remains due to necessary TCE extensions.

2.9. Third-party Agreements and Utilities

All major third-party agreements (specifically, those agreements with Washington Gas, Verizon, Potomac Electric Power Company [PEPCO], CSX, UMD, Montgomery County Parks, Prince George's County Parks, WMATA, 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 lines that are currently overhead be placed underground when they cross the light rail alignment. To minimize the total cost impact of this change, MTA and Verizon reduced the number of locations where Verizon lines cross the alignment to 34. MTA is of the opinion that this reduction 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 for placing 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 upon in early March 2019. MTA had planned to negotiate the cost responsibility with PLTC and Verizon after all major Verizon relocations were completed. However, since the departure of PLTC, MTA carries this cost as a betterment outside of the FFGA scope.

In early June 2018, MTA and PLTP completed the negotiation of all remaining third-party agreements with the smaller utility and telecommunications (telecom) 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 to existing executed agreements continues to be evaluated. The significant items include:

- To date, the design differences with CSX, as discussed earlier in this report, have been adequately resolved through design review and concurrences, and have not resulted in the need to amend the CSX agreement.
- WSSC proposed that the project relocate a 66-inch underground water main that runs through the Glenridge OMF site. In March 2020, MTA and WSSC agreed on a water main alignment primarily in the median of Veterans Parkway, as well as a strategy for completing the relocation. The original Purple Line project GEC performed the design; WSSC provided the material; and MTA separately contracted for the construction, thus avoiding impact to the P3 concessionaire's scope of work. On May 21, 2021, WSSC authorized work, and mobilization began August 9, 2021. Energizing of the cathodic

protection is the only remaining item of this relocation as of ***September 2023.*** WSSC is currently using the line and is responsible for the cathodic protection.

- In late July 2022, MTA and MDOT held a summit with the many utility providers that experience relocations related to transportation projects to discuss best practices and improvements to the utility relocation process. As of May 2023, some of the utility providers are experiencing staff shortages that limit construction production rates. These staff shortages present an ongoing challenge for both MTA's OSF work and MTS's scope of work.

The project has been addressing its interface with 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 MOU with the Montgomery County Schools system, which was approved by the School Board and signed by the School Superintendent, Montgomery County, and MTA. A similar MOU was negotiated between MTA and the Rosemary Hills School and was approved at the School Board meeting on February 12, 2019. MTA submitted a draft second MOU to Montgomery County Schools on November 3, 2022. ***The Purple Line project team is developing information on the utility pole locations and retaining wall maintenance before going back to the school district for final property transfer negotiations.*** Work will continue under ROE agreements with these parties through 2024.

As MTS commenced construction work, coordination meetings were held to ensure that prior agreements with third parties (utility companies and others) are followed. It is MTA's position that the transfer of third-party agreements from PLTC to MTA and now to MTS should not allow for a change in the terms of the agreements.

2.10. Construction

2.10.1. 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 replacement Parks Maintenance Facility (which is part of the real estate effort and budget), wetlands mitigation, stream mitigation, and possibly some offsite SWM sites. MTA has accomplished forest mitigation without the need for additional construction. The following discussion presents the current status of the MTA construction contracts:

- **Prince George's County Parks Polk Street Replacement Maintenance Facility** – This D-B contract was awarded after the BPW approved the construction contract award on March 20, 2019. Forrester Construction Company completed construction, Parks has taken possession of the facility, and ***the warranty period has expired.***
- **Offsite Wetlands Mitigation (Ken-Gar)** – The Wetlands Mitigation construction contract was awarded after the BPW approved the award on September 4, 2019, and NTP was issued to Environmental Quality Resources, LLC on September 5, 2019. The contractor mobilized in December 2019 and completed site surveys and the installation of

Erosion and Sedimentation controls. Clearing and grubbing began in February 2020. Prince George's County took partial acceptance of the entire project on March 3, 2021. Acceptable growth of vegetation has been achieved, allowing for closure of this project. The one-year warranty review occurred on January 9, 2022, and now the project requires MTA quarterly monitoring until closeout in 2028.

- **Offsite Stream Mitigation (Paint Branch)** – The Stream Mitigation construction contract was awarded after the BPW approved the award on September 4, 2019, 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. The one-year warranty inspection occurred on August 4, 2022, and 1,700 plants were replaced in November 2022.

2.10.2. P3 Scope

Highlights of construction activities ***through September 2023*** throughout the alignment include*:*

- General: As a result of the dispute with PLTC (see the **Project Delivery Method and Procurement** section, above), all project activities slowed in the fall of 2020. In early August 2020, contractor forces, equipment, and materials were demobilized, and work in some areas ceased. Upon legal action from MTA, partial remobilization occurred. Following the court's rescission of the TRO, demobilization and safe-up activities in the construction area began in earnest in mid-September 2020 and continued into October 2020. Following PLTC's exit, MTA engaged a number of former PLTC subcontractors to continue select project activities. This work has been progressing under MTA management with a goal of advancing critical path activities and reducing risk for the replacement D-B contractor.
- Status of ongoing P3 construction items that MTA manages:
  - Utility installations of all types are underway, including construction by the electric provider, PEPCO, and the communications company (Verizon). Water, storm sewer, sanitary sewer, and gas lines are also being constructed.
  - As a part of OSF, MTA ordered rail, ties, special trackwork, and turnouts to mitigate supply chain risks. MTA also secured materials previously procured by PLTC for use by the replacement D-B contractor (MTS). ***As of September 2023, a dispute between MTA and MTS over the availability of MTA-supplied materials has been resolved. The materials were located along the project corridor and available for use, resolving the dispute.***
  - Building construction at the Glenridge OMF is essentially complete; however, construction of civil items outside of the building continues, as does final commissioning of systems inside the building. MTS was scheduled to assume control of the facility in early 2023; however, as of July 2023, there was a dispute over the completeness of the OMF that was delaying turnover from MTA to MTS. The PMOC recommends that this issue be added to the Risk Register, and mitigation

plans and an estimate of cost and schedule impacts be developed. ***As of September 2023,*** MTA indicates that it has developed a punch list of items that must be completed before MTS will accept the building. MTS is currently installing rail and other features both inside and outside of the building. MTS will complete the tracks for storage and testing of LRVs.

- Based on the status of construction, MTA determined which items would be completed before mobilization of the replacement D-B contractor. OSF construction activities were expected to be completed before September 1, 2022, but schedules provided by MTA indicated completion of most OSF activities in mid-2023, with some activities continuing into November 2023. OSF utility relocations that are behind schedule continue to cause impacts to MTS's work, and delays in OSF activities have driven two MTS change orders ***as of September 2023.*** MTA and PLTP have mobilized the Tiger Team to develop schedule alternatives to mitigate additional delays driven by OSF work between March 2023 and July 2023. MTS asserts that there are at least 88 days of additional delay due to incomplete OSF work.
- MTA's Equal Employment Opportunity Officer assigned to the project is Marcques Washington, and he is supporting MTS in its hiring program. The former contractor, PLTC, left the project with a shortfall in meeting the requirements of its DBE program, and MTS is required to address this shortfall of approximately $12 million in contract value. In March 2023, MTA reported that the design portion and the nationally targeted worker program of the P3 contract had exceeded the DBE program goal, but the percentage DBE participation for general construction is below the goal. In April 2023, Mr. Washington reported that the DBE participation statistics are improving as construction continues. The PMOC continues to recommend that MTA report the projected values for these goals at the end of the project in addition to the current achieved values to allow for a better evaluation of progress toward meeting the goals. MTA has been performing audits each month to monitor the Davis Bacon prevailing wage requirements. To date, only very minor issues have been identified during these audits.

2.11. Vehicle Technology and Procurement

The LRVs are five-car vehicles consisting of 136-foot-long, articulated units. Twenty-five vehicles (22 in operation and 3 spares) will be provided under the FFGA for the opening year. PLTP executed the LRV contract with CAF on June 17, 2016, and issued NTP to CAF on July 5, 2016, for the 25 FFGA vehicles. NTP to CAF also included one LRV outside of the FFGA.

Later, MTA added two additional vehicles (outside of the FFGA) by change order to CAF's contract, for a total of 28 vehicles to be supplied by CAF. The two additional LRVs will support better operations. MTS has incorporated these two additional LRVs into its scope of work (in addition to the cost and terms of LRV storage in Elmira).

Vehicle carshell manufacturing activities, which are coordinated with design progress, occurred until the facility in Spain was shut down in late March 2020 due to supply chain issues and to limit

the spread of COVID-19. The final assembly facility in Elmira, New York, was shut down in early April 2020 due to New York State restrictions related to COVID-19 and reopened on May 18, 2020, at 50 percent of its workforce capacity. As of early August 2020, both the Spain facility and the Elmira facility were back to 100 percent staffing levels.

The final assembly of vehicles is being performed in CAF's facility in Elmira. MTA, its PMC, and SNC-Lavalin are meeting weekly with CAF to resolve all open items for design, testing, and manufacturing activities. First Article Inspections (FAIs) for Interior and Cab were completed on March 18, 2021, and FAIs for Exterior, Roof, and Undercar were completed on April 2, 2021.

Shipment of the first vehicle to the project site was expected in late spring of 2021. The lack of available storage at the yet-to-be-completed Glenridge OMF requires use of an offsite storage facility where vehicles can be stored, occasionally powered, and occasionally "exercised" or moved on tracks. MTA and CAF negotiated an agreement for CAF to store the completed LRVs in Elmira. That storage agreement subsequently transferred to MTS, and its terms are part of MTS's agreement. Twenty-six LRVs have been designated as Ready for Shipment and have been placed into storage in Elmira. MTS's proposed construction schedule establishes when the test tracks will be available for acceptance of the railcars at the Glenridge OMF. Currently, the schedule indicates that initial deliveries of LRVs will occur in early 2024.

The status of the LRV manufacturing as of ***September 28, 2023,*** is:

- To date, 130 carshell segments have been assembled in Spain.
- All 130 carshells have been delivered to CAF's facility in Elmira, New York.
- All 25 full LRVs in the FFGA are designated as Ready for Shipment and are in storage at CAF's Elmira facility. One additional LRV (outside of the FFGA) is also Ready for Shipment and in storage.
- Two additional LRVs are under contract. These LRVs are not a part of the FFGA, but rather are an addition to the contract by MTA to support rail operations. Manufacture of the two additional vehicles (ten cars) in Spain is now complete. All ten cars have been delivered to Elmira for final assembly and static testing.

2.12. Project Cost

Table 5 summarizes the project's current actual expenditures and EAC, and compares them to the project budget as reported in MTA's SCC Workbook dated June 1, 2016, which is the basis of the project's FFGA. The project's documented expenditures total ***$3,038,142,529.26 through August 30, 2023.*** Refer also to **Table 4 – FFGA Core Accountability Items** in the **Executive Summary** section of this report for details on the project's planned and actual expenditures. The following table shows project budgets, actual expenditures, and forecast at completion amounts through ***August 30, 2023***, compared with the project budget as reported in MTA's SCC Workbook dated June 1, 2016, and MTA's current working budget.

Table 5 – Project Cost Versus Budget

SCC	Cost Category	Budget (June 1, 2016 Original FFGA)	Working Budget[1] (April 3, 2023 Final Recovery Plan)	Expenditures *(as of August 30, 2023)*[2]	Forecast at Completion[1]
10	Guideway and Track	$280,620,726	$371,508,682	***$188,400,694***	$371,508,682
20	Stations	$114,857,016	$161,159,923	***$20,741,465***	***$166,123,172***
30	Maintenance Facility	$94,155,591	$93,454,387	***$86,085,817***	***$94,656,313***
40	Sitework	$521,968,990	$796,081,289	***$530,656,204***	***$912,429,099***
50	Systems	$263,887,313	$517,256,196	***$146,425,111***	***$519,880,064***
	Subtotal 10–50	$1,275,489,636	$1,939,460,477	***$972,309,291***	***$2,064,701,455***
60	Right-of-Way	$229,600,000	$329,126,214	***$291,870,036***	$329,126,214
70	Vehicles	$212,940,927	$292,780,600	$151,705,322	$292,584,921
80	Professional Services (total)	$571,658,114	$2,247,359,915	***$1,622,257,880***	$***2,327,382,618***
80.01	Project Development	$87,149,878	$85,469,312	$85,469,312	$85,469,312
80.02	Engineering	$139,766,036	$196,722,013	***$214,448,720***	***$232,728,985***
80.03	Project Management for Design and Construction	$148,555,323	$655,185,988	***$391,650,747***	***$641,685,062***
80.04	Construction Administration and Management	$83,269,280	$734,209,735	***$488,156,931***	***$800,943,037***
80.05	Professional Liability; Other Non-construction Insurance	$34,534,796	$85,701,891	***$78,771,856***	***$78,771,846***
80.06	Legal; Permits; Review Fees by Other Agencies, Cities, etc.	$5,805,117	$341,013,320	***$305,506,851***	***$339,015,520***
80.07	Surveys, Testing, Investigation, Inspection	$15,164,346	$92,504,023	***$53,472,038***	***$92,090,621***
80.08	Startup	$57,413,338	$56,553,635	$4,781,535	***$56,678,235***
	Subtotal 10–80	$2,289,688,678	$4,808,727,206	***$3,038,142,529***	***$5,013,795,208***
90	Unallocated Contingency[2]	$90,535,748	$307,293,174	*--*	***$102,225,172***
100	Finance Charges	$0	$0	$0	$0
	Total	$2,407,030,288	$5,116,020,381	***$3,038,142,529***	$5,116,020,380

[1]The Purple Line project Working Budget and Forecast at Completion are based on the accepted FRP, dated April 3, 2023, and subsequent change orders.

[2]The Unallocated Contingency Expenditures will be reflected in SCC 10–SCC 80 expenditures as they occur. As of ***August 30, 2023,*** the committed unallocated contingency amount is ***$205,068,002.***

MTA developed the FRP unallocated contingency amount of $307,293,174 by utilizing a Quantitative Risk Analysis, and the RCMP dated April 21, 2023, recommended that amount for unallocated contingency.

On July 15, 2021, the PMOC requested that MTA provide revised budget tracking information that accurately reflected the combined IRP and OSF expenditures. MTA prepared a summary of actual versus planned expenditures for high-level OSF activities for review by the PMOC. MTA submitted the latest version of the summary that provides information through December 2022.

MTA forecasted OSF expenditures of $556.15 million, which exceeded the original OSF budget by approximately $136 million. In May, June, July, and August 2023, the PMOC requested an OSF budget update. The extended OSF schedule and other changes have added cost since the December 2022 budget update. ***On September 28, 2023, MTA verbally reported (not in writing) to the PMOC an EAC for OSF of approximately $469 million. This EAC amount does not include the previously executed and potential future MTS change orders driven by OSF delays; those costs are transferred to the MTS tracking tables. The PMOC has requested additional information to better understand the EAC.***

In July 2023, the Maryland BPW approved a change order that had a total addition of $204,954,610 of cost and 207 additional days of contract time. The net budget impact to the capital construction portion of the project was $137,144,705, and the balance of the total amount was applied to the financing and lost return on investment for PLTP. The $137,144,705 will be expended over the course of construction; therefore, this amount does not immediately show up in the MTA budget reports. However, that amount, plus the amount of the earlier change order included in the FRP, represents significant utilization of the budget contingency. The PMOC recommends that MTA closely monitor these cost overruns and the potential need for contingency.

2.12.1. Project Funding

The funding for the project, as reflected in Attachment 3 of the FFGA, is shown in Table 6.

Table 6 – Baseline Cost Estimate by Source Funding

Initial New Starts Project Cost	Total FFGA Cost in Year of Expenditure (YOE) Dollars	Federal 5309 New Starts in YOE Dollars	Federal 5307 in YOE Dollars	Federal American Rescue Plan Act (ARPA) in YOE Dollars	Federal Surface Transportation Program (STP) in YOE Dollars	Local in YOE Dollars
10 Guideway & Track Elements	$280,620,726	$106,464,907	$0	$0	$0	$174,155,819
20 Stations, Stops, Terminals, Intermodal	$114,857,016	$43,747,594	$0	$0	$0	$71,109,422
30 Support Facilities, Yards, Shops, Admin. Bldgs.	$94,155,591	$35,721,760	$0	$0	$0	$58,433,831
40 Sitework & Special Conditions	$521,968,989	$197,858,301	$0	$0	$0	$324,110,688
50 Systems	$263,887,313	$100,116,405	$0	$0	$0	$163,770,908
60 ROW, Land, Existing Improvements	$229,600,000	$87,108,116	$0	$0	$0	$142,491,884
70 Vehicles	$212,940,927	$80,787,818	$0	$0	$0	$132,153,109
80 Professionals Services	$571,658,113	$216,881,800	$36,000,000	$0	$0	$318,776,313
90 Unallocated Contingency	$90,535,748	$31,313,299	$0	$0	$0	$59,222,449
100 Finance Charges	$26,805,863	$0	$0	$0	$0	$26,805,863
Total Project Cost (10-100)	**$2,407,030,286**	**$900,000,000**	**$36,000,000**	**$0**	**$0**	**$1,471,030,286**

Source: Maryland Purple Line Project Recovery Plan dated April 3, 2023.

2.13. Project Schedule

The March 15, 2017 progress update of the master project schedule served as the only approved version of the schedule until September 2022. Numerous submissions of schedule updates from

PLTC were not approved for various reasons, but the primary reason was the inability of MTA and the P3 concessionaire to agree on the schedule impacts of the approximately one-year delay in the execution of the FFGA. In response to a letter that FTA issued to MTA in early August 2018 expressing concerns about the amount of time that the project had advanced without an approved schedule, MTA prepared a working schedule update of the master project schedule. The working schedule update was based on the negotiations of the P3 contract schedule occurring at the time, but the update was not based on a mutually agreed-upon P3 contract schedule.

In late April 2020, PLTC notified PLTP that, based on its forecasting of schedule delays on the project (which were not mutually agreed upon), PLTC intended to exercise the clause in its P3 contract with PLTP that allows it to terminate the contract for design and construction services under the P3 contract if delays exceed 365 days. MTA sent a formal request to PLTP for a response that included a definitive path forward for PLTP's intended management of the P3 contract. On May 14, 2020 (the date the response to the formal request was due), PLTP submitted its response, which stated that PLTP intended to continue to negotiate with PLTC to retain PLTC as part of the P3 concessionaire team. On June 23, 2020, PLTP sent a formal Notice of Unconditional Election to Terminate the P3 Agreement, although PLTP indicated a willingness to negotiate a settlement. On June 24, 2020, MTA sent a Formal Notice of Concessionaire Default. This notice refuted the validity of the PLTP delay claims and stated that if PLTP failed to perform, MTA had a number of options related to the agreement. Through late July 2020, construction activities continued at the level previously planned, and construction progress was not affected.

In early August 2020, PLTC and subcontractors demobilized equipment, materials, and personnel. In response, the Maryland Attorney General filed a motion for a TRO that prevented PLTP from abandoning the work or demobilizing. Upon issuance of the TRO, the contractor and subcontractors remobilized some equipment and restarted many construction activities. A hearing to uphold or rescind the TRO was held on September 14, 2020. The court rescinded the TRO, allowing PLTP to leave the project. Through negotiation, it was determined that PLTP would remain on the project, although PLTC would not.

MTA contracted with numerous subcontractors to continue the project. MTA developed organizational options with respect to construction management, resident engineers, inspectors, and other staff needed to move forward select project activities.

It was certain that the project schedule as reflected in the FFGA would be negatively affected, and a Recovery Plan for the project, including a revised project schedule with adequate schedule contingency to address remaining project risks, would be required. MTA submitted its draft IRP to FTA in December 2020, and FTA approved the IRP on January 12, 2021. A schedule for the period during which the D-B contractor was to be replaced was developed, and MTA monitored project progress against the schedule.

PLTP and MTA continued to coordinate during the financial process and State of Maryland approvals for the replacement D-B contractor. In addition, MTA successfully coordinated other key issues that needed to be resolved before PLTP could execute the contract with MTS.

The following is a summary of IRP milestones:

- January 6, 2021 – PLTP issued a Request for Qualifications (RFQ) for replacement D-B contractors.
- March 8, 2021 – PLTP issued an RFP to the short list of replacement D-B contractors based on the RFQ.
- October 15, 2021 – PLTP received RFP responses.
- November 5, 2021 – PLTP and MDOT/MTA selected the replacement D-B contractor firm (MTS).
- January 26, 2022 – BPW approved the replacement D-B contractor, contract amendments, schedule, cost, and financing.
- April 11, 2022 – Private activity bonds went to market.
- September 12, 2022 – MTA approved the Initial Baseline Schedule (IBS).
- October 14, 2022 – MTS was required to have commenced action on the 11 critical elements that are specified in the D-B contract. At the December 2022 PMOC meeting, MTA confirmed that MTS missed the 180-day window to commence action on 3 of the 11 critical elements.
- October 28, 2022 – MTA was required to have submitted a draft FRP to FTA and the PMOC for review and comment. On October 4, 2022, MTA submitted the draft FRP to FTA and the PMOC for review.

A milestone not specifically mentioned in the IRP is the requirement to extend the current RSD. The PMOC therefore added the following milestone to this list:

- December 31, 2022 – The RSD in the original FFGA is December 31, 2022. MTA requested an extension to the current RSD identified in the original FFGA. FTA has now accepted the FRP, which indicates a revised RSD of February 28, 2028.

The schedule included in the FRP was considered to be the new baseline schedule. The MTS master schedule incorporated the schedule recovery of implementing Maintenance of Traffic and construction activity resequencing, at a cost of $21,343,588, they were able to reduce schedule delays from 218 days to 81 days. These schedule delays are a result of OSF utility adjustments that fell behind schedule. MTS has indicated that delays continue to occur as a result of the MTA-managed OSF work. The second OSF-delay-driven change order, as approved by the BPW in July 2023, added 207 days to MTS's RSA date.

This addition to the RSA date represents a significant use of schedule contingency, which is a concern considering the remaining duration of the project. In an effort to mitigate continuing OSF delays**,** MTA has resumed the Tiger Team process to develop schedule alternatives. OSF construction activities were expected to be completed before September 1, 2022, but schedules provided by MTA indicated completion of most OSF activities in mid-2023, with some activities continuing through November 2023. OSF utility relocations that are behind schedule continue to cause impacts to MTS's work, and as of July 2023, delays in OSF activities have driven two change

orders. MTA and PLTP have mobilized the Tiger Team process to develop schedule alternatives to mitigate additional delays driven by OSF work between March 2023 and July 2023, which are currently forecasted by MTS to reach 88 days of delay.

2.13.1 Key Milestones

Table 7 shows the current key milestone dates for the project for the prior approved (March 15, 2017) progress update of the master project schedule and the MTA master schedule incorporated in the FRP dated April 3, 2023. Issuance of NTP to PLTP on April 14, 2022, triggered the contract requirement that an MTA-approved MTS IBS for the full project be in place within 120 days of financial close (by August 14, 2022). In January 2022, MTA submitted a draft version of the master schedule for FTA and PMOC review, and FTA and the PMOC transmitted their review comments to MTA in April 2022. MTS submitted its IBS, and on September 12, 2022, MTA approved it. MTS submitted the 120-day mobilization schedule, which MTA also approved.

In August 2022, MTA and the PMOC discussed the current state of the baseline schedule, particularly the inclusion of adequate float to address schedule risk. The P65 date that MTA proposed before the risk workshop held in May 2022 included approximately seven months of float and an RSA date in October 2026. After MTA performed the Quantitative Risk Analysis for the updated RCMP, MTA added additional float to address known and unknown schedule risk. The RSD proposed in the FRP is February 28, 2028, ***and the*** master schedule dated ***September 1, 2023,*** currently indicates that only six months of schedule float remain.

The PMOC recommends that MTA closely monitor schedule contingency and the corresponding budget contingency when evaluating the RSA date/RSD and the EAC that have been incorporated into the FRP. The information in Table 7 will be updated once the schedule reviews and approvals are complete.

Table 7 – Key Milestone Dates

Activity	Prior Approved Master Project Schedule (March 15, 2017)	MTA Master Schedule (September 1, 2023) (working schedule)
Locally Preferred Alternative Approval Date	08/04/2009 (A)[1]	---
FTA Approval to Enter Preliminary Engineering	10/07/2011 (A)	---
FTA ROD	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 through 03/02/2016 (A)	---

Activity	Prior Approved Master Project Schedule (March 15, 2017)	MTA Master Schedule (September 1, 2023) (working schedule)
BPW Approval of P3	04/06/2016 (A)	---
P3 Commercial Close	04/07/2016 (A)	---
Limited NTP for P3 Engineering	04/07/2016 (A)	---
MTA Submit FFGA Application	05/24/2016 (A)	---
P3 Financial Close	06/17/2016 (A)	---
FFGA Signed	08/22/2017 (A)	---
Start of First Major Construction Activity	08/28/2017 (A)	---
All Significant ROW Acquisition and Relocation	As needed by construction	---
Commencement of Contract Work for Replacement D-B Contractor (MTS)	---	04/14/2022 (A)
Commencement of Integration Testing	---	07/28/2025
All Segments Complete Construction (with Contingency)	---	02/19/2027
Revenue Service Availability per P3 Amendment (with Contingency)	---	***07/02/2027***
FFGA RSD Date (Includes Contingency)	12/31/2022	02/28/2028

[1] A = Actual.

2.13.2 90-day Look-ahead

The critical 90-day (***October 2023 through December 2023***) look-ahead includes activities that MTA highlighted in the recent monthly meeting with the PMOC. MTA and MTS also are preparing four-week look-ahead schedules to manage interim activities. Key activities that MTA has identified for the short term are:

- Retaining wall, OCS foundation, and bridge structure construction in multiple locations.
- Water, sanitary sewer, and storm sewer construction in multiple locations.
- Completion of MTA-managed OSF activities.
- Station construction at ***ten locations***.
- Overhead electrical line, communications line, and buried gas line relocations.
- TPSS installation and commissioning.
- MTA's closeout of Glenridge OMF punch lists and turnover of the facility to MTS.
- Blasting at the Bethesda shaft. Construction of the Bethesda Enclosed Trainway grade beam.
- Track construction at and around the Glenridge OMF.
- ***Assembly of the two additional LRVs 127 and 128.***

- ***MTA attendance at the CAF facility tour in Elmira.***

2.13.3 Critical Path Activities

In the MTA master schedule update ***dated September 1, 2023***, the critical path runs through the activities in Segments 7 and 8 of Utility Relocations, Civil, and Systems packages, and then Trial Running and Systems Testing.

2.14 Project Risk

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

During the approximately one-year period during 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 Quantitative Risk Analyses, or perform formal updates of the Risk Register. However, the Purple Line project management team did assess and respond to the risks associated with the unforeseen chain of events related to the lawsuit.

The project team resumed formal risk management 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 in draft form in January 2018, and was updated further and reissued in March 2018. As an ongoing process, MTA currently is performing updates of the Risk Register periodically, though somewhat less frequently than bimonthly (the frequency established in its RCMP). The current status of the RCMP is discussed in the **Project Management Plan and Sub-plans** section of this report, above.

MTA provides copies of significant updates of the Risk Register to FTA and the 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; the project's top five project risks are included as Attachment C of this report and are updated quarterly. A risk management workshop was held on January 26, 2021, at which the PMOC and FTA participated. The workshop focused on the resolicitation period for the replacement D-B contractor (January through October 2021).

Once the replacement D-B contractor was under contract, risk updates were prepared. The project held a risk workshop the week of May 2, 2022, at which the PMOC and FTA participated in an OP 40 risk and contingency review that evaluated cost, schedule, and project contingency. Confirmation and finalization of the Risk Register, the Quantitative Risk Analysis, and an update of the RCMP are components of the required FRP. FTA provided a summary of the risk workshop to MTA on June 22, 2022, for MTA's consideration and incorporation into its management plans and contingency evaluation. MTA provided responses to FTA comments on the risk workshop summary on July 15, 2022, and clarification on August 25, 2022. In October 2022, MTA submitted RCMP Version 15 to FTA and the PMOC for review. In February 2023, FTA and the PMOC provided comments on RCMP Version 15 to support MTA's development of the project's

budget contingency and schedule contingency. On April 21, 2023, MTA provided a revised RCMP to FTA and the PMOC for review, and on May 22, 2023, FTA accepted the revised RCMP with comment. In June 2023, MTA held its quarterly Risk Management Committee meeting, at which it updated the Risk Register to reflect retired and new risk items. Five of the seven new risk items are related to disputes with MTS. Two significant risks were added to the Risk Register—one related to numerous design changes that occurred during OSF but were not reflected in the amended P3 Agreement and one related to a very specific intelligent interface device.

As of September 2023, MTA has indicated that it will conduct a risk workshop and a Quantitative Risk Analysis in ***early November 2023*** in conjunction with the completion of OSF activities.

2.15 Quality Assurance/Quality Control

The project's QA/QC is addressed in Section 10 of the PMP, the Quality Program Plan, and the updated MTA QAP Revision 8.0, which incorporates the quality plans prepared by PLTC. The **Project Management Plan and Sub-plans** section of this report, above, discusses the most current versions of the PMP and the QAP. MTA also submitted to FTA the package of inter-related quality plans prepared by the P3 concessionaire after the package was reviewed and approved by MTA.

MTA obtained and used PLTP's quality logs and other applicable documents and procedures for use during the transition to the replacement D-B contractor. Several former subcontractors are now under contract with MTA and conducted QA/QC activities during the replacement D-B contractor solicitation period. The budget to address nonconforming construction by PLTC remains a concern as of July 2023. MTA incorporated known defects into the MTS contract; however, MTA has not clarified the specific budget that will be used to rectify defects found since the contract with MTS was executed. MTA estimates that the potential magnitude of this budget impact will be no more than $10 million, and the current Risk Register carries this risk item.

In October 2022, MTA submitted QAP Version 10 to FTA and the PMOC for review, and on March 8, 2023, FTA provided review comments on the QAP to MTA. MTA provided a revised QAP to FTA and the PMOC in May 2023.

The project has continued to conduct its monthly meeting to review the QA/QC activities performed by the Purple Line project team, including those activities performed by the PMC and the GEC. Documentation from this meeting is distributed and maintained. The project's Monthly Progress Report to FTA also contains a summary of the significant current QA/QC activities and events, including quality audits and quality reviews.

In September 2023, quality management topics included quality process improvements, records storage, field inspections to close open issues, equipment testing inspections, design submittal reviews, records spot checks, approval of MTS's quality management plans, MTS offsite inspections at the fabrication location for OCS poles, and planning of the monthly QC meetings.

In November 2021, MTA's quality lead for the Purple Line project, Rene Schroeder, retired. Roland Carroll, the Purple Line systems and construction safety lead, added the quality lead role to his other Purple Line roles. In February 2022, MTA provided a white paper outlining

Mr. Carroll's experience, his recent training, and the proposed supporting staff related to his new quality management role. The PMOC has evaluated this change as a part of the PMP review and will continue to monitor MTA's management capacity for this function and all positions through ongoing oversight activities.

The PMOC has requested that MTA provide more complete documentation for quality-related activities. ***In September 2023, MTA showed the PMOC a quality process dashboard that MTA developed to display monthly statistics on audits, Deficiency Notices, Non-conformance Reports, and QOARs.***

On September 20, 2023, the PMOC and MTA held a virtual meeting to discuss the outstanding comments on the MTA QAP to help resolve those comments and to support improved quality processes.

2.16 Safety and Security

PLTP has conducted 44 Preliminary Hazards Analysis (PHA) workshop sessions to date. These workshops were held to resolve MTA's comments on the PHAs completed to date.

To support the ultimate Safety and Security Certification of the Purple Line project, the PLTP System Safety team completed development of its first DCCC in May 2017 and submitted it to MTA for approval. MTA (assisted by the PMC) reviews the DCCCs as part of the Final Design package, according to the established submittal review process. According to PLTP, the DCCCs were being verified before the issuance of RFC packages. To date, an estimated ***98 percent*** of the DCCCs have been verified. All previous comments on PLTP's Certified Elements List (CEL), which includes operations and maintenance and system integration testing elements, have been resolved, and CEL Revision 2 was accepted in March 2020. The Certified Items List (CIL) Revision 1 has been accepted. The next revision of the CIL is expected after MTS completes the design. MTA will provide the revised CIL to FTA and the PMOC as soon as it is completed. Approximately ***23 percent*** of the CSCCs have been verified to date.

MTA chairs a Safety and Security Certification Committee (SSCC) that reviews, comments on, and approves any PLTP hazard management and safety and security certification issues. The first meeting of the MTA SSCC was conducted on March 20, 2018. Since July 11, 2018, the SSCC meeting has been held regularly and will continue as a monthly meeting until the level of activity requires more frequent meetings. ***As of September 2023,*** monthly SSCC meetings continue.

PLTC submitted a Threat and Vulnerability Assessment, and on July 15, 2019, MTA accepted and verified the comment responses and approved PLTC's Threat and Vulnerability Assessment. PLTC then completed its Threat and Vulnerability Assessment process.

MTA continues to conduct bimonthly Fire/Life Safety meetings with Montgomery County and Prince George's County. The meetings provide a basis for the counties' emergency responders to understand the features of the Purple Line systems and to resolve any concerns. Topics of discussion include: Police Department MOUs; Fire Department connection and hydrant locations; access, signage, and station naming conventions; MOUs for training; the PHA at the Glenridge OMF maintenance gate; station names; and addresses/emergency phone numbers for locations

along the corridor. Other topics of discussion have included closed circuit television cameras and Mobile Emergency Vehicle Response access. It is the opinion of the PMOC that MTA should emphasize resolving the project's outstanding Fire/Life Safety issues, because progress on the resolution of these issues is not apparent.

MTA police continue coordinating MOUs with local safety agencies and developing MOUs with police jurisdictions (such as the Maryland National Capital Park Police) along the Purple Line. These MOUs are related to training the existing police agencies on how to respond to transit situations. During August 2023, the PMOC reiterated that these processes have been ongoing for several years and that milestones for resolution of issues should be established.

During the September 2022 MTA/PMOC meeting, a larger related issue was discussed at length. The SSOA staff participated in this discussion as well. The crux of the issue is that MTA does not have a police force located in proximity to the Purple Line. MTA hired a consultant team to analyze alternatives for providing security and fare enforcement services for the Purple Line. Alternatives include: expanding MTA's enforcement services geographically, bringing on a third party to provide these services through a contract, or sharing police services with another party. On February 23, 2023, MTA submitted its prepared draft recommendation for providing security and fare enforcement to several State of Maryland departments. Representatives from MDOT, which is the SSOA, who are monitoring the Purple Line project development provided comments on the draft recommendation before MTA submitted it to MTA's upper management and the several state departments. In late April 2023, MTA provided FTA with the alternatives study for review. The study indicates that the preferred alternative is the development of a new Southern District of the MTA Police Department and recommends several next steps toward implementation of the new district, including hiring a commander, developing operating procedures, working on MOUs with other local jurisdictions, and developing a facility to house the district. The PMOC continues to recommend ***as of September 2023*** that MTA develop a written implementation plan that includes schedule milestones and a budget for providing security and fare enforcement services.

As required by the P3 contract, PLTP was responsible for directly implementing many of the safety and security requirements for the project, including those for construction safety and the collection and maintenance of the Occupational Safety and Health Administration (OSHA) safety statistics for the project. PLTC performed this work until its departure from the project, at which time MTA assumed responsibility. MTS transitioned into the safety and security role that PLTC held. MTS and MTA are holding regular safety and security coordination meetings.

Safety is a PMOC concern. The rate of recordable incidents remains above project goals, and MTA appears to be having difficulties with incident documentation. For the period from January 1, 2022, through ***August 2023***, the OSHA statistics are:

- TCIR (Total Case Incident Rate) (Recordable Rate) – MTS and OSF activities:
  - Actual: ***3.75/7.16*** (MTS/OSF)
  - MTA goal: 0.45

  - National average: 2.8 (for heavy civil construction)

- LTIR (Lost Time Injury Rate) (Recordable Rate) – MTS and OSF activities:
  - Actual: ***3.75/7.16*** (MTS/OSF)
  - MTA goal: 0.00
  - National average: 0.9 (Construction – heavy civil)

MTA had assumed responsibility for safety oversight until MTS assumed control of the project. As of December 2022, MTA reported that MTS needs coaching on expectations for the required reporting of safety statistics. In April 2023, the PMOC noted to MTA that both the LTIR and the TCIR have significantly increased, particularly for the MTA-managed OSF activities. In addition to the increase in incident rates, there is an apparent lack of tracking and reporting of safety issues. MTA recognizes the issue and reports that it has scheduled additional safety coordination efforts. In May 2023, the PMOC requested documentation on these additional efforts, and in July 2023, the PMOC questioned the effectiveness of the efforts. MTA acknowledges the need for safety process improvement. The PMOC recommends that MTA and MTS complete a safety process review as soon as practical and that MTA prepare a written summary. The summary should include the action items and the responsible parties for each. It is the opinion of the PMOC that there may be a lack of emphasis on safety or lack of safety-related MCC. Due to the inconsistent reporting and high incident rate of safety issues, as of ***September 2023,*** the PMOC once again requested that MTA provide written documentation related to safety process improvements. ***On September 28, 2023, MTA provided a brief document that indicated it had performed an audit and proposed several safety process improvements. Additional detail is needed for the PMOC to evaluate the proposed safety process changes. In the opinion of the PMOC, MTA's processes related to construction safety need significant improvement.***

In late October 2022, MTA submitted updated SSMP and SSCP documents in conjunction with the updated PMP. On February 13, 2023, and March 8, 2023, FTA provided review comments to MTA on the SSMP and SSCP, respectively. MTA submitted a revised SSMP to FTA on June 28, 2023, and submitted a revised SSCP on August 28, 2023. FTA approved the SSMP in August 2023 and the PMOC is nearing completion of its SSCP review.

See the **Project Management Plan and Sub-plans** section of this report, above, for the status of the sub-plans of the PMP related to safety and security. Attachment B of this report includes additional quarterly safety- and security-related information for the Purple Line project.

2.17 Americans with Disabilities Act

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

Accessibility and compliance with the ADA are required as part of the functional requirements for stations and guideway, and as part of the codes and standards for LRVs within the P3 contract

(Book 2, Part 2) for the Purple Line project. Based on project reviews conducted by the PMOC, MTA has confirmed that it included ADA compliance in its QA oversight reviews of PLTC's design packages. A full-time Purple Line project Maintenance of Traffic construction representative also monitors whether temporary pedestrian accommodations during construction continue to comply with ADA requirements. ADA compliance is included in the PMOC's periodic project reviews, during which the PMOC discusses timely project ADA-related items with the project team. Such discussions during the PMOC's most recent reviews identified no current ADA-related issues.

MTA indicates that the project is maintaining ADA accessibility along the project corridor during construction. In addition to planning for ADA accessibility, MTA and MTS respond to public concerns due to construction activities and temporary accessibility features**.**

2.18 Buy America

MTA understands that Buy America compliance applies not only to the rail vehicles but also to the 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 regulations is contained in MTA's standard clauses for its procurements, and the P3 contract contains explicit Buy America language in its Appendix 16.

Virginkar and Associates, Inc. conducted the Buy America pre-award audit and concluded that there is reasonable certainty that CAF will satisfy the Buy America requirements as stated in 49 Code of Federal Regulations (CFR) 661. MTA's interpretation is that, because the vehicle RFP was advertised before December 4, 2015 (which is the date of passage of the Fixing America's Surface Transportation Act, also known as the FAST Act), the 49 CFR 661 Public Interest Waiver that limits domestic content to a minimum of 60 percent, as opposed to the escalating domestic content requirements of the FAST Act, applies in this case. During the week of October 2, 2017, an intermediate post-award Buy America audit was conducted of CAF's facility in Elmira, New York, for added confidence that the post-delivery audit would not identify issues. CAF targeted 65 percent domestic content in the completed LRVs.

The project's Buy America compliance audit for the LRVs was conducted on November 14, 2022. In January 2023, CAF provided additional documentation requested to assist with evaluation of Buy America compliance. On August 17, 2023, MTA provided the Post-delivery Buy America Audit, dated April 21, 2023, to FTA. On that same day, MDOT also provided the Certificate of Compliance to FTA for the Post-delivery Audit of Rolling Stock Purchases. The audit indicates that the percentage of U.S. domestic content is 66.74 percent, which meets FTA requirements.

2.19 Start-up, Commissioning, Testing

MTA will begin documentation for the "Roadmap to Revenue Operations," which will include both MTA and MTS information on integration, testing, and commissioning. ***MTS indicates that it is preparing a System Integration Test Plan.***

2.20 Before-and-After Study Reporting

TBD

2.21 Lessons Learned

The resolicitation of a D-B contractor gave MTA the opportunity to apply several lessons learned to the new D-B contract documents and to amend the P3 agreement. After the May 2022 risk workshop with MTA and the PMOC, MTA provided an update on opportunities for improvement that MTA had identified during the resolicitation and is incorporating into the project. ***MTA and the PMOC will include discussion of Lessons Learned at future monthly meetings.***

2.22 Action Items

Action Items are identified at MTA/FTA Quarterly Progress Review Meetings, at MTA/PMOC Monthly Update Meetings, and at MTA/FTA Biweekly New Starts Progress Conference Calls. Action Items from the PMOC monthly call in ***September 2023*** are as follows:

1. MTA will provide updates to the OSF budget and cash flow. – OPEN
2. ***MTA will provide additional documentation of the of the findings of the internal safety process audits. – OPEN***
3. MTA will provide an increased level of detail with respect to the quality process results, with particular focus on OSF efforts. – ***CLOSED***
4. The monthly MTA/PMOC meetings will include a Lessons Learned agenda item. – OPEN
5. MTA will begin documentation for the "Roadmap to Revenue Operations," which will include MTS and MTA information on testing, commissioning, and the Integration Engineer. – OPEN
6. MTA will provide the expected date that the written plan, budget, and schedule for development of police and fare enforcement services will be ready. – OPEN

ATTACHMENT A – LIST OF ACRONYMS

ADA	Americans with Disabilities Act
ARPA	American Rescue Plan Act
ATC	Alternate Technical Concept
BFMP	Bus Fleet Management Plan
BPW	Board of Public Works
CAF	Construcciones y Auxiliar de Ferrocarriles
CEL	Certified Elements List
CFR	Code of Federal Regulations
CIL	Certified Items List
CSCC	Construction Specification Conformance Checklist
CSX	CSX Corporation
D-B	Design-Build
DBE	Disadvantaged Business Enterprise
DCCC	Design Criteria Conformance Checklist
DNR	Maryland Department of Natural Resources
EAC	Estimate at Completion
FAI	First Article Inspection
FCP	Forest Conservation Plan
FFGA	Full Funding Grant Agreement
FRP	Final Recovery Plan
FTA	Federal Transit Administration
GEC	General Engineering Consultant
IBS	Initial Baseline Schedule
IRP	Interim Recovery Plan
LOD	Limits of Disturbance
LRT	Light Rail Transit
LRV	Light Rail Vehicle
LTIR	Lost Time Injury Rate
MCC	Management Capacity and Capability
MDE	Maryland Department of the Environment
MDOT	Maryland Department of Transportation
MOU	Memorandum of Understanding
MTA	Maryland Transit Administration
MTS	Maryland Transit Solutions
N/A	Not Applicable
NEPA	National Environmental Policy Act
NTP	Notice to Proceed
O&M	Operations and Maintenance
OCS	Overhead Contact System
OHA	Operational Hazard Analysis
OMF	Operation and Maintenance Facility
OP	Oversight Procedure
OSF	Operation Step Forward
OSHA	Occupational Safety and Health Administration
P3	Public-Private Partnership
PEPCO	Potomac Electric Power Company
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 Management Plan
RCMP	Risk and Contingency Management Plan
RFC	Released for Construction
RFP	Request for Proposals
RFQ	Request for Qualifications
ROD	Record of Decision
ROE	Right of Entry
ROW	Right-of-Way
RSA	Revenue Service Availability
RSD	Revenue Service Date
SCC	Standard Cost Category
SCIL	Safety Certifiable Item List
SEIS	Supplemental Environmental Impact Statement
SIT	Systems Integration Test
SOP	Standard Operating Procedure
SSCC	Safety and Security Certification Committee
SSCP	Safety and Security Certification Plan
SSCVR	Safety and Security Certification Verification Report
SSMP	Safety and Security Management Plan
SSOA	State Safety Oversight Agency
SSP	Safety and Security Plan
SSPP	System Safety Program Plan
SSTC	Silver Spring Transit Center
STP	Surface Transportation Program
SWM	Stormwater Management
TBD	To Be Determined
TCE	Temporary Construction Easement
TCIR	Total Case Incident Rate
TDD	Transit Development and Delivery
TIFIA	Transportation Infrastructure Finance and Innovation Act
TPSS	Traction Power Substation
TRO	Temporary Restraining Order
TVA	Threat and Vulnerability Analysis
UMD	University of Maryland
USACE	U.S. Army Corps of Engineers
WMATA	Washington Metropolitan Area Transit Authority
WSSC	Washington Suburban Sanitary Commission
YOE	Year of Expenditure

ATTACHMENT B – SAFETY AND SECURITY CHECKLIST

Note: References to the System Safety Program Plan (SSPP), Safety and Security Plan (SSP), and 49 Code of Federal Regulations (CFR) Part 659 as they are contained in the FTA standard checklist form have been retained in the following update. However, it is recognized that Maryland Transit Administration is transitioning to the Public Transportation Agency Safety Plan and 49 CFR Parts 673 and 674.

Refer to the July 2020 PMOC Monitoring Report for the most recent update.

ATTACHMENT C – TOP PROJECT RISKS

An internal risk workshop to support the Interim Recovery Plan (IRP) was held on January 26, 2021. Maryland Transit Administration (MTA) and Purple Line Transit Partners (PLTP) used information from the meeting as they solicited a replacement Design-Build (D-B) contractor. At the time of the workshop, the MTA Risk Management was tracking the following risks identified during development of the IRP:

Procurement/Settlement Risks:

- PLTP solicitation of replacement D-B contractor:
  - Market resolicitation in a compressed time frame
  - Delay in finalizing solicitation
  - Weak bidder interest – two or fewer proposals
- D-B contract and other contract negotiations

Schedule Risks:

- Inability of MTA subcontractors to meet the Operation Step Forward (OSF) schedule dates, causing delay to certain activities to be performed by the replacement D-B contractor
- Unanticipated delay to the replacement D-B contractor "ramp up" of activities, resulting in impacts to the critical path anticipated by MTA

Design and Construction Risks:

- Performance risk assumed by MTA by contracting for and performing work during the replacement D-B contractor resolicitation period (subcontracting risk)
- Quality, commercial, coordination, and unforeseen conditions unknown to MTA at the time of assumption of former Purple Line Transit Constructors subcontracts

A risk workshop was held May 3 through May 5, 2022. After the risk workshop, MTA prepared supplementary or updated documents for review, including an updated Risk Register. FTA provided a risk summary to MTA on June 22, 2022, for MTA's consideration when updating risk, contingency, and other project management plans. MTA provided a response to each of the comments on the risk summary to FTA on July 18, 2022, and provided further clarifications on August 25, 2022. MTA incorporated the FTA comments in the revised Risk and Contingency Management Plan (RCMP) that is a part of the Final Recovery Plan.

On October 7, 2022, MTA submitted RCMP Version 15 to FTA and the PMOC for review. FTA provided review comments to MTA on February 16, 2023, and MTA prepared a revised RCMP and submitted it to FTA on April 21, 2023. On May 22, 2023, FTA accepted the revised RCMP with conditions.

In April 2023, MTA presented the following top project risks:

1. Construction – Exhibit 24 Utility Adjustments – Significant
2. Construction – RCO1 and RCO7 Utility Delays – Significant
3. Design – Temporary Construction Easement Extensions – High

4. Construction – Exhibit 24 Utility Adjustments Verizon – High
5. Construction – Unknown Existing Construction Defects – High
6. Market – Unknown Unknowns – High
7. Construction – Utility Relocation – High
8. CSX Flaggers – High

In June 2023 at the Quarterly Risk Management Committee Meeting, MTA added the following top project risks:

9. Design – Intelligent Interface Device – Significant
10. Construction – Owner Furnished Materials – Significant

As of September 2023, MTA has indicated that it will conduct a risk workshop and a Quantitative Risk Analysis in ***November 2023, following*** the completion of OSF activities.

ATTACHMENT D – AWARDED CONTRACTS

A significant update to awarded contracts is forthcoming due to the transition within the original Public-Private Partnership concessionaire and Maryland Transit Administration's (MTA's) assumption of some, but not all, subcontracts. Included below is information that MTA prepared for the May 15, 2023 Quarterly Progress Review Meeting packet. The same information was provided for the August 9, 2023 Quarterly Progress Review Meeting, but it does not reflect the recent change order attributed to the OSF delays or several other smaller change orders that MTA is tracking. Please note that the total shown in this table for contracts awarded does not reflect the full project value.

Major Contracts:

Company	Vendor Type	Contract No.	Baseline Amount	Change Order Totals	Current Amount	Pending Change Orders
PB/RK&K	Engineers/ Architects	MTA-1054A	$12,000	$1,850	$13,850	
STV/Jacobs	Engineers/ Architects	MTA-1054B	$8,000	$1,300	$9,300	
AECOM/ RK&K/PB	Engineers/ Architects	MTA-1264A	$60,000	$338,500	$398,500	
Gannett Fleming/WRA	Engineers/ Architects	MTA-1265B	$80,000	$71,000	$151,000	
Purple Line Transit Partners	P3 Concession (design build portion only)	PUR16032PP	$1,988,816	$1,341,310	$3,330,126	
Total			**$2,148,816**	**$1,753,960**	**$3,902,776**	**0**

ATTACHMENT E – ROLLING STOCK VEHICLE STATUS REPORT

Date: September 28, 2023

Vendor: Construcciones y Auxiliar de Ferrocarriles (CAF)

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

Year: The first vehicle was completed in 2021, and currently 26 vehicles are designated as "Ready for Shipment." Completion of the storage and testing facilities at the Glenridge Operation and Maintenance Facility (OMF) has been delayed, so Maryland Transit Administration (MTA) and CAF negotiated terms for storage of vehicles at the CAF facility in Elmira, New York. The storage agreement has now transferred to the replacement Design-Build (D-B) contractor, Maryland Transit Solutions (MTS).

Quantity: 25 vehicles (125 cars) original contract (Full Funding Grant Agreement [FFGA]). One vehicle (5 cars) was added to the original CAF authorization by MTA, outside of the FFGA.

2 vehicles (10 cars) were added in July 2021 via change order, also outside of the FFGA.

Identification: The original light rail vehicles (LRVs) will be numbered from 101 through 126. The two additional LRVs will be numbered 127 and 128, respectively.

New Technologies: None planned (all major suppliers have service-proven equipment).

Status and Significant Activities:

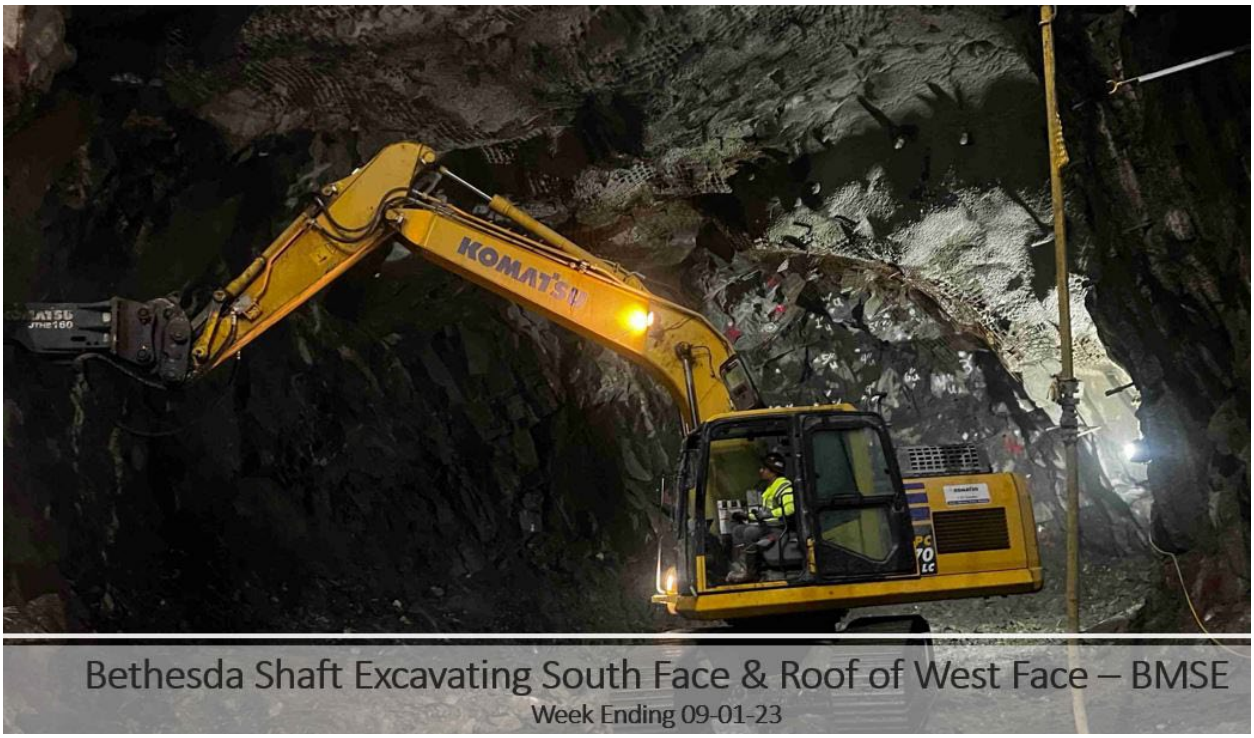
- As a part of the original order, 130 cars were assembled in Spain, all of which were delivered to CAF's facility in Elmira, New York for final assembly and static testing. Manufacture of the additional 2 vehicles (10 cars) in Spain is complete. All 10 of those 10 cars have been delivered to Elmira for final assembly and static testing.
- Delivery of finished vehicles was expected to begin in spring 2021; however, because the Glenridge OMF is not ready to accept railcars, MTA and CAF have negotiated an agreement for CAF to store the completed cars in Elmira.
- Cost risk for delivery of the finished vehicles has been transferred to MTS. If delays in construction cause a delay, then MTS is responsible to CAF for additional storage cost.
- Twenty-six LRVs have passed static testing, have been designated as Ready for Shipment, and have been placed into storage in Elmira. These include vehicle 110, which was returned to Ready for Shipment status after a second period in static testing.
- Delivery of the first of the original 26 vehicles is currently scheduled for early 2024. Approximately one vehicle per week will be delivered thereafter. The Glenridge OMF

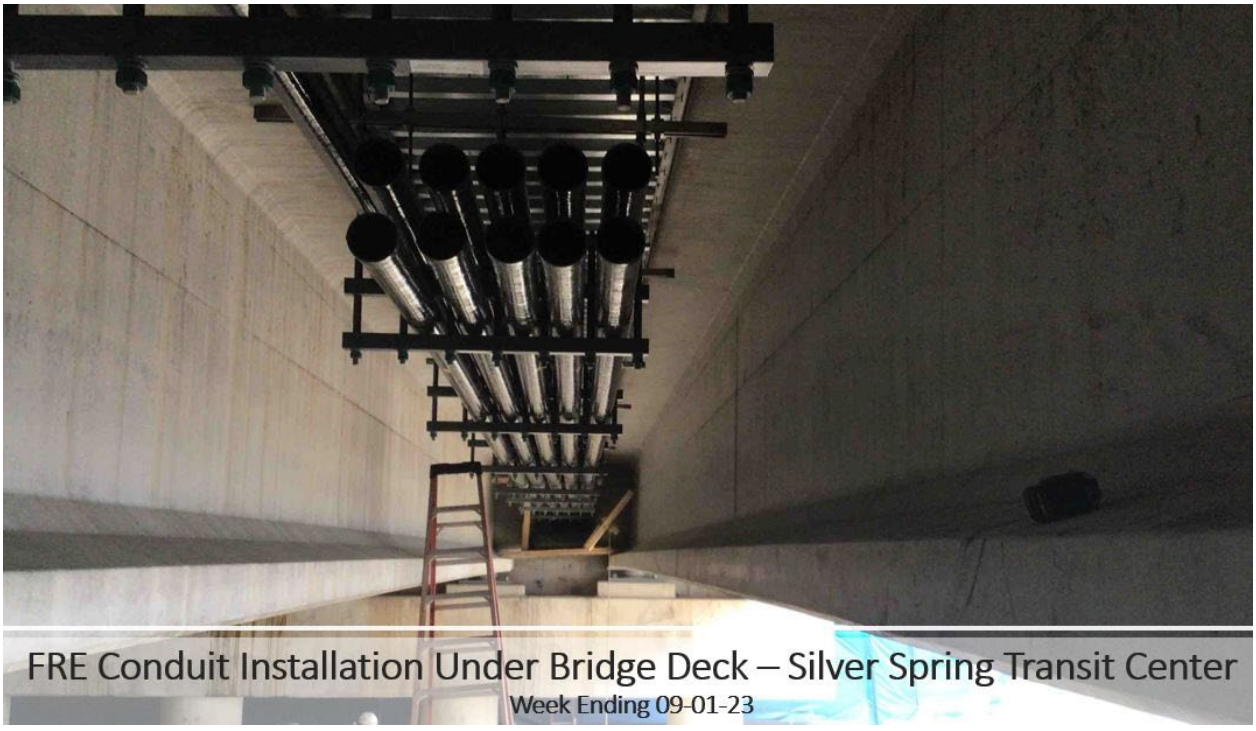
will be able to store three or four vehicles on the yard and in the building, so track must be available for additional storage. The Overhead Contact System and Traction Power Substation (TPSS) Q7 and TPSS QYG must also be completed and installed before delivery of vehicles.

- SNC-Lavalin (now an MTS subcontractor) prepares a monthly quality report documenting safety, production, and quality items at both the Spain and New York production facilities.
- MTA, the Project Management Consultant, and CAF are holding weekly coordination meetings to review all outstanding testing and factory/shop activities, including onsite testing procedures for when the vehicles are delivered to Maryland.
- MTS, which has assumed the CAF contract, is preparing and submitting to MTA reports on LRV maintenance activities required during the storage period.
- The project's Buy America compliance audit for the LRVs was conducted on November 14, 2022. In January 2023, CAF provided additional documentation requested to assist with the evaluation of Buy America compliance. On August 17, 2023, MTA provided the Post-delivery Buy America Audit, dated April 21, 2023, to Federal Transit Administration (FTA). On that same day, Maryland Department of Transportation also provided the Certificate of Compliance to FTA for the Post-delivery Audit of Rolling Stock Purchases. The audit indicates that the percentage of U.S. domestic content is 66.74 percent, which meets FTA requirements.
- The resolution of the previously identified quality issue related to the M33 bolt on the LRVs and the associated final report was expected in May 2023, but submittal to FTA has been deferred until MTA coordinates confidentiality issues with CAF. MTA determined that the issue does not impact safety, and the solution is likely the use of a higher strength bolt. The effort to resolve the issue included a significant amount of work to determine whether a bolt failure would cause debris to fall on the track. As of September 2023, CAF has identified additional occurrences of the M33 bolt issue. CAF does not believe the issue will impact delivery of the vehicles, which is scheduled for spring of 2024.

ATTACHMENT F – PROJECT MILESTONES/KEY EVENTS

Photos courtesy of Maryland Transit Administration.







Elevator Shaft Wall Prep for Concrete – Connecticut Ave. Station
Week Ending 09-08-23



Storm Drain 18-Inch RCP Installation at Inlet I-28-07 – Talbot Ave.
Week Ending 09-08-23



North & South Platform Canopy Work – Riverdale Park North-UMD Station
Week Ending 09-15-23



S27B NW Branch Bridge Abutment A Pier Cap Concrete – University Blvd.
Week Ending 09-15-23



Parallel Feed Ductbank Concrete Placement – Campus Dr. - UMD Station
Week Ending 09-22-23



Communication Conduit Installation – Riverdale Rd at 64th Ave.
Week Ending 09-22-23


Positive Feed FRE Conduit Support Tray Installation – Glenridge OMF
Week Ending 09-29-23


Embedded Track 2 Prep for Concrete Placement – Glenridge Yard
Week Ending 09-29-23

ATTACHMENT G – ROADMAP TO REVENUE OPERATIONS

In accordance with Oversight Procedure (OP) 25, the Project Sponsor will prepare the Roadmap to Revenue Operations template based on the current master project schedule, in the general format presented below. The PMOC will provide this template to the Project Sponsor as a separate electronic file for its use.

Due to the transition to a new Design-Build contractor, quarterly updates have not been made for some time. This quarterly update process for the roadmap is being reinstated as of August 2023, and the Project Sponsor is requested to provide quarterly updates, beginning in October 2023, for review and discussion.

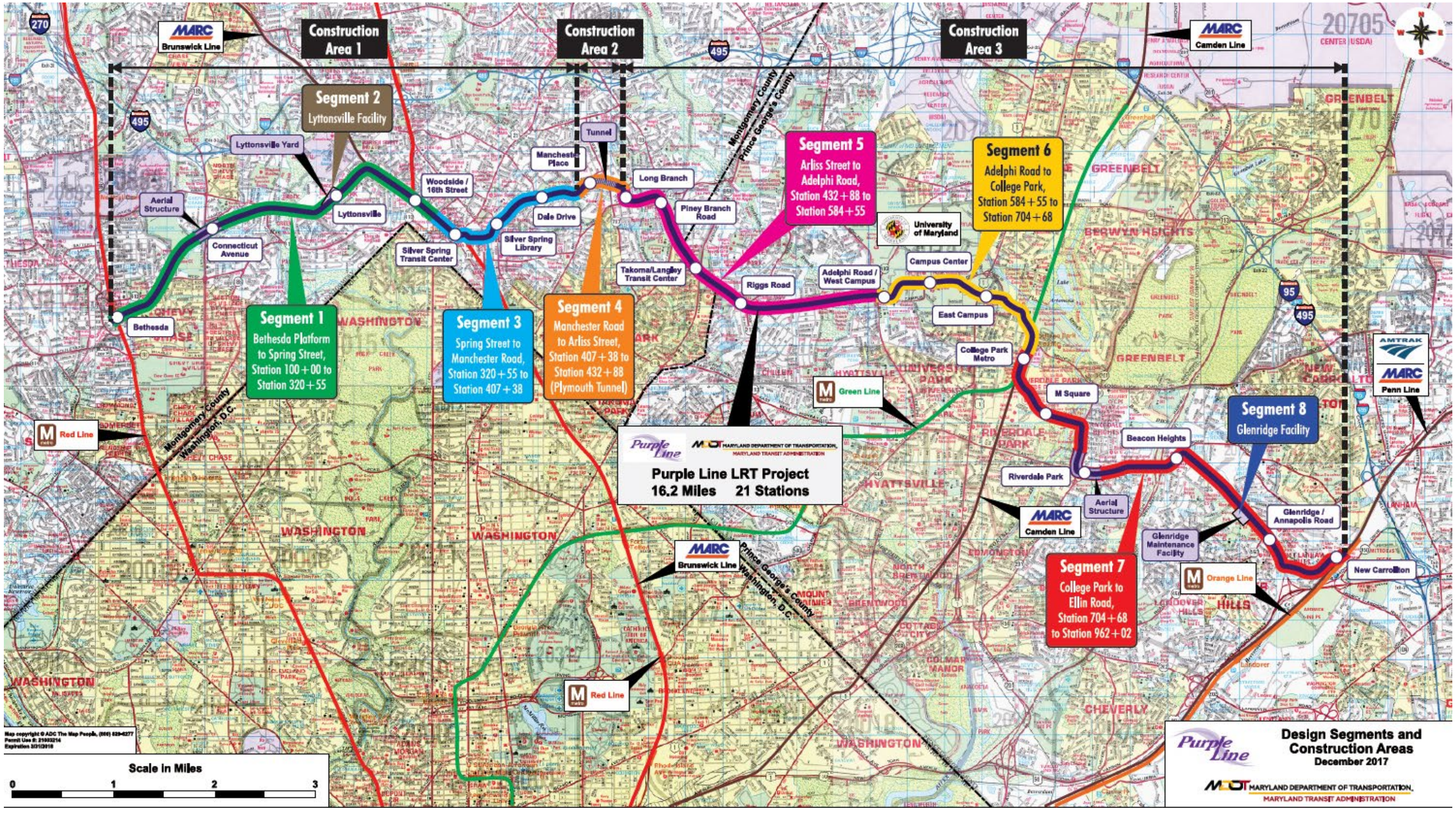
ROADMAP TO REVENUE OPERATIONS (MTA to provide updates)

Description	Responsible Party	Status	Early Start Date	Estimated Completion Date	Actual Completion Date	Agency Notes	PMOC Notes	Additional Information Required
Testing								
Finalize Comprehensive Test Plan								
Finalize / Update Systems Integration Test (SIT) Plan								
Develop Testing Schedule and Monitoring Tools								
Develop Operating Rules for Testing								
Conduct System Integrated Testing - Prioritized Traffic Signal Systems								
Certificates of Occupancy / Substantial Completion								
Finalize Operating Plan								
Finalize / Revise Standard Operating Procedures (SOPs), manuals, and rulebook as applicable								
Complete Staffing Plan								
Obtain Required Staff								
Training of Operations and Maintenance (O&M) personnel								
Emergency response plan, training and drills								
Finalize Revenue Operations Plan								
Develop / Revise Safety and Security Certification Plan								

Description	Responsible Party	Status	Early Start Date	Estimated Completion Date	Actual Completion Date	Agency Notes	PMOC Notes	Additional Information Required
(SSCP) & Safety and Security Management Plan (SSMP)								
Federal Transit Administration (FTA) Office of Safety & Security Readiness Review								
PMOC OP-54 Readiness for Revenue Operations Review Report								
Conduct Operational Hazard Analysis (OHA) and resolve other hazards / vulnerabilities								
Pre-Revenue Operations								
Develop Safety Outreach Plan								
Provide Community Outreach								
Public Timetables / Maps / Website Updates, etc.								
Grand Opening Plan								
Update / Finalize SSMP								
Finalize and/or update Safety Certifiable Item List (SCIL) and SSCP								
Implement Safety and Security Certification Committee								
Implement Fire Life Safety Committee								
Verify design criteria, Preliminary Hazards Analysis (PHA), Threat and Vulnerability Analysis (TVA), change orders are implemented within the project								
Review status of quality non-conformances								
Closeout of non-safety critical items/non-conformances								
Closeout of safety critical items/nonconformances								
Complete Safety and Security Certification Verification Report (SSCVR)								
Document Workarounds / Open Items List								

Description	Responsible Party	Status	Early Start Date	Estimated Completion Date	Actual Completion Date	Agency Notes	PMOC Notes	Additional Information Required
Verify emergency drills, tabletops, training, etc. are completed								
SSO final certification / signature								
Revenue Service								
Target Revenue Service Date (RSD)								
Public RSD								
Full Funding Grant Agreement (FFGA) RSD								

ATTACHMENT H – PROJECT MAP



PMOC MONITORING REPORT
October 2023

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

Maryland Transit Administration
Baltimore, Maryland
FINAL

Draft Report Delivered to FTA on ***November 7, 2023***
Final Report Delivered to FTA on ***December 5, 2023***

PMOC Contract No.: 69319519D000016
Task Order No.: 69319520F300095
Project No.: 69319519D000016/69319520F300095
Requisition/Reference No.: FTA-TPM20-20-0106
OPs Referenced: 20, 22, 23, 24, 25, 26, 37, 40
CLINs 0001, 0002, and 0005

David Evans and Associates, Inc.
Pete Hankovszky, Task Order Manager
Voice –720.448.6730; Email – pzh@deainc.com
Time on Project: 05/18/2020 through 05/17/2025

REPORT FORMAT AND FOCUS

This report is submitted in compliance with the terms of the Federal Transit Administration (FTA) Contract #69319519D000016, Task Order #69319520F300095. Its purpose is to provide information and data to assist FTA as it continually monitors the management capacity and capability of the Maryland Transit Administration (MTA) (the Project Sponsor) to execute the project efficiently and effectively, and hence, whether the Project Sponsor continues to be ready to receive federal funds for further project development. This report covers the project management activities on the National Capital Purple Line Light Rail Transit Project managed by MTA as the Project Sponsor and financed by the FTA Full Funding Grant Agreement (FFGA). The cost and schedule information in this report was extracted from MTA's submitted information except where noted. The report is organized to comply with the requirements of updated Oversight Procedure 25 – Recurring Oversight and Related Reports, dated June 2020.

THIRD-PARTY DISCLAIMER

This report and all subsidiary reports are prepared solely for FTA. This report should not be relied upon by any party, except FTA or the Project Sponsor, in accordance with the purposes as described below.

For projects funded through the FTA FFGA program, FTA and its Project Management Oversight Contractor (PMOC) use a risk-based assessment process to review and validate a Project Sponsor's budget and schedule. This risk-based assessment process is a tool for analyzing project development and management. Moreover, the assessment process is iterative in nature; any results of an FTA or PMOC risk-based assessment represent a "snapshot in time" for a particular project under the conditions known at that same point in time. The status of any assessment may be altered at any time by new information, changes in circumstances, or further developments in the project, including any specific measures a Project Sponsor may take to mitigate the risks to project costs, budget, and schedule, or the strategy a Project Sponsor may develop for project execution. Therefore, the information in the monthly reports will change from month to month, based on relevant factors for the month and/or previous months.

TABLE OF CONTENTS

1. EXECUTIVE SUMMARY 1
1.1. Project Description 1
1.2. Project Status 1
1.3. Major Issues and/or Concerns 10
1.4. Status of Key Indicators Dashboard (Post-grant) 11
1.5. Core Accountability Items 13
2. OBSERVATIONS AND FINDINGS 14
2.1. Summary of Monitoring Activities 14
2.2. Oversight Triggers 14
2.3. Project Management Plan and Sub-plans 15
2.4. Management Capacity and Capability 18
2.5. NEPA Process and Environmental Mitigation 19
2.6. Project Delivery Method and Procurement 22
2.7. Design 23
2.8. Real Estate Acquisition and Relocation 25
2.9. Third-party Agreements and Utilities 27
2.10. Construction 28
2.11. Vehicle Technology and Procurement 30
2.12. Project Cost 31
2.13. Project Schedule 34
2.14 Project Risk 38
2.15 Quality Assurance/Quality Control 39
2.16 Safety and Security 40
2.17 Americans with Disabilities Act 42
2.18 Buy America 43
2.19 Start-up, Commissioning, Testing 44
2.20 Before-and-After Study Reporting 44
2.21 Lessons Learned 44
2.22 Action Items 44
ATTACHMENT A – LIST OF ACRONYMS 45
ATTACHMENT B – SAFETY AND SECURITY CHECKLIST 47

ATTACHMENT C – TOP PROJECT RISKS....48
ATTACHMENT D – AWARDED CONTRACTS....49
ATTACHMENT E – ROLLING STOCK VEHICLE STATUS REPORT....50
ATTACHMENT F – PROJECT MILESTONES/KEY EVENTS....52
ATTACHMENT G – ROADMAP TO REVENUE OPERATIONS....56
ATTACHMENT H – PROJECT MAP....59

LIST OF TABLES

Table 1 – MTA Master Project Schedule Dates....4
Table 2 – Current Major Issues and Concerns....10
Table 3 – Key Indicators Dashboard....11
Table 4 – Core Accountability Items....13
Table 5 – Project Cost Versus Budget....32
Table 6 – Baseline Cost Estimate by Source Funding....33
Table 7 – Key Milestone Dates....36

1. EXECUTIVE SUMMARY

1.1. 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, Maryland, to New Carrollton in Prince George's County, Maryland. The Purple Line will operate largely at street level in a combination of dedicated and semi-exclusive right-of-way (ROW) and 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) service at Bethesda, Silver Spring, College Park, and New Carrollton, Maryland. The project will also connect to all three Maryland Area Regional Commuter rail lines, Amtrak, and local bus routes. The project includes 21 stations, 2 operations control/vehicle storage and maintenance facilities, and 25 light rail vehicles (LRVs). Maryland Transit Administration (MTA) is executing the project using a Public-Private Partnership (P3) method of project delivery.

As documented in the Federal Transit Administration (FTA) Full Funding Grant Agreement (FFGA), the original estimated project cost was $2,407,030,289, and the scheduled Revenue Service Availability (RSA) date was December 31, 2022. On January 26, 2022, the Maryland Board of Public Works (BPW) approved significant revisions to the project cost and the RSA date. The Transportation Infrastructure Finance and Innovation Act (TIFIA) loan closed on April 14, 2022. Financing approvals and subsequent financial close allowed Purple Line Transit Partners (PLTP), the P3 concessionaire, to issue Notice to Proceed (NTP) to the replacement Design-Build (D-B) contractor, Maryland Transit Solutions (MTS). MTA prepared a Final Recovery Plan (FRP), which FTA accepted on April 17, 2023, and which had a revised project cost of $5,116,020,380 and a revised Revenue Service Date (RSD) of February 28, 2028. MTA has submitted multiple management plan updates for FTA and Project Management Oversight Contractor (PMOC) review. Several of these management plans have been reviewed and accepted, while several updates remain in progress.

1.2. Project Status

The FFGA was executed on August 22, 2017. The Purple Line project is currently in the construction phase. Due to a contractual dispute, PLTP demobilized the assets/staff and subcontractors of the original D-B contractor, Purple Line Transit Constructors (PLTC), from the project in September 2020.

On November 24, 2020, MTA and PLTP reached a settlement agreement to release PLTC from the P3 consortium and continue the project with the remaining parties. The BPW approved the agreement on December 17, 2020. PLTP agreed to procure a replacement D-B contractor to complete the project and to obtain project financing.

Despite changes within the P3 consortium, MTA intends to complete the full scope of the project as envisioned in the original contract documents, with some minor exceptions such as the addition of three more LRVs. After a procurement process for a replacement D-B contractor, PLTP

selected MTS (a joint venture of Dragados USA and OHL USA) on November 5, 2021. The contract with MTS was executed on April 14, 2022.

MTA submitted a draft Interim Recovery Plan (IRP), dated December 15, 2020, to FTA, and subsequently prepared and submitted the FRP to FTA. FTA and the PMOC have reviewed the Project Management Plan (PMP) and other MTA management plans, along with the FRP. FTA accepted the FRP on April 17, 2023.

MTA made deliberate choices about how to proceed with the major project elements once PLTC was released from the project. MTA's planning criteria included schedule, budget, and the reduction of risk for the replacement D-B contractor. To address budget constraints, some project activities that were identified for completion in the IRP were deferred. MTA and its Project Management Consultant (PMC) added staff to support subcontractor invoicing, payment processes, and other administrative tasks.

MTA is managing a significant number of construction activities that are currently scheduled for completion in early November 2023. During MTA's IRP period, called Operation Step Forward (OSF), several activities fell behind schedule. Delays related to third-party utility relocations and other unforeseen issues continue to cause MTA to miss milestone dates included in MTA's revised agreements with PLTP that were executed in April 2022. Evaluation and recovery of the impacts on schedule and budget from these missed milestones by MTA continue. ***Through October 2023***, MTA has executed two change orders caused by delays in OSF activities, and until all OSF activities are complete, there is potential for additional cost and schedule claims from MTS related to OSF.

Construction work continues under the management of both MTA and MTS, including activities and elements such as erosion and sediment control maintenance, bridge structures, retaining walls, the Glenridge Operation and Maintenance Facility (OMF), and utility installation. The Polk Street Maintenance Facility (for Prince George's County Parks) is complete, and the Paint Branch stream restoration, and the Ken-Gar wetlands mitigation projects are complete with the exception of warranty periods.

Completion of the Glenridge OMF has been on or near the critical path and continues to be a focus. MTA completed the majority of the OMF building and utilities, but construction of track that accommodates LRV storage and testing was deferred for completion by MTS. Currently, a dispute over the completeness of the OMF is delaying turnover of the facility from MTA to MTS. MTS was scheduled to assume control of the facility in early 2023, but as ***of October 24, 2023,*** the date of the turnover of the facility from MTA to MTS ***is still scheduled for November 1, 2023***. MTS is installing rail and other features both inside and outside of the building.

Delayed completion of the OMF construction upon PLTC's departure required finding an alternative location to store completed LRVs. MTA reached an agreement with Construcciones y Auxiliar de Ferrocarriles (CAF) to store the LRVs at CAF's Elmira, New York facility until track is ready for acceptance of the LRVs. MTS assumed the storage agreement with CAF upon finalization of the replacement D-B contract.

MTA has revised and submitted the PMP, Risk and Contingency Management Plan (RCMP), Quality Assurance Plan (QAP), project schedule, Safety and Security Management Plan (SSMP), and Safety and Security Certification Plan (SSCP). FTA and the PMOC have reviewed these revised plan documents in conjunction with their review of the FRP. ***As of October 2023, FTA has accepted MTA's revisions to the QAP***, and the PMOC continued its reviews of the SSCP.

MTA provides FTA and the PMOC with updates on the progress of MTA and MTS construction activities and monthly updates that track project milestones.

- Scope: There have been no significant reductions or changes to project scope. Three LRVs were added to the project scope (non-FFGA) to support improved operations once service commences.
- Schedule:
    - PLTC never developed an approved recovery schedule to address the delayed start of construction caused by the environmental lawsuit (please see the **NEPA Process and Environmental Mitigation** section, below, for a discussion of the environmental lawsuit). In fall 2019, the P3 concessionaire submitted a revised, fully cost-loaded schedule reflecting a phased project opening (with the first phase opening at the end of 2022 and the second phase opening in mid-2023). This schedule was never incorporated into the working master project schedule.
    - In accordance with the IRP, MTA developed a schedule for the period during which the D-B contractor was being replaced. PLTP and MTA identified several milestones and the requirement to establish a full project schedule before the end of the D-B contractor replacement period. The IRP included project milestones for PLTP to procure a replacement D-B contractor, obtain new financing, and execute contract amendments with MTA. The IRP period also included development of the FRP. In early 2023, MTA submitted an FRP and requested an extension to the RSD of December 31, 2022, that is in the original FFGA. FTA subsequently accepted the FRP that includes a revised RSD of February 28, 2028.
    - See also the **Significant Project Activities and/or Key Milestones** subsection of this Executive Summary, below.
    - Table 1 presents MTA's key milestone dates for the project. This table has been updated to show the dates included in the FRP. The schedule in the FRP is considered the baseline schedule for the project. Through the Quantitative Risk Analysis and processes described in MTA's RCMP, a schedule contingency of 16 months was deemed appropriate. However, delays to OSF activities continue to have the potential to further consume the contingency. The utilization of a large portion of the schedule contingency at the early stages of MTS's contract is a concern.
    - To clarify schedule terminology used by MTA: The RSA date is a contractual date critical to the agreement between MTA and PLTP. The RSD is the contractual date tied to FTA FFGA funding and other project approvals.

- MTA and MTS have executed two change orders related to delays attributed to OSF activities. These change orders extended the project RSA date to May 24, 2027. MTA and MTS are currently reviewing additional potential delays and opportunities for schedule recovery. The RSA date in MTA's master project schedule is July 2, 2027, and the float for the RSD milestone is 172 days. ***However, MTS's current project schedule indicates 87 days of additional delay, which results in an RSA date of August 22, 2027. MTA and MTS are developing schedule mitigation options in an effort to reduce the 87 days of delay.***

Table 1 – MTA Master Project Schedule Dates

Activity	Current MTA Master Project Schedule (Dated *October 1, 2023)* Milestone
Original FFGA	August 22, 2017
Financial Close / NTP / Amendment Agreement Effective Date for Revised PLTP Agreement	April 14, 2022
Commencement of Integration Testing	September 2, 2025
Commencement of Trial Running	May 27, 2026
Construction Complete All Segments	November 12, 2026
RSA	July 2, 2027
FFGA RSD (includes contingency)	February 28, 2028

- Cost:
  - The project's documented expenditures are ***$3,085,818,985.36 through September 30, 2023***. The current Estimate at Completion (EAC) for the project (construction, management, and LRVs) is $5,116,020,380.00. This budget has been accepted by FTA, and MTA has adopted it as the project cost.
  - The accepted project cost includes $307,293,174 of unallocated contingency, of which ***$210,059,568.09*** have been committed through change orders (although not yet expended).
  - Refer to **Table 4 – Core Accountability Items**, in Section 1.5 below, for additional project cost information.
  - MTA prepared a summary of actual versus planned expenditures for high-level OSF activities in Standard Cost Category (SCC) format and is updating this summary each month. Through December 31, 2022, MTA forecasted OSF expenditures of $556.15 million, which exceeds the original OSF budget by approximately $136 million. A significant portion of the overrun previously had been incorporated into the project budget, but additional contingency may be needed to address the increase of $35 million to $45 million that has occurred since the final recovery budget was developed. MTA states that these overruns are due to labor and material cost inflation as well as the extended duration of the OSF activities. The PMOC recommends that MTA closely monitor these cost overruns. The PMOC has

requested an update on the OSF expenditures, and MTA has indicated that it will prepare a revised EAC for OSF and provide it to FTA and the PMOC. On September 28, 2023, MTA verbally reported (i.e., not in writing) to FTA and the PMOC an EAC for OSF of approximately $469 million. This amount does not include the previously executed and potential future MTS change orders related to OSF delays.

- The budget includes funds to address nonconforming construction by PLTC. MTA incorporated known defects into the contract with MTS. However, MTA must pay to address any defects unknown at the time of execution of the MTS contract. In February 2023, MTA estimated the total cost of these unknown defects to be approximately $10 million. As with the OSF overruns, the PMOC continues to recommend that MTA closely monitor utilization of contingency to cover these costs. Many instances of PLTC's nonconforming construction and/or defects have been discovered. ***Nonconforming PLTC work and several other disputes are being evaluated by MTA and MTS, and each is included as an item in the Risk Register.***

- Significant Project Activities and/or Key Milestones:

  The COVID-19 pandemic impacted the project in different ways and at different levels. These impacts were primarily related to availability of resources and labor. MTA, PMC, and other project staff followed recommended COVID-19 protocols. On January 30, 2023, MTA stated that COVID-19 protocols for the project had been suspended.

  - The third lawsuit filed by the Friends of the Capital Crescent Trail in January 2019 against U.S. Army Corps of Engineers (USACE) was dismissed in April 2020. The plaintiff subsequently filed an appeal on May 11, 2020. The District Court denied the appeal on May 13, 2021. The decision resolved the last active lawsuit related to the project.

  - The original baseline schedule indicated design completion by late fall 2017. The progress through ***October 24, 2023***, is that ***214*** of the 218 total planned design packages have been issued as Released for Construction (RFC). ***The packages that remain in design or approval include fare collection, the fire management system at the WMATA/Silver Spring Transit Center (SSTC) combined station, guideway signage, and the train control system. A 90 percent design submittal is expected in November 2023.*** There is a dispute pending related to the cost of design changes that were made after execution of the agreement with MTS. MTA's team estimates that the disputed amount is approximately $15 million.

  - WMATA's comments on design plans for the SSTC mezzanine connector pedestrian bridge (over CSX Corporation [CSX] ROW) will result in what MTA deems are betterments. Resolution of WMATA comments continued as of July 2023 at the SSTC and at other locations where WMATA and Purple Line stations coincide.

MTA reports that the slow resolution of these issues has not impacted critical path activities.

- Storm sewer construction under the CSX railroad is required in several locations. Two jack-and-bore installations of culvert pipes were completed in November 2022. One jack-and-bore installation remains to be completed by MTS as of August 2023.
- Proposed construction near the SSTC will require significant coordination with both WMATA and CSX. Track protection (flagging) and planning of a shutdown of the railroads to allow Purple Line activities near the SSTC in 2024 have been identified as schedule risk items.
- MTA and Washington Suburban Sanitary Commission (WSSC) reached agreement on the relocation of the 66-inch water main that was under the Glenridge OMF. Energizing the cathodic protection ***had been the only remaining activity, which was completed in October 2023. This part of the project is now considered fully complete.***
- PLTC reached resolution on the final remaining Alternate Technical Concept (ATC) identified during the proposal process, which is related to the use of jet fans at the Bethesda Station in lieu of vent shafts. In accordance with the established process, MTA reviewed PLTC's design package for National Environmental Policy Act (NEPA) compliance. Final documentation for the ATC is still pending as of ***October 2023.*** MTA will schedule a review of the documentation with FTA as soon as it is complete. MTA and MTS optimistically predict that the ATC will have no Section 4(f) impacts or other impacts to the project's Record of Decision (ROD).
- MTA has completed its non-P3 construction contract activities, as follows:
  - Prince George's County Parks (Parks) Polk Street Maintenance Facility D-B – A substantial completion letter was issued to the contractor on March 30, 2021. Parks has taken possession of the facility, and the warranty period has expired. ***The only remaining action for this portion of the project is a real estate swap that will transfer the maintenance facility property to Parks in exchange for the property needed by MTA for the Purple Line project.***
  - Offsite Wetlands Mitigation (Ken-Gar) – The Design-Bid-Build construction NTP was issued on September 5, 2019. The one-year warranty review occurred on January 9, 2022, and the project is now in quarterly monitoring and annual reporting by MTA that will continue through 2028.
  - Offsite Stream Mitigation (Paint Branch) – The Design-Bid-Build construction NTP was issued on September 5, 2019, and the contractor mobilized in late November 2019. Quarterly monitoring and annual reporting by MTA will continue through 2028.
- Building construction at the Glenridge OMF is essentially complete; however, construction of items outside of the building continues, as does final commissioning

of systems inside the building. MTS was scheduled to take possession of the Glenridge OMF on December 31, 2022, but that did not occur because MTA had several remaining items to complete. Although transfer of the facility has not occurred, MTS is working in and around the OMF, installing track and conduit outside the building, and completing other interior features. The turnover letter to transfer possession of the facility from MTA to MTS is on hold as ***of September 2023,*** pending resolution of disputes and punch list items. ***MTA reports that transfer of possession will occur on November 1, 2023.***

- Preparation of Traction Power Substations (TPSSs) continues. As of ***October 2023, TPSSs Q1, Q8, Q7, and QYG*** have been placed on their foundations and are being commissioned. ***The foundations for TPSSs Q1 and Q3 are being prepared for substation installation.***
- The following is the status of LRV manufacturing as of ***October 24, 2023:***
  - All 25 of the vehicles in the FFGA project scope description and one additional vehicle are designated as "Ready for Shipment" and are in storage at CAF's facility in Elmira, New York. These vehicles are under a schedule of inspection and maintenance until delivery can occur.
  - MTA has added three vehicles by change order to CAF's contract. The additional LRVs will support better operations at the RSA date. It is important to note that these three additional LRVs are not a part of the FFGA between MTA and FTA. One of the three additional vehicles is in storage in Elmira along with the 25 FFGA LRVs. All ten railcars that make up the two remaining vehicles are in final assembly.
  - The previously identified quality issue related to the M33 bolt on the LRVs is nearly resolved. MTA determined that the issue does not impact safety, and the solution is likely the use of a higher strength bolt. The final report on this issue was expected in May 2023, although the PMOC has not yet received it. As of September 2023, CAF has identified additional occurrences of the M33 bolt quality issue. CAF does not believe that this issue will impact delivery of the vehicles, which currently is scheduled for spring of 2024.
  - Delivery of vehicles was expected to begin in spring of 2021; however, the location for their delivery was uncertain because the Glenridge OMF was not ready to accept railcars. MTA and CAF negotiated an agreement for CAF to store the completed railcars in Elmira to await delivery. The terms of the agreement became a part of MTS's agreement. Deliveries of LRVs to the Glenridge OMF have been delayed to early 2024.
  - The project's Buy America compliance audit for the LRVs was conducted on November 14, 2022. The audit indicates that the percentage of U.S. domestic content is 66.74 percent, which meets FTA requirements.

  - MTA staff ***visited*** the CAF facility in Elmira, New York, in October 2023 to observe the stored vehicles and the two vehicles currently being assembled.

- MTA is responsible for providing offsite stormwater mitigation in Montgomery County. To date, MTA has accumulated a credit for more than 10 acres of designed, Maryland Department of the Environment (MDE)-approved, offsite stormwater management (SWM) capacity in its "bank." MTA has determined that there is a need for additional mitigation in Prince George's County, and a project to construct additional mitigation is included in the scope of work for MTS.
- ROW acquisition activities continue for the original required 464 private parcels and 137 public parcels (a total of 601 parcels). All of the private parcels related to the original P3 contract Exhibit 9 FFGA scope are in MTA's possession for construction. ***As of October 17, 2023***, 424 of the 464 private parcels have completed settlement, and an additional ***12*** parcels have settlements pending.
- MTA has identified 188 small property acquisitions that are required for utility relocations, of which 134 are private and 54 are public. As of April 25, 2023, all of the additional properties were in MTA's possession through Right of Entry (ROE), through options, and/or through agreements. As of August 9, 2023, MTA estimated that approximately $36.2 million of exposure remains in the acquisition process. This amount is included in the risk assessment and in the available project contingency.
- To date, all 177 required property relocation agreements are complete. Costs for the completed relocations continue to be processed in accordance with the applicable procedures. As of August 9, 2023, there is only one relocation property that the former owner still occupies. Two additional relocations may be required.
- MTA estimates that approximately ***$10 million*** of risk exposure remains due to necessary extensions of Temporary Construction Easements (TCEs). Allowance for this amount has been included in the risk assessment and in the project contingency.
- Preparation for safety certification is an ongoing process for MTA, including the development of the appropriate checklists for both design and construction. Design Criteria Conformance Checklists (DCCCs) are more than 98 percent validated. Construction Specification Conformance Checklists (CSCCs) are 23 percent validated.
- MTA has adjusted staffing of management personnel to address the varying activities that MTA is managing and to integrate new team members as needed. On May 25, 2023, MTA communicated the departure of Executive Director Matthew Pollack, Deputy Project Director and Contracting Officer Anita Rodgers, and Director of Communications David Abrams, from the Purple Line project team. Project Director Ray Biggs, Jim Mitchell of the PMC, and Maryland Department of Transportation (MDOT) Chief Financial Officer Jaclyn Hartman led the project while those vacated positions were being filled. A new Deputy Project Director, Alexa Heidrich, started with the Purple Line project team on July 26, 2023. Kathryn (Kat) Lamb joined the

team in August 2023 as the Communications Director, which completes the hiring for open senior staff positions for the Purple Line project. A search for a new MTA Transit Development and Delivery (TDD) Executive Director is in progress. The TDD Executive Director will be responsible for the Purple Line project in addition to other State of Maryland transit projects. The PMOC has expressed concern related to MTA staff continuity and will continue to monitor MTA's management capacity and capabilities.

- MTA carefully considered a request from Montgomery County to single-track the Purple Line through the Bethesda tunnel. MDOT/MTA determined that it would not be able to accommodate the request.
- MTA and PLTP coordinated to obtain a modified version of the existing TIFIA loan for the project. On April 14, 2022, the TIFIA loan closed, and all bonds were marketed. MTA was required to update the Transportation Investment Program and State Transportation Investment Program plans to reflect changes in the project.
- MTA's Equal Employment Opportunity Officer assigned to the project is Marcques Washington. He is supporting MTS in its hiring program and monitoring project adherence to hiring of specific companies and personnel. As MTS ramps up construction, it is making significant progress toward achieving the project's hiring, wage, and Disadvantaged Business Enterprise (DBE) goals. In ***October 2023***, the PMOC continues to recommend that MTA report the projected end-of-project values for these goals in addition to the current values to allow for a more comprehensive evaluation of progress toward meeting the goals. MTA states that due to the D-B contracting method being utilized to deliver the project, continuous diligence is required to monitor contracted DBE work in the current and upcoming work packages, making it challenging to project future values of DBE participation.
- MTA hired a consultant team that is analyzing alternatives for providing security and fare enforcement services for the Purple Line. MTA does not currently have existing facilities or staff that can adequately provide these services, because the distance from their location to the Purple Line light rail facilities is too far. In late April 2023, MTA provided FTA with the alternatives study for review. The study indicates that the preferred alternative is the development of a Southern District of the MTA Police Department and recommends several next steps toward implementation of the new district, including hiring a commander, developing operating procedures, working on Memorandums of Understanding (MOUs) with other local jurisdictions, and developing a facility to house the district. ***As of October 2023,*** the PMOC continues to recommend that MTA develop a written implementation plan that includes schedule milestones and a budget.
- ***MTA held several Community Advisory Team meetings in October 2023, and more of these meetings will be held in November 2023.***

1.3. Major Issues and/or Concerns

Table 2 discusses any major issues or concerns impacting the project's scope, schedule, cost, risks, quality, safety, etc.

Table 2 – Current Major Issues and Concerns

Issue/Concern	Continuation of the project after PLTC's departure was a significant challenge for the project. The replacement D-B contractor, MTS, has now been under contract to PLTP for more than one year.
Date Identified	September 2020.
Status	The IRP was approved in January 2021, and an update was approved in July 2021. Implementation is nearly complete. MTA has now completed the FRP, which FTA reviewed and accepted in April 2023.
Project Sponsor Action	Management of a transition plan and support of PLTP in the replacement of the D-B contractor was the focus of the Project Sponsor. Another focus was the management of MTA's contractors to continue key activities that maintained the integrity of the schedule under OSF.
PMOC Recommendation	The PMOC recommends that MTA ensure that sufficient staff is dedicated to completing OSF project activities and assessing the remaining potential impacts to the MTS schedule. In addition, now that MTS is under contract, MTA and the PMC should emphasize their oversight of PLTP and MTS.
Issue/Concern	According to the PMP, the master project schedule should be updated monthly.
Date Identified	2022.
Status	Ongoing.
Project Sponsor Action	FTA accepted the FRP schedule in April 2023 as the new project baseline schedule. Two significant change orders, both of which are based on delays to OSF activities, have caused a substantial utilization of the schedule contingency outlined in the FRP. Additional delays have been identified, and MTA is coordinating potential schedule recovery with MTS. Compensation for the delays will be negotiated between PLTP/MTS and MTA, as appropriate.
PMOC Recommendation	The PMOC continues to recommend that MTA track all schedule elements according to the FRP and report status to FTA and the PMOC each month. MTA should employ additional methods of evaluating schedule progression and performance, including earned-value metrics, to identify issues as soon as possible. The PMOC recommends that MTA develop a procedure to monitor the OSF schedule more closely, because delayed OSF activities have caused and may still cause additional utilization of the schedule contingency.
Issue/Concern	Changes in the project have significantly impacted the project cost as reflected in the original FFGA. The April 2023 FRP includes a revised project cost estimate and a reasonable cost contingency to address remaining project risks.
Date Identified	September 2020.
Status	Ongoing.
Project Sponsor Action	MTA should continue to monitor project progress against the total project cost estimate. As of July 2023, two significant change orders, both of which are based on delays to OSF activities, have caused a substantial utilization of the cost contingency outlined in the FRP. Additional delays have been identified, and MTA is coordinating potential schedule mitigation (which would support cost mitigation) with MTS. Outstanding disputes between MTA and MTS also could impact contingencies.
PMOC Recommendation	The PMOC recommends that MTA continuously monitor project cost and utilization of project contingencies. The budget contingency must reflect potential additional costs required to address potential schedule delays and support a realistic EAC.
Issue/Concern	MTA does not have a police force located in proximity to the Purple Line.
Date Identified	September 2022.

Status	As of May 2023, MTA has determined a preferred alternative for providing security and fare enforcement, and has identified several next steps for implementation.
Project Sponsor Action	MTA's preferred security alternative includes the creation of a new Southern District of the MTA Police Department and will require associated staff, operating procedures, and a facility.
PMOC Recommendation	Although the currently forecasted RSA date is in 2027, the PMOC recommends that MTA promptly move toward implementation of the preferred security alternative. MTA should identify the parties responsible for implementing the preferred alternative and determine a detailed schedule and budget in a written plan. The PMOC also recommends that the State Safety Oversight Agency be included in the review and comment process for security and fare enforcement.
Issue/Concern	The Lost Time Injury Rate and Total Case Incident Rate have increased significantly since 2022. The current rates are significantly higher than the stated project goals.
Date Identified	April 2023.
Project Sponsor Action	MTA has increased coordination with MTS through additional biweekly coordination meetings. MTA has acknowledged the need for safety process improvements.
PMOC Recommendation	The PMOC recommends that MTA and MTS review the safety procedures and the implementation of those procedures to identify opportunities for improvement. The PMOC also recommends that MTA and MTS complete the safety process review as soon as practical and that MTA prepare a written summary. The summary should include the action items and the responsible parties for each.

1.4. Status of Key Indicators Dashboard (Post-grant)

Table 3 shows the project Key Indicators Dashboard after the FFGA was awarded.

Table 3 – Key Indicators Dashboard

Project Sponsor:				Maryland Transit Administration	
Project Name:				MTA National Capital Purple Line Light Rail Transit Project	
Date:				***October 31, 2023***	
Project Detail					
Oversight Frequency:				**Monthly**	
Element	**Status**			**Prior Status**	**Issue or Concern**
	● **G**	● **Y**	● **R**		
Project Management Plan		●		●	MTA has developed an updated PMP that reflects revised project conditions, and in October 2022, MTA submitted a revised PMP to the PMOC and FTA for review. On February 1, 2023, FTA provided its review comments on the PMP, and on April 28, 2023, MTA submitted the second revision of the PMP to FTA. In May 2023, MTA announced significant changes to the Purple Line leadership staff, including departure of the staff in the TDD Executive Director, Communications Director, and Deputy Project Director positions. As of September 2023, MTA has filled the vacant Purple Line Deputy Project Director position, but the TDD Executive Director position remains open. This concern also applies to the Management Capacity and Capability (MCC) element below.
Management Capacity and Capability			●	●	***Management staff changes***, along with significant change orders driven by MTA-managed construction, have magnified the need for MTA to focus on MCC issues. See also Safety, below.

Cost*		●		●	MTA has developed a revised cost estimate that reflects new project conditions. Based on PMOC and FTA review comments and a revised MTA Quantitative Risk Analysis, MTA established a budget contingency that appeared appropriate for the stage of the project at the time. However, large change orders and potential change orders have required commitment of a significant portion of the contingency budget. MTA should track project status according to the FRP and the updated PMP and management plans. The PMOC is concerned that significant additional change orders could further reduce the project cost contingency.
Schedule			●	●	MTA has a revised master project schedule that incorporates the current project status in place. Despite the execution of several change orders with significant contract extensions, there has not been a mutually agreed-to construction schedule since the Initial Baseline Schedule in September 2022. MTA has rejected MTS's schedule updates each month, citing technical issues. It is the PMOC's opinion that change orders that include adjustments to the RSA date should not be executed unless a mutually agreed-to revised baseline schedule is included with the change order.
Quality			●	●	There are a significant number of nonconforming items from the PLTC-constructed work and the work performed under MTA's management of OSF. The PMOC finds that the quality reporting related to OSF activities is inconsistent. Also, it appears that some key quality management staff have not participated in the project for some time due to contractual issues. ***The QAP has been modified to reflect many of the noted PMOC concerns, and MTA will incorporate the remaining concerns in the next annual QAP update. MTA has also developed a quality dashboard to improve the tracking of quality issues.***
Safety			●	●	In April 2023, the PMOC noted to MTA that both the Lost Time Injury Rate and the Total Case Incident Rate had significantly increased, particularly for the MTA-managed OSF activities. In addition to the increase in the incident rates, there is an apparent lack of tracking and reporting of safety issues. MTA recognizes the issue and reports that it has scheduled additional safety coordination efforts. In May 2023, the PMOC requested documentation on these additional efforts, and in July 2023, the PMOC questioned the effectiveness of the efforts. MTA acknowledges the need for safety process improvement. It is the opinion of the PMOC that there may be a lack of emphasis on safety or MCC issues that are affecting safety. On September 28, 2023, MTA provided to the PMOC a brief document that indicated it had performed an audit and proposed several safety process improvements. The PMOC needs additional detail in order to evaluate the proposed changes to the safety process. In the opinion of the PMOC, MTA's processes related to construction safety need significant improvement.
Risk		●		●	MTA updated the RCMP and the Risk Register to reflect the changes driven by the FRP and updates to the project management plans. In May 2023, FTA accepted the RCMP but also noted additional comments that MTA should address in future updates to the plan. As of August 2023, MTA has indicated that it will conduct a risk workshop and perform a Quantitative Risk Analysis in conjunction with the completion of OSF activities ***in November 2023***. ***In the opinion of the PMOC, this is a prudent approach by MTA, considering the significant commitment of schedule and budget contingency at the current stage of the project.***

Legend	
Green	Satisfactory: No Corrective Action necessary.
Yellow	Caution: Risk/Issues exist. Corrective Action may be necessary.
Red	Elevated for immediate Corrective Action: Significant risk to the health of the project.

*Note: With regard to cost, the colors indicate the following status:
Yellow – Forecast cost exceeds the project budget by up to 3%.
Red – Forecast cost exceeds the project budget by more than 5%.

1.5. Core Accountability Items

Table 4 shows the core accountability items for the project, including the current status of the project and the major issues and how they are being addressed.

Table 4 – Core Accountability Items

		Original (Grant)	Current Forecast	PMOC Assessment of Current Forecast
Cost	Capital Cost Estimate	$2,407,030,289	$5,116,020,380	Acceptable
Contingency	Unallocated Contingency	$90,535,748	***$97,233,606***	Acceptable
	Allocated Contingency	$59,500,464	$0	Acceptable
	Total Contingency	$150,036,212	***$97,233,606***	Acceptable
Schedule	Revenue Service Date	12/31/2022	02/28/2028	Acceptable

Project Progress		**Amount ($)**	**Percent of Total**
Total Expenditures	Actual cost of all eligible expenditures completed to date	***$3,085,818,985***	***60.3%***
Planned Value to Date[1]	Estimated value of work planned to date	Not Applicable (N/A)	N/A
Actual Value to Date[1]	Actual value of work completed to date	N/A	N/A

Contract Status		**Amount ($)**	**Percent of Total**
Total Contracts Awarded	Value of all contracts (design, support, construction, equipment) awarded; % of total value to be awarded	To Be Determined (TBD)	TBD
Construction Contracts Awarded	Value of construction contracts awarded; % of total construction value to be awarded	TBD	TBD
Physical Construction Completed	Value of physical construction (***SCC10-50***) completed; % of total construction value completed	***$990,436,896***	***51.7%***

Rolling Stock Vehicle Status	**Date Awarded**	**No. Ordered**	**No. Delivered**
28 total car sets[2]	First 26 LRVs: 2016 Additional 2 LRVs: January 2022	28 car sets	0

Next Quarterly Progress Review Meeting Date:	November 8, 2023

[1]Earned value information is not available.
[2]The approved FFGA includes a total of 25 LRVs.

2. OBSERVATIONS AND FINDINGS

2.1. Summary of Monitoring Activities

The PMOC received an update from the Purple Line project team during ***the October 24, 2023,*** virtual monthly meeting with MTA, the PMC, and the PMOC. ***FTA, the PMOC, and MTA held two virtual twice-monthly meetings, on October 10 and October 24, 2023, to review project status. On October 25, 2023, FTA and the PMOC held a virtual pre-quarterly meeting to review MTA information and agenda items for the November 8, 2023 Quarterly Progress Review Meeting with MTA.*** MTA provides supplementary information before the PMOC monthly meeting. PMOC monitoring activities include review of MTA-provided scope, schedule, risk, financial, construction, safety and security, and real estate information.

After the U.S. Court of Appeals reversed the vacation of the ROD in July 2017 (refer to the **NEPA Process and Environmental Mitigation** section, below, for details), the FFGA was executed on August 22, 2017. In September 2020, the construction (D-B) contractor, PLTC, left the project, and a new project delivery plan was developed, including replacement of the D-B contractor. During the period when the replacement D-B contractor was being solicited, MTA managed specific construction and design activities (OSF activities) in order to reduce uncertainty and support the project schedule. On November 5, 2021, MTS was selected as the replacement D-B contractor, and financial and commercial close occurred on April 14, 2022. MTA continues to manage OSF construction and design activities. MTS is performing construction activities across the entire project corridor.

MTA and MTS held initial partnering activities during which they developed relationships, general project priorities for teamwork, and an understanding of key issues for different stakeholders. MTA provided partnering process information to FTA and the PMOC on March 29, 2023. As of August 2023, MTA has replaced the consultant who was leading partnering activities and is developing new processes to facilitate the coordination and relationship between MTA and the MTS/PLTP team. ***MTA held an internal partnering meeting on October 27, 2023, to help align MTA and PMC staff.*** MTA will commence partnering efforts with PLTP in November 2023. ***MTA will provide agendas, action items, and other partnering information to the PMOC when it becomes available.***

2.2. Oversight Triggers

The oversight triggers most applicable to the project are the Oversight Procedure (OP) 25 cost and schedule triggers. The project did not have a mutually agreed-upon baseline schedule between March 2017 and September 2022. Significant schedule delays and a significant increase in project cost keep the project eligible for rigorous oversight. Project schedule delays typically impact project cost, another significant indicator of project health. MTA has developed a revised project EAC in conjunction with development of the project's schedule and FRP. Significant utilization of schedule and budget contingencies has occurred since development of the FRP. In the opinion of the PMOC, significant additional cost and schedule impacts could occur.

2.3. Project Management Plan and Sub-plans

2.3.1. Project Management Plan

The PMOC reviewed the Purple Line PMP Version 10 in accordance with OP 20 for a PMP at the FFGA execution stage of a project. Subsequently, FTA and the PMOC reviewed PMP Versions 11, 12, and 13. Due to significant project team changes since those versions, another update to the PMP was required. In October 2022, MTA provided an updated PMP (Version 14) to FTA and the PMOC for review, and FTA and the PMOC provided comments on PMP Version 14 to MTA. On April 27, 2023, MTA provided PMP Version 15, which FTA accepted, with comment, on June 21, 2023.

2.3.2. Safety and Security Management Plan

In February 2016, the PMOC reviewed the project's SSMP Version 6, dated October 22, 2014, in accordance with OP 22 for a project at the FFGA execution stage. The PMOC review found that the SSMP was compliant with FTA content requirements for execution of the FFGA, but the PMOC requested that MTA resubmit the SSMP after execution of the FFGA and address the comments in the PMOC report with updated information from the P3 concessionaire. Subsequently, FTA and the PMOC reviewed SSMP Versions 7 through 11 over the next four years. MDOT, which is the State Safety Oversight Agency (SSOA) for the project, also reviewed SSMP Versions 8 through 11. On January 13, 2022, FTA provided comments on SSMP Version 12 to MTA. MTA submitted SSMP Version 13 as well as Version 5 of the Purple Line SSCP to FTA and the PMOC for review in October 2022. FTA and the PMOC reviewed the SSCP and SSMP updates and provided their comments to MTA in February 2023. MTA submitted a revised SSMP to FTA on June 28, 2023, and submitted a revised SSCP on August 28, 2023. FTA approved the revised SSMP in August 2023, and the PMOC SSCP review is approaching completion.

2.3.3. Quality Assurance Plan

In October 2022, MTA submitted QAP Version 10 to FTA and the PMOC for review, and on March 8, 2023, FTA provided review comments on QAP Version 10 to MTA. MTA then submitted a revised QAP to FTA for review in May 2023, and FTA and the PMOC provided comments to MTA in June 2023. In July 2023, MTA provided a response to each specific comment and committed to submitting a revised QAP in August 2023. On August 11, 2023, MTA resubmitted the QAP as Version 12. A technical work session with MTA and the PMOC to discuss outstanding issues related to the QAP was held September 20, 2023, ***after which the PMOC recommended acceptance of the plan and that MTA should incorporate the outstanding items into the next regularly scheduled plan update. On October 6, 2023, FTA accepted the QAP contingent upon MTA acceptance of the PMOC recommendations.***

The PMOC requested that MTA provide more complete documentation for quality-related activities. In September 2023, MTA presented the PMOC with a quality process dashboard that MTA had developed to display monthly statistics on audits, Deficiency Notices, Non-conformance Reports, and quality oversight assessment reports.

MTA meets with PLTP, the PMC, and the General Engineering Consultant (GEC) monthly to review quality status. In ***October 2023,*** MTA reported the following quality management activities by MTA, PMC, or GEC staff that took place ***in September 2023***:

- Field inspections of OSF ***and MTS activities such as work on stormwater systems, retaining walls, concrete flatwork, bridge construction, and others. More than 1,000 observations were made.***
- ***Reviews and processes to close out*** outstanding Nonconformance Reports and Deficiency Notices.
- The witnessing of subcontractors' testing procedures.
- Participation in MTA/MTS Quality Meetings.

MTS also performs significant Quality Assurance/Quality Control (QA/QC) activities and reports having more than 60 full-time quality staff assigned to the project. ***In September 2023***, those QA/QC activities by MTS included:

- Offsite inspections of structural steel girders and canopies, Overhead Contact System (OCS) poles and hardware, traffic signal poles, special trackwork, and other items.
- ***21*** Design Services During Construction reviews and ***27*** design submittal reviews.
- Completion of numerous Quality Audits of MTS and subcontractor work, testing, and quality plans.
- Approximately ***700*** materials tests.
- Approximately ***450*** materials samples.

In 2022, MTA frequently provided notes from monthly CAF and SNC-Lavalin LRV manufacturing quality meetings for PMOC review. The information provided a summary of issues and corrective actions, and upcoming quality audits. MTS is now responsible for preparing these notes.

One manufacturing quality issue, the recurring failure of a bolt in multiple vehicles, has not been resolved. MTA determined that the issue does not impact safety, and the solution is likely the use of a higher strength bolt. The final report on this issue was expected in May 2023, although ***as of October 2023,*** the PMOC has not yet received it. As of September 2023, CAF has identified additional occurrences of the M33 bolt quality issue. CAF does not believe the issue will impact delivery of the vehicles, which is scheduled for spring of 2024.

2.3.4. Real Estate Acquisition Management Plan

The PMOC reviewed the project's Real Estate Acquisition Management Plan (RAMP) Versions 10, 11, and 12. The PMOC reviewed the plans with respect to the guidelines in OP 23 for a project in the construction phase. MTA submitted an updated RAMP Version 13 to FTA and the PMOC in October 2022. FTA provided review comments on RAMP Version 13 to MTA on February 27, 2023, and accepted RAMP Version 13 with comments.

2.3.5. Fleet Management Plans

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 on March 4, 2016, issued its final OP 37 BFMP review report, concluding that the BFMP met the requirements of OP 37 for the execution of an FFGA for the Purple Line project.

2.3.6. Risk and Contingency Management Plan

In early 2020, MTA commenced another update to the RCMP to incorporate the results of the latest Quantitative Risk Analysis that, in turn, incorporated the results of the replacement D-B contractor resolicitation and the revised project implementation details. MTA held a risk management workshop on January 26, 2021, that focused on the interim period.

MTA provided a comprehensive Risk Register and risk mitigation activities in conjunction with the draft FRP. In preparation for a risk analysis, MTA held risk assessment interviews with individual risk owners to review existing risk items and identify new risks. In December 2021, MTA prepared an updated Risk Register that includes over 100 risk items, including PLTP and MTS risks.

At a risk workshop held the week of May 2, 2022, the PMOC and FTA participated in an OP 40 risk and contingency review that evaluated cost, schedule, and project contingency. MTA confirmed and finalized the Risk Register, and prepared the Quantitative Risk Analysis and an update of the RCMP. The PMOC developed a draft summary of the risk and contingency review results. FTA provided a risk summary to MTA on June 22, 2022, for MTA's consideration while it was updating the RCMP. MTA provided responses to FTA's comments on the risk summary on July 15, 2022, and provided further clarification on August 25, 2022. MTA submitted RCMP Version 15 to FTA and the PMOC for review in October 2022. In February 2023, FTA and the PMOC provided comments on the revised RCMP, which supported MTA's development of the project's budget and schedule contingency. MTA subsequently submitted the revised RCMP Version 16, dated April 21, 2023, and FTA accepted it on May 22, 2023.

As of ***October 2023,*** MTA has indicated that it will conduct a risk workshop and Quantitative Risk Analysis in November 2023 in conjunction with the completion of OSF activities. The PMOC's opinion is that this is a prudent approach by MTA.

2.3.7. Safety and Security Certification Plan

Version 3 of the Purple Line SSCP is dated November 4, 2014. The PMOC review found that the SSCP Version 3 met the FTA requirements in support of the FFGA application. MTA submitted SSCP Version 4 on February 3, 2020, in conjunction with the updated SSMP submittal (see the **Safety and Security Management Plan** subsection, above). The SSOA completed its review of SSCP Version 4 and discussed its comments with the PMOC. MTA decided that the new emergency management working group would be a subcommittee to the Fire Life Safety and Security Committee, and this decision would be reflected in the next revisions of the SSMP and the SSCP, which were planned for after the replacement D-B contractor was in place. MTA

submitted SSMP Version 13 and SSCP Version 5 to FTA and the PMOC in October 2022. In February 2023, FTA and the PMOC completed their reviews and provided comments on these plan documents to MTA. MTA provided a response to the SSCP review comments to FTA and the PMOC in May 2023. On July 12, 2023, the PMOC and MTA held a call to review and reconcile PMOC/FTA comments on the SSCP. MTA submitted a revised SSMP to FTA on June 28, 2023, and submitted a revised SSCP on August 28, 2023. FTA approved the SSMP in August 2023, and the PMOC is nearing completion of the SSCP review.

2.4. Management Capacity and Capability

MTA continues to identify and assign sufficient Management Capacity and Capability (MCC), as needed, to complete the project in compliance with applicable FTA requirements. These efforts have included bringing staff, either MTA or MDOT personnel or consultants, onto the project to manage the current needs, such as planning, P3 procurement and contracting, real estate acquisition, and construction.

In November 2021, MTA's quality lead for the Purple Line project, Rene Schroeder, retired. It was proposed that Roland Carroll, the Purple Line systems safety and construction safety lead, add the quality lead role to his other Purple Line roles. In February 2022, MTA provided a white paper outlining Mr. Carroll's experience, his recent training, and the proposed supporting staff related to the new quality management role. The PMOC has evaluated this change as a part of the PMP review and will continue to monitor management capacity for this function and all positions through ongoing oversight activities. Specific to safety, the PMOC is concerned that there may be a lack of emphasis on safety or on management capacity or capability. Injury rates, particularly for OSF activities, are higher than the MTA goals. Also, reporting of injury and incident statistics is inconsistent. See Section 2.16, below, for more detail.

In March 2023, MTA hired John Donovan in the role of Construction Manager. MTA is also forming a commercial project controls team, and Anita Rodgers was to assume the role of Contracting Officer. These changes were in response to: (1) the near completion of OSF and (2) the need to support the management of MTS's increasing amount of work.

On May 25, 2023, MTA communicated the departure of Executive Director Matthew Pollack, Deputy Project Director and Contracting Officer Anita Rodgers, and Communications Director David Abrams from the Purple Line project team. Project Director Ray Biggs, Jim Mitchell of the PMC, and MDOT Chief Financial Officer Jaclyn Hartman have been leading the project while those vacated positions were being filled. Ken Forsythe's role changed from his role as Deputy Director to the interim Director of Communications role. A new Deputy Project Director, Alexa Heidrich, started with the Purple Line project team on July 26, 2023. Kathryn (Kat) Lamb joined the team in August 2023 as the Communications Director, which completes the hiring for open senior staff positions for the Purple Line project. In August 2023, MTA provided an updated Purple Line organizational chart that included these newly hired staff.

A search for a new MTA TDD Executive Director is in progress. The TDD Executive Director will be responsible for the Purple Line project in addition to other State of Maryland transit projects.

2.5. NEPA Process and Environmental Mitigation

2.5.1. NEPA Process

FTA issued a ROD on March 19, 2014. The National Park Service issued its ROD on July 16, 2014.

MTA has continued to submit environmental re-evaluations as required based on design advancement and other causes. To date, PLTC (before it left the project) 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. The most recent status ***(as of September 2023)*** of NEPA items is:

- All formally submitted LOD cases have been approved. MTA currently expects one additional LOD case and is preparing a submittal for review by FTA. MTA intends to submit the new LOD to FTA after MTA has obtained all applicable information from MTS. This additional LOD case submittal has been delayed because MTA is awaiting necessary clarification from MTS.
- The ATC for the Bethesda Station jet fan has been vetted, and final documentation is being prepared for submittal to FTA for concurrence that the ATC meets project requirements. Final documentation for the ATC is still pending as of ***September 2023***. MTA will schedule a review of the documentation with FTA as soon as it is complete. MTA and MTS optimistically predict that the ATC will have no Section 4(f) impacts or other impacts to the project's ROD.

On August 3, 2016, in response to the lawsuit filed by the Friends of the Capital Crescent Trail against FTA, a federal judge filed his Order and accompanying Memorandum Opinion. In those documents, it was ordered that the ROD for the Purple Line project be 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 whether 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 in 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 U.S. Court of Appeals issued its ruling on December 19, 2017, in which the judges ruled in favor of FTA and the project, and ruled that the transit agencies would not have to conduct a new environmental study to examine other potential routes for the Purple Line.

The Friends of the Capital Crescent Trail filed a second lawsuit after the FFGA signing and after the groundbreaking ceremony was held on August 28, 2017. The September 19, 2017, Preliminary Hearing for this suit resulted in no temporary injunctions or restraining orders, and project

construction proceeded as the case progressed 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 FTA.

The Friends of the Capital Crescent Trail filed a third lawsuit in January 2019, this time against USACE. The USACE legal staff and the Office of the Attorney General provided the defense. 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 USACE. In October 2019, USACE filed for a Summary Judgment to Dismiss the case, and the plaintiffs filed their response; a hearing date was set for March 23, 2020. However, in late February 2020, the assigned judge recused himself from the case, and the scheduled hearing was canceled. In mid-April 2020, the District Court ruled in favor of the USACE/MTA motion for a Summary Judgement to Dismiss, and the case was dismissed. The plaintiff subsequently filed an appeal on May 11, 2020, and the case continued in the legal process. Oral arguments related to the appeal occurred on March 11, 2021. The District Court denied the appeal on May 13, 2021. The decision resolved the last remaining lawsuit related to the project.

2.5.2. Environmental Mitigation

The project achieved the required mitigation for reforestation through the purchase of 82.5 acres of offsite credits (combined, in both Montgomery County and Prince George's County). This amount of offsite credits is expected to be more than needed, and the P3 concessionaire will monitor that this remains the case. PLTP's Forest Conservation Plan (FCP), which documented a need of 75.73 acres, 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. In Maryland, need is based on land disturbance rather than only forest removal. MTA's tracking of additional disturbance due to the progress of design and construction indicated that the total need is still within the amount of available offsite credits.

The Joint Permit Application for Wetlands and Stream Mitigation was formally submitted to USACE and 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, because time had passed since the permit was drafted, MDE updated and issued the finalized permit the first week of April 2018. USACE completed its NEPA and conditions review as well as its 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 the longer construction periods resulting from construction moratoriums for forests and streams. The project received approval from MDE during the week of December 3, 2018, and received the USACE approval letter in mid-June 2019.

The project team has been addressing the environmental mitigation for wetlands through the development of the offsite Ken-Gar location, which is implemented through 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 the bids underwent MTA Procurement Department review. BPW approval of the award was received on September 4, 2019. As of June 2021, the Ken-Gar wetlands mitigation project was complete and had completed its one-year warranty period. See the **Construction** section of this report, below, for further discussion of the status of this Ken-Gar Wetlands Mitigation construction contract.

The project team has addressed the environmental mitigation for streams through the development of the offsite Paint Branch location, which is implemented through 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 the award was received on September 4, 2019. The Paint Branch stream restoration is complete, and warranty corrections (partial replanting) occurred in December 2022. See the **Construction** section of this report, below, for further discussion of the status of this contract.

The project has plans to address stormwater mitigation, beyond what can be mitigated on the project site, through retrofitting offsite locations in both Montgomery County and Prince George's County. On November 12, 2021, MTA determined that there is a need for additional stormwater mitigation in Prince George's County. A project to construct additional stormwater mitigation is included in the scope of work for MTS.

The joint MTA and University of Maryland (UMD) technical board resumed meetings in December 2021 to coordinate efforts related to the mitigation of noise, vibration, and electromagnetic interference at the UMD facilities. Following this meeting, the members of the joint technical board voted to approve the outstanding design packages. This action effectively ended the activities of the technical board until the LRT is in trial running.

The Purple Line project team submits quarterly Environmental Mitigation Monitoring Reports for the project. MTA managed the environmental mitigation and monitoring activities as the project transitioned to the replacement D-B contractor, MTS. Because MTS is now performing construction, MTA will monitor the environmental activities performed by MTS. On July 13, 2023, MTA provided the Second Quarter 2023 Environmental Commitment and Mitigation Monitoring Program Report. The report conveys the status of progress toward meeting commitments in the ROD that was issued in March 2014 and any pending actions required. In the report, MTA notes that "no problems, gaps, nonconformances, or NEPA issues of any sort were found during this quarterly assessment."

The MTA Purple Line team communicated that MDE is implementing a change to the state's construction dewatering monitoring and turbidity requirements. Pumped water discharge from construction sites will need to meet specific requirements—something that Maryland lacked but is common in many states. MTS has indicated that these requirements are a change to the project scope of work and is developing a change order request. In September 2023, MTA and MTS

participated in training for managers on the new requirements, and a future round of training for field staff is being planned.

2.6. Project Delivery Method and Procurement

The majority of the capital cost of the Purple Line project has been packaged into a Design-Build-Finance-Operate-Maintain 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") in which appropriate risks and benefits are allocated in a cost-effective manner between the contractual partners. The P3 concessionaire is intended to perform some functions normally undertaken by the transit agency, but MTA remains ultimately accountable for the Purple Line project 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 PLTP had been selected as the P3 concessionaire. Commercial close of the P3 contract occurred on April 7, 2016, and financial close occurred on June 17, 2016.

In late April 2020, PLTC notified PLTP that due to PLTC's forecasted schedule delays on the project (which did not receive agreement from MTA), PLTC intended to exercise the clause that allowed it to terminate its contract with PLTP for the design and construction services under the P3 contract if delays exceed 365 days. MTA sent a formal request to PLTP for a response that would include a definitive path forward. On the response due date of May 14, 2020, PLTP submitted its response, which stated that PLTP intended to continue to negotiate with PLTC to retain PLTC as part of the P3 concessionaire team. On June 23, 2020, PLTP sent a formal Notice of Unconditional Election to Terminate the P3 Agreement to MTA, although PLTP indicated a willingness to negotiate a settlement. On June 24, 2020, MTA sent a Formal Notice of Concessionaire Default. This notice essentially refuted the validity of the PLTP delay claims and stated that if PLTP fails to perform, MTA has a number of options related to the P3 Agreement. Through July 2020, construction activities continued at the levels previously planned and were not affected by the dispute.

In early August 2020, PLTC and subcontractors demobilized equipment, materials, and personnel. In response, the Maryland Attorney General filed a motion for a Temporary Restraining Order (TRO) that prevented PLTP from abandoning the work or demobilizing. Upon issuance of the TRO, the contractor and subcontractors remobilized some equipment and restarted many construction activities. A hearing to uphold or rescind the TRO occurred before the expiration of the TRO on September 14, 2020, and the court rescinded the TRO, allowing PLTP to leave the project. If the TRO had been upheld, PLTP would have been required to continue working until the contractual dispute resolution procedures were followed.

When an agreement was not reached, the bond holder firms had the first right to take over the project. However, MTA planned an alternate path forward based on its exercise of step-in rights. To that end, MTA assumed the contracts of over 100 subcontractors, indicating MTA's intent to continue the project. MTA adjusted staffing for construction management, resident engineers, and inspectors to move forward with the project.

On November 24, 2020, MTA and the P3 concessionaire, PLTP, reached a settlement agreement to release the project's D-B contractor from the P3 consortium and continue the project with the remaining parties. The state's BPW approved the settlement agreement on December 17, 2020. Activities set out in the agreement and the IRP have proceeded with multiple modifications to milestone dates as needed.

The agreement included the following key aspects, as MTA has communicated to the PMOC:

- PLTP agreed to procure a replacement D-B contractor to complete the project and to obtain project financing. The selection of the preferred replacement D-B contractor, MTS, occurred on November 5, 2021. The TIFIA loan for the project closed on April 14, 2022, allowing financial close and commercial close on that same day. MTS is now the D-B contractor for the project.
- The settlement agreement provided a mutual release from all disputed and undisputed amounts (incurred before September 28, 2020) for PLTP, PLTC, and subcontractors. The agreement also released outstanding litigation among the parties.

2.7. Design

2.7.1. MTA Design

MTA's GEC completed the project design to approximately the 30 percent design level in fall of 2013 and provided incremental enhancements through late 2015. This design formed the basis of the Request for Proposals (RFP) for the P3 contract. See the **P3 Design** subsection, below, for a discussion of the advancement of this design by PLTC, the former PLTP partner that was responsible for the design and construction of the capital project, and continued design under MTA.

MTA was responsible for the design and construction contracts under a Design-Bid-Build delivery method (separate from the P3 scope) for the following projects:

- Stream mitigation – MTA completed the 100 percent design packages in June 2017 and received approval from MDE in May 2018. Construction of the stream mitigation is now complete. See the **Environmental Mitigation** subsection of this report, above, for additional details.
- Wetlands mitigation – MTA completed the 100 percent design packages in June 2017. Several design adjustments were subsequently made based on MDE and Montgomery County comments. The construction contract was advertised on May 3, 2019. Construction of the original wetlands mitigation is now complete. See the **Environmental Mitigation** subsection of this report, above, for additional details.
- Offsite SWM sites – MTA completed design and obtained MDE approval of more than the P3 contract-required 5 acres of offsite mitigation in Montgomery County on May 29, 2018. In late October 2019, MTA received MDE approvals for the next 5 acres to be added to the mitigation credit "bank," thus satisfying the contract requirements for 2019. MTA has determined that there is a need for additional mitigation in Prince George's

County, and a project to construct additional mitigation is included in the scope of work for MTS.

- See the **Environmental Mitigation** subsection of this report, above, for the current requirements.

MTA also completed the design to support a D-B contract for the replacement of the existing Parks Maintenance Facility with a facility on Polk Street. Construction of the facility is now complete. See the **Real Estate Acquisition and Relocation** and the **Construction** (MTA Scope) sections of this report, below, for further details.

2.7.2. P3 Design

PLTC's design progress was forecasted to achieve substantial design completion of Civil packages in August 2020, substantial design completion of Systems packages (except for Fare Collection) in September 2020, and completion of the Fare Collection design package in 2021. The original baseline schedule anticipated design completion by late fall 2017. As of August 2020, the number of planned Civil, Systems, and Utility design packages was 218.

Upon the departure of PLTC, MTA contracted with the project's engineer of record, Atkins, to continue to advance the design of limited aspects of the project.

The current progress through ***October 24, 2023,*** is that ***214*** of the 218 total planned design packages have been issued as RFC. The packages that remain in design or approval include fare collection, the fire management system at the WMATA/SSTC combined station, guideway signage, and the train control system. A 90 percent design submittal is expected in November 2023. In addition, the State Highway Administration ***approved the last*** traffic signal package ***in October 2023.***

A new item related to design has been added to the Risk Register regarding an intelligent interface device that could impact implementation and operational costs. MTA and MTS have agreed to put this design change item before the Dispute Resolution Board for feedback, because MTA believes that the change in question would be a betterment that PTLP selected.

PLTC reached resolution on the final remaining ATC identified during the proposal process. The ATC is related to the use of jet fans at the Bethesda Station in lieu of vent shafts. In accordance with the established process, MTA is reviewing the design package for NEPA compliance. Final documentation for the ATC is still pending as of ***September 2023***. MTA and MTS are coordinating to address the noise and aesthetic impacts of the fans, and they optimistically report that the ATC will have no Section 4(f) impacts or associated impacts to the ROD.

MTA and CSX worked to resolve issues related to the applicable design criteria and which project areas were affected until, in July 2019, a mutually agreeable path forward was defined for all areas. 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 SSTC 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 May 2020, CSX indicated that the final design is acceptable. Revised documents, providing some minor clarifications related to ROW, were submitted to CSX on September 8, 2020, and ultimately CSX approved the design. The revised documents were submitted to WMATA several times in early 2021.

- WMATA's comments on design plans for the SSTC mezzanine connector pedestrian bridge (over CSX ROW) will result in what MTA deems are betterments. Resolution of WMATA comments continues as of ***September 2023*** for the SSTC and for other locations where WMATA and Purple Line stations coincide. MTA reports that the slow resolution of these comments has not impacted critical path activities.
- An encroachment into the CSX vertical clearance was discovered upon installation of girders at the SSTC. Although the designer believed the loading of the bridge deck might alleviate the issue, shimming was discussed as a potential solution. Shimming was not MTA's preferred solution; therefore, an exception was requested from CSX to allow the ¾-inch encroachment to remain. CSX denied the exception. MTA and the designer prepared for a contractor to jack and shim the structure to create the required clearance. Construction of this work was completed in August 2021.
- Proposed construction near the SSTC will require significant coordination with both WMATA and CSX. Track protection (flagging) and planning of a shutdown of the railroads to allow Purple Line activities near the SSTC in 2024 have been identified as schedule risk items.
- CSX provided review comments disallowing revised drainage networks, related to the Capital Crescent Trail work, which would connect to CSX's existing drainage culverts. The work on the Capital Crescent Trail is not part of the FFGA and is separately funded by Montgomery County. As a result of work with Montgomery County, the connections were relocated from CSX property to Montgomery County property and therefore are no longer a CSX issue. To fully accomplish this approach, two connections required resolution. Montgomery County acquired two parcels of land from CSX (not FFGA-funded) and then accepted responsibility for one connection currently under the responsibility of CSX. Storm sewer construction under the CSX railroad was required in several locations. Two jack-and-bore installations of culvert pipes were completed in November 2022. ***As of October 2023,*** completion of another 72-inch-diameter culvert is pending construction by MTS. The work plan for the culvert installation is in the approval process at CSX.

2.8. Real Estate Acquisition and Relocation

As of October 2023, the total number of planned property acquisitions is 601, including 464 privately owned properties and 137 public acquisitions. For the private properties, to date, a total of 476 offers were made, including for parcels that were subsequently eliminated, and 234 offers were accepted. All of the original Exhibit 9 FFGA-scope private parcels in the P3 contract are in

MTA's possession, some of which are properties that continue in condemnation under the State Highway Administration process. To date, 424 of the original 464 private properties have completed settlement, ***12*** additional properties (not part of the original 464 private properties) are pending settlement, and ***36*** condemnations remain to be settled.

All required public properties have been available for construction when needed. Several public property rights transfers are currently being coordinated to accommodate sidewalk changes, utility easements, and ROW exchanges.

As the project has progressed and new utility relocation needs have been identified, additional small parcel acquisitions have been added to the total as utility down-guys. In December 2017, PLTC initially submitted a list of approximately 280 such parcels related to utility relocations and subsequently added to that list. MTA resolved that it would acquire these properties, rather than execute amendments to the utility agreement that would 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 has been expediting the process somewhat. ***As of October 24, 2023,*** the list of additional acquisitions totals 188 parcels, and several more acquisitions potentially may be needed for stormwater facilities. Of these parcels, 54 are public property and will be acquired by agreement, and 134 are private acquisitions. Sixty-six of the 188 properties are filed for condemnation, excluding those that were subsequently optioned or settled, and 20 condemnations remain to be filed. MTA estimates that approximately $36.2 million of exposure remains in the acquisition process. This amount has been included in the Quantitative Risk Analysis.

The project required a total of 177 relocations, of which 57 were residential and 120 were businesses. To date, all 177 of those identified relocations have been completed in accordance with the applicable procedures, and no active claims remain to be settled. Also, MTA is monitoring terms of agreement of the property acquisitions discussed above that have not yet completed settlement, because some of them could potentially result in the need for additional relocations. As of October 2023, there were two new relocations related to commercial properties that potentially will be needed.

In August 2023, MTA indicated that the goal for completion of all real estate transactions is December 2024.

On April 25, 2023, MTA reported that BPW has approved the last of seven critical project acquisitions. These acquisitions were required to allow MTS access to construction areas that include activities on or near the critical path.

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 MTA shares this information with the PMOC. Based on actual settlement amounts and projected amounts for those not yet closed, settlement/condemnation values are ***55.8 percent higher*** than the original 2014 SCC budget for ROW. MTA included current ROW cost projections in its development of a FRP project cost estimate (see the **Project Cost** section of this report, below).

Due to the extended project duration, some agreements will expire before the expected RSA date. MTA and MTS have started the process of identifying the end dates now needed for the agreements and will begin the process of obtaining extensions. MTA has evaluated the risks, estimated the cost of the extensions, and included those costs in a budget contingency. MTA estimates that approximately $13 million of risk exposure remains due to necessary TCE extensions.

2.9. Third-party Agreements and Utilities

All major third-party agreements (specifically, those agreements with Washington Gas, Verizon, Potomac Electric Power Company [PEPCO], CSX, UMD, Montgomery County Parks, Prince George's County Parks, WMATA, 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 lines that are currently overhead be placed underground when they cross the light rail alignment. To minimize the total cost impact of this change, MTA and Verizon reduced the number of locations where Verizon lines cross the alignment to 34. MTA is of the opinion that this reduction 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 for placing 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 upon in early March 2019. MTA had planned to negotiate the cost responsibility with PLTC and Verizon after all major Verizon relocations were completed. However, since the departure of PLTC, MTA carries this cost as a betterment outside of the FFGA scope.

In early June 2018, MTA and PLTP completed the negotiation of all remaining third-party agreements with the smaller utility and telecommunications (telecom) 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 to existing executed agreements continues to be evaluated. The significant items include:

- To date, the design differences with CSX, as discussed earlier in this report, have been adequately resolved through design review and concurrences, and have not resulted in the need to amend the CSX agreement.
- WSSC proposed that the project relocate a 66-inch underground water main that runs through the Glenridge OMF site. In March 2020, MTA and WSSC agreed on a water main alignment primarily in the median of Veterans Parkway, as well as a strategy for completing the relocation. The original Purple Line project GEC performed the design; WSSC provided the material; and MTA separately contracted for the construction, thus avoiding impact to the P3 concessionaire's scope of work. On May 21, 2021, WSSC authorized work, and mobilization began August 9, 2021. Energizing of the cathodic

protection was the only remaining item of this relocation as of September 2023***, and has now been completed.***

- In late July 2022, MTA and MDOT held a summit with the many utility providers that experience relocations related to transportation projects to discuss best practices and improvements to the utility relocation process. As of May 2023, some of the utility providers are experiencing staff shortages that limit construction production rates. These staff shortages present an ongoing challenge for both MTA's OSF work and MTS's scope of work.

The project has been addressing its interface with 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 MOU with the Montgomery County Schools system, which was approved by the School Board and signed by the School Superintendent, Montgomery County, and MTA. A similar MOU was negotiated between MTA and the Rosemary Hills School and was approved at the School Board meeting on February 12, 2019. MTA submitted a draft second MOU to Montgomery County Schools on November 3, 2022. The Purple Line project team is developing information on the utility pole locations and retaining wall maintenance before going back to the school district for final property transfer negotiations. Work will continue under ROE agreements with these parties through 2024.

As MTS commenced construction work, coordination meetings were held to ensure that prior agreements with third parties (utility companies and others) are followed. It is MTA's position that the transfer of third-party agreements from PLTC to MTA and now to MTS should not allow for a change in the terms of the agreements.

2.10. Construction

2.10.1. 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 replacement Parks Maintenance Facility (which is part of the real estate effort and budget), wetlands mitigation, stream mitigation, and possibly some offsite SWM sites. MTA has accomplished forest mitigation without the need for additional construction. The following discussion presents the current status of the MTA construction contracts:

- **Prince George's County Parks Polk Street Replacement Maintenance Facility** – This D-B contract was awarded after the BPW approved the construction contract award on March 20, 2019. Forrester Construction Company completed construction, Parks has taken possession of the facility, and the warranty period has expired. ***The only remaining action for this portion of the project is a real estate swap that will transfer the maintenance facility property to Parks in exchange for the property needed by the Purple Line project to MTA.***

- **Offsite Wetlands Mitigation (Ken-Gar)** – The Wetlands Mitigation construction contract was awarded after the BPW approved the award on September 4, 2019, and NTP was issued to Environmental Quality Resources, LLC on September 5, 2019. The contractor mobilized in December 2019 and completed site surveys and the installation of Erosion and Sedimentation controls. Clearing and grubbing began in February 2020. Prince George's County took partial acceptance of the entire project on March 3, 2021. Acceptable growth of vegetation has been achieved, allowing for closure of this project. The one-year warranty review occurred on January 9, 2022, and now the project requires MTA quarterly monitoring until closeout in 2028.
- **Offsite Stream Mitigation (Paint Branch)** – The Stream Mitigation construction contract was awarded after the BPW approved the award on September 4, 2019, 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. The one-year warranty inspection occurred on August 4, 2022, and 1,700 plants were replaced in November 2022.

2.10.2. P3 Scope

Highlights of construction activities ***through October 2023*** throughout the alignment include*:*

- General: As a result of the dispute with PLTC (see the **Project Delivery Method and Procurement** section, above), all project activities slowed in the fall of 2020. In early August 2020, contractor forces, equipment, and materials were demobilized, and work in some areas ceased. Upon legal action from MTA, partial remobilization occurred. Following the court's rescission of the TRO, demobilization and safe-up activities in the construction area began in earnest in mid-September 2020 and continued into October 2020. Following PLTC's exit, MTA engaged a number of former PLTC subcontractors to continue select project activities. This work has been progressing under MTA management with a goal of advancing critical path activities and reducing risk for the replacement D-B contractor.
- Status of ongoing P3 construction items that MTA manages:
    - Utility installations of all types are underway, including construction by the electric provider, PEPCO, and the communications company (Verizon). Water, storm sewer, sanitary sewer, and gas lines are also being constructed.
    - As a part of OSF, MTA ordered rail, ties, special trackwork, and turnouts to mitigate supply chain risks. MTA also secured materials previously procured by PLTC for use by the replacement D-B contractor (MTS). As of September 2023, a dispute between MTA and MTS over the availability of MTA-supplied materials has been resolved. The materials were located along the project corridor and available for use, resolving the dispute.
    - Building construction at the Glenridge OMF is essentially complete; however, construction of civil items outside of the building continues, as does final

commissioning of systems inside the building. MTS was scheduled to assume control of the facility in early 2023; however, as of July 2023, there was a dispute over the completeness of the OMF that was delaying turnover from MTA to MTS. The PMOC recommends that this issue be added to the Risk Register, and mitigation plans and an estimate of cost and schedule impacts be developed. The turnover letter to transfer possession of the facility from MTA to MTS is on hold as ***of October 2023,*** pending resolution of disputes and punch list items. ***MTA reports that transfer of possession will occur on November 1, 2023.*** MTS is currently installing rail and other features both inside and outside of the building. MTS will complete the tracks for storage and testing of LRVs.

- Based on the status of construction, MTA determined which items would be completed before mobilization of the replacement D-B contractor. OSF construction activities were expected to be completed before September 1, 2022, but schedules provided by MTA indicated completion of most OSF activities in mid-2023, with some activities continuing into November 2023. OSF utility relocations that are behind schedule continue to cause impacts to MTS's work, and delays in OSF activities have driven two MTS change orders ***as of September 2023.*** MTA and PLTP have mobilized the Tiger Team to develop schedule alternatives to mitigate additional delays driven by OSF work between March 2023 and July 2023. MTS asserts that there are at least 88 days of additional delay due to incomplete OSF work.
- MTA's Equal Employment Opportunity Officer assigned to the project is Marcques Washington, and he is supporting MTS in its hiring program. The former contractor, PLTC, left the project with a shortfall in meeting the requirements of its DBE program, and MTS is required to address this shortfall of approximately $12 million in contract value. In March 2023, MTA reported that the design portion and the nationally targeted worker program of the P3 contract had exceeded the DBE program goal, but the percentage DBE participation for general construction is below the goal. In April 2023, Mr. Washington reported that the DBE participation statistics are improving as construction continues. The PMOC continues to recommend that MTA report the projected values for these goals at the end of the project in addition to the current achieved values to allow for a better evaluation of progress toward meeting the goals. MTA has been performing audits each month to monitor the Davis Bacon prevailing wage requirements. To date, only very minor issues have been identified during these audits.

2.11. Vehicle Technology and Procurement

The LRVs are five-car vehicles consisting of 136-foot-long, articulated units. Twenty-five vehicles (22 in operation and 3 spares) will be provided under the FFGA for the opening year. PLTP executed the LRV contract with CAF on June 17, 2016, and issued NTP to CAF on July 5, 2016, for the 25 FFGA vehicles. NTP to CAF also included one LRV outside of the FFGA.

Later, MTA added two additional vehicles (outside of the FFGA) by change order to CAF's contract, for a total of 28 vehicles to be supplied by CAF. The two additional LRVs will support better operations. MTS has incorporated these two additional LRVs into its scope of work (in addition to the cost and terms of LRV storage in Elmira).

Vehicle carshell manufacturing activities, which are coordinated with design progress, occurred until the facility in Spain was shut down in late March 2020 due to supply chain issues and to limit the spread of COVID-19. The final assembly facility in Elmira, New York, was shut down in early April 2020 due to New York State restrictions related to COVID-19 and reopened on May 18, 2020, at 50 percent of its workforce capacity. As of early August 2020, both the Spain facility and the Elmira facility were back to 100 percent staffing levels.

The final assembly of vehicles is being performed in CAF's facility in Elmira. MTA, its PMC, and SNC-Lavalin are meeting weekly with CAF to resolve all open items for design, testing, and manufacturing activities. First Article Inspections (FAIs) for Interior and Cab were completed on March 18, 2021, and FAIs for Exterior, Roof, and Undercar were completed on April 2, 2021.

Shipment of the first vehicle to the project site was expected in late spring of 2021. The lack of available storage at the yet-to-be-completed Glenridge OMF requires use of an offsite storage facility where vehicles can be stored, occasionally powered, and occasionally "exercised" or moved on tracks. MTA and CAF negotiated an agreement for CAF to store the completed LRVs in Elmira. That storage agreement subsequently transferred to MTS, and its terms are part of MTS's agreement. Twenty-six LRVs have been designated as Ready for Shipment and have been placed into storage in Elmira. MTS's proposed construction schedule establishes when the test tracks will be available for acceptance of the railcars at the Glenridge OMF. Currently, the schedule indicates that initial deliveries of LRVs will occur in early 2024.

The status of the LRV manufacturing as of ***October 24, 2023,*** is:

- To date, 130 carshell segments have been assembled in Spain.
- All 130 carshells have been delivered to CAF's facility in Elmira, New York.
- All 25 full LRVs in the FFGA are designated as Ready for Shipment and are in storage at CAF's Elmira facility. One additional LRV (outside of the FFGA) is also Ready for Shipment and in storage.
- Two additional LRVs are under contract. These LRVs are not a part of the FFGA, but rather are an addition to the contract by MTA to support rail operations. Manufacture of the two additional vehicles (ten cars) in Spain is now complete. All ten of those cars have been delivered to Elmira for final assembly and static testing.

2.12. Project Cost

Table 5 summarizes the project's current actual expenditures and EAC, and compares them to the project budget as reported in MTA's SCC Workbook dated June 1, 2016, which is the basis of the project's FFGA. The project's documented expenditures total ***$3,085,818,985.36 through September 30, 2023.*** Refer also to **Table 4 – FFGA Core Accountability Items** in the **Executive**

Summary section of this report for details on the project's planned and actual expenditures. The following table shows project budgets, actual expenditures, and forecast at completion amounts through ***September 30, 2023***, compared with the project budget as reported in MTA's SCC Workbook dated June 1, 2016, and MTA's current working budget.

Table 5 – Project Cost Versus Budget

SCC	Cost Category	Budget (June 1, 2016 Original FFGA)	Working Budget[1] (April 3, 2023 Final Recovery Plan)	Expenditures *(as of September 30, 2023)*[2]	Forecast at Completion[1]
10	Guideway and Track	$280,620,726	$371,508,682	***$195,828,317***	***$372,422,388***
20	Stations	$114,857,016	$161,159,923	***$23,472,086***	***$171,425,457***
30	Maintenance Facility	$94,155,591	$93,454,387	***$86,231,439***	$94,656,313
40	Sitework	$521,968,990	$796,081,289	***$534,193,488***	***$773,259,443***
50	Systems	$263,887,313	$517,256,196	***$150,711,566***	$519,880,064
	Subtotal 10–50	$1,275,489,636	$1,939,460,477	***$990,436,896***	***$1,931,643,665***
60	Right-of-Way	$229,600,000	$329,126,214	***$292,029,927***	$329,126,214
70	Vehicles	$212,940,927	$292,780,600	***$153,708,536***	$292,584,921
80	Professional Services (total)	$571,658,114	$2,247,359,915	***$1,649,643,627***	***$2,465,431,973***
80.01	Project Development	$87,149,878	$85,469,312	$85,469,312	$85,469,312
80.02	Engineering	$139,766,036	$196,722,013	***$217,786,249***	***$232,925,769***
80.03	Project Management for Design and Construction	$148,555,323	$655,185,988	***$398,690,550***	$641,685,062
80.04	Construction Administration and Management	$83,269,280	$734,209,735	***$492,138,548***	$800,943,037
80.05	Professional Liability; Other Non-construction Insurance	$34,534,796	$85,701,891	***$79,229,713***	***$78,771,846***
80.06	Legal; Permits; Review Fees by Other Agencies, Cities, etc.	$5,805,117	$341,013,320	***$316,233,773***	***$476,410,224***
80.07	Surveys, Testing, Investigation, Inspection	$15,164,346	$92,504,023	***$55,313,948***	$92,090,621
80.08	Startup	$57,413,338	$56,553,635	$4,781,535	$56,678,235
	Subtotal 10–80	$2,289,688,678	$4,808,727,206	***$3,085,818,985***	***$5,018,786,774***
90	Unallocated Contingency[2]	$90,535,748	$307,293,174	**--**	***$97,233,606***
100	Finance Charges	$0	$0	$0	$0
	Total	$2,407,030,288	$5,116,020,381	***$3,085,818,985***	$5,116,020,380

[1]The Purple Line project Working Budget and Forecast at Completion are based on the accepted FRP, dated April 3, 2023, and subsequent change orders.

[2]The Unallocated Contingency Expenditures will be reflected in SCC 10–SCC 80 expenditures as they occur. As of ***September 30, 2023,*** the committed unallocated contingency amount is ***$210,059,568.***

MTA developed the FRP unallocated contingency amount of $307,293,174 by utilizing a Quantitative Risk Analysis, and the RCMP dated April 21, 2023, recommended that amount for unallocated contingency.

On July 15, 2021, the PMOC requested that MTA provide revised budget tracking information that accurately reflected the combined IRP and OSF expenditures. MTA prepared a summary of actual versus planned expenditures for high-level OSF activities for review by the PMOC. MTA submitted the latest version of the summary that provides information through December 2022. MTA forecasted OSF expenditures of $556.15 million, which exceeded the original OSF budget by approximately $136 million. In May, June, July, and August 2023, the PMOC requested an OSF budget update. The extended OSF schedule and other changes have added cost since the December 2022 budget update. On September 28, 2023, MTA verbally reported (not in writing) to the PMOC an EAC for OSF of approximately $469 million. This EAC amount does not include the previously executed and potential future MTS change orders driven by OSF delays; those costs are transferred to the MTS tracking tables. The PMOC continues to request additional information to better understand the EAC.

In July 2023, the Maryland BPW approved a change order that had a total addition of $204,954,610 of cost and 207 additional days of contract time. The net budget impact to the capital construction portion of the project was $137,144,705, and the balance of the total amount was applied to the financing and lost return on investment for PLTP. The $137,144,705 will be expended over the course of construction; therefore, this amount does not immediately show up in the MTA budget reports. However, that amount, plus the amount of the earlier change order included in the FRP, represents significant utilization of the budget contingency. The PMOC recommends that MTA closely monitor these cost overruns and the potential need for contingency.

2.12.1. Project Funding

The funding for the project, as reflected in Attachment 3 of the FFGA, is shown in Table 6.

Table 6 – Baseline Cost Estimate by Source Funding

Initial New Starts Project Cost	Total FFGA Cost in Year of Expenditure (YOE) Dollars	Federal 5309 New Starts in YOE Dollars	Federal 5307 in YOE Dollars	Federal American Rescue Plan Act (ARPA) in YOE Dollars	Federal Surface Transportation Program (STP) in YOE Dollars	Local in YOE Dollars
10 Guideway & Track Elements	$280,620,726	$106,464,907	$0	$0	$0	$174,155,819
20 Stations, Stops, Terminals, Intermodal	$114,857,016	$43,747,594	$0	$0	$0	$71,109,422
30 Support Facilities, Yards, Shops, Admin. Bldgs.	$94,155,591	$35,721,760	$0	$0	$0	$58,433,831
40 Sitework & Special Conditions	$521,968,989	$197,858,301	$0	$0	$0	$324,110,688
50 Systems	$263,887,313	$100,116,405	$0	$0	$0	$163,770,908
60 ROW, Land, Existing Improvements	$229,600,000	$87,108,116	$0	$0	$0	$142,491,884
70 Vehicles	$212,940,927	$80,787,818	$0	$0	$0	$132,153,109
80 Professionals Services	$571,658,113	$216,881,800	$36,000,000	$0	$0	$318,776,313
90 Unallocated Contingency	$90,535,748	$31,313,299	$0	$0	$0	$59,222,449
100 Finance Charges	$26,805,863	$0	$0	$0	$0	$26,805,863
Total Project Cost (10-100)	**$2,407,030,286**	**$900,000,000**	**$36,000,000**	**$0**	**$0**	**$1,471,030,286**

Source: Maryland Purple Line Project Recovery Plan dated April 3, 2023.

2.13. Project Schedule

The March 15, 2017 progress update of the master project schedule served as the only approved version of the schedule until September 2022. Numerous submissions of schedule updates from PLTC were not approved for various reasons, but the primary reason was the inability of MTA and the P3 concessionaire to agree on the schedule impacts of the approximately one-year delay in the execution of the FFGA. In response to a letter that FTA issued to MTA in early August 2018 expressing concerns about the amount of time that the project had advanced without an approved schedule, MTA prepared a working schedule update of the master project schedule. The working schedule update was based on the negotiations of the P3 contract schedule occurring at the time, but the update was not based on a mutually agreed-upon P3 contract schedule.

In late April 2020, PLTC notified PLTP that, based on its forecasting of schedule delays on the project (which were not mutually agreed upon), PLTC intended to exercise the clause in its P3 contract with PLTP that allows it to terminate the contract for design and construction services under the P3 contract if delays exceed 365 days. MTA sent a formal request to PLTP for a response that included a definitive path forward for PLTP's intended management of the P3 contract. On May 14, 2020 (the date the response to the formal request was due), PLTP submitted its response, which stated that PLTP intended to continue to negotiate with PLTC to retain PLTC as part of the P3 concessionaire team. On June 23, 2020, PLTP sent a formal Notice of Unconditional Election to Terminate the P3 Agreement, although PLTP indicated a willingness to negotiate a settlement. On June 24, 2020, MTA sent a Formal Notice of Concessionaire Default. This notice refuted the validity of the PLTP delay claims and stated that if PLTP failed to perform, MTA had a number of options related to the agreement. Through late July 2020, construction activities continued at the level previously planned, and construction progress was not affected.

In early August 2020, PLTC and subcontractors demobilized equipment, materials, and personnel. In response, the Maryland Attorney General filed a motion for a TRO that prevented PLTP from abandoning the work or demobilizing. Upon issuance of the TRO, the contractor and subcontractors remobilized some equipment and restarted many construction activities. A hearing to uphold or rescind the TRO was held on September 14, 2020. The court rescinded the TRO, allowing PLTP to leave the project. Through negotiation, it was determined that PLTP would remain on the project, although PLTC would not.

MTA contracted with numerous subcontractors to continue the project. MTA developed organizational options with respect to construction management, resident engineers, inspectors, and other staff needed to move forward select project activities.

It was certain that the project schedule as reflected in the FFGA would be negatively affected, and a Recovery Plan for the project, including a revised project schedule with adequate schedule contingency to address remaining project risks, would be required. MTA submitted its draft IRP to FTA in December 2020, and FTA approved the IRP on January 12, 2021. A schedule for the period during which the D-B contractor was to be replaced was developed, and MTA monitored project progress against the schedule.

PLTP and MTA continued to coordinate during the financial process and State of Maryland approvals for the replacement D-B contractor. In addition, MTA successfully coordinated other key issues that needed to be resolved before PLTP could execute the contract with MTS.

The following is a summary of IRP milestones:

- January 6, 2021 – PLTP issued a Request for Qualifications (RFQ) for replacement D-B contractors.
- March 8, 2021 – PLTP issued an RFP to the short list of replacement D-B contractors based on the RFQ.
- October 15, 2021 – PLTP received RFP responses.
- November 5, 2021 – PLTP and MDOT/MTA selected the replacement D-B contractor firm (MTS).
- January 26, 2022 – BPW approved the replacement D-B contractor, contract amendments, schedule, cost, and financing.
- April 11, 2022 – Private activity bonds went to market.
- September 12, 2022 – MTA approved the Initial Baseline Schedule (IBS).
- October 14, 2022 – MTS was required to have commenced action on the 11 critical elements that are specified in the D-B contract. At the December 2022 PMOC meeting, MTA confirmed that MTS missed the 180-day window to commence action on 3 of the 11 critical elements.
- October 28, 2022 – MTA was required to have submitted a draft FRP to FTA and the PMOC for review and comment. On October 4, 2022, MTA submitted the draft FRP to FTA and the PMOC for review.

A milestone not specifically mentioned in the IRP is the requirement to extend the current RSD. The PMOC therefore added the following milestone to this list:

- December 31, 2022 – The RSD in the original FFGA is December 31, 2022. MTA requested an extension to the current RSD identified in the original FFGA. FTA has now accepted the FRP, which indicates a revised RSD of February 28, 2028.

The schedule included in the FRP was considered to be the new baseline schedule. The MTS master schedule incorporated the schedule recovery of implementing Maintenance of Traffic and construction activity resequencing, at a cost of $21,343,588, which reduced schedule delays from 218 days to 81 days. These schedule delays are a result of OSF utility adjustments that fell behind schedule. MTS has indicated that delays continue to occur as a result of the MTA-managed OSF work. The second OSF-delay-driven change order, as approved by the BPW in July 2023, added 207 days to MTS's RSA date.

This addition to the RSA date represents a significant use of schedule contingency, which is a concern considering the remaining duration of the project. In an effort to mitigate continuing OSF

delays**,** MTA has resumed the Tiger Team process to develop schedule alternatives. OSF construction activities were expected to be completed before September 1, 2022, but schedules provided by MTA indicated completion of most OSF activities in mid-2023, with some activities continuing through November 2023. OSF utility relocations that are behind schedule continue to cause impacts to MTS's work, and as of July 2023, delays in OSF activities have driven two change orders. MTA and PLTP used the Tiger Team process to develop schedule alternatives to mitigate additional delays driven by OSF work between March 2023 and July 2023, which MTS currently forecasts will reach ***87 days*** of delay.

2.13.1 Key Milestones

Table 7 shows the current key milestone dates for the project for the prior approved (March 15, 2017) progress update of the master project schedule and the MTA master schedule incorporated in the FRP dated April 3, 2023. Issuance of NTP to PLTP on April 14, 2022, triggered the contract requirement that an MTA-approved MTS IBS for the full project be in place within 120 days of financial close (by August 14, 2022). In January 2022, MTA submitted a draft version of the master schedule for FTA and PMOC review, and FTA and the PMOC transmitted their review comments to MTA in April 2022. MTS submitted its IBS, and on September 12, 2022, MTA approved it. MTS submitted the 120-day mobilization schedule, which MTA also approved.

In August 2022, MTA and the PMOC discussed the current state of the baseline schedule, particularly the inclusion of adequate float to address schedule risk. The P65 date that MTA proposed before the risk workshop held in May 2022 included approximately seven months of float and an RSA date in October 2026. After MTA performed the Quantitative Risk Analysis for the updated RCMP, MTA added additional float to address known and unknown schedule risk. The RSD proposed in the FRP is February 28, 2028, and the master schedule dated ***October 1, 2023,*** currently indicates that only six months of schedule float remain.

The PMOC recommends that MTA closely monitor schedule contingency and the corresponding budget contingency when evaluating the RSA date/RSD and the EAC that have been incorporated into the FRP. The information in Table 7 will be updated once the schedule reviews and approvals are complete.

Table 7 – Key Milestone Dates

Activity	Prior Approved Master Project Schedule (March 15, 2017)	MTA Master Schedule (October 1, 2023) (working schedule)
Locally Preferred Alternative Approval Date	08/04/2009 (A)[1]	---
FTA Approval to Enter Preliminary Engineering	10/07/2011 (A)	---
FTA ROD	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)	---

Activity	Prior Approved Master Project Schedule (March 15, 2017)	MTA Master Schedule (October 1, 2023) (working schedule)
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 through 03/02/2016 (A)	---
BPW Approval of P3	04/06/2016 (A)	---
P3 Commercial Close	04/07/2016 (A)	---
Limited NTP for P3 Engineering	04/07/2016 (A)	---
MTA Submit FFGA Application	05/24/2016 (A)	---
P3 Financial Close	06/17/2016 (A)	---
FFGA Signed	08/22/2017 (A)	---
Start of First Major Construction Activity	08/28/2017 (A)	---
All Significant ROW Acquisition and Relocation	As needed by construction	---
Commencement of Contract Work for Replacement D-B Contractor (MTS)	---	04/14/2022 (A)
Commencement of Integration Testing	---	07/28/2025
All Segments Complete Construction (with Contingency)	---	02/19/2027
RSA per P3 Amendment (with Contingency)	---	07/02/2027
FFGA RSD (Includes Contingency)	12/31/2022	02/28/2028

[1] A = Actual.

2.13.2 90-day Look-ahead

The critical 90-day (***November 2023 through January 2024***) look-ahead includes activities that MTA highlighted in the recent monthly meeting with the PMOC. MTA and MTS also are preparing four-week look-ahead schedules to manage interim activities. Key activities that MTA has identified for the short term are:

- Retaining wall, OCS foundation, and bridge structure construction in multiple locations.
- Water, sanitary sewer, and storm sewer construction in multiple locations.
- Completion of MTA-managed OSF activities.
- Station construction at ***12 locations***.
- Overhead electrical line, communications line, and buried gas line relocations.
- TPSS installation and commissioning.
- MTA's closeout of Glenridge OMF punch lists and turnover of the facility to MTS.
- Blasting at the Bethesda shaft. Construction of the Bethesda Enclosed Trainway grade beam.

- Track construction at and around the Glenridge OMF.
- Assembly of the two additional LRVs (127 and 128).
- ***Initial LRV delivery.***

2.13.3 Critical Path Activities

In the MTA master schedule update ***dated October 1, 2023***, the critical path runs through the activities in Segments 7 and 8 of Utility Relocations, Civil, and Systems packages, and then Trial Running and Systems Testing.

2.14 Project Risk

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

During the approximately one-year period during 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 Quantitative Risk Analyses, or perform formal updates of the Risk Register. However, the Purple Line project management team did assess and respond to the risks associated with the unforeseen chain of events related to the lawsuit.

The project team resumed formal risk management 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 in draft form in January 2018, and was updated further and reissued in March 2018. As an ongoing process, MTA currently is performing updates of the Risk Register periodically, though somewhat less frequently than bimonthly (the frequency established in its RCMP). The current status of the RCMP is discussed in the **Project Management Plan and Sub-plans** section of this report, above.

MTA provides copies of significant updates of the Risk Register to FTA and the 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; the project's top five project risks are included as Attachment C of this report and are updated quarterly. A risk management workshop was held on January 26, 2021, at which the PMOC and FTA participated. The workshop focused on the resolicitation period for the replacement D-B contractor (January through October 2021).

Once the replacement D-B contractor was under contract, risk updates were prepared. The project held a risk workshop the week of May 2, 2022, at which the PMOC and FTA participated in an OP 40 risk and contingency review that evaluated cost, schedule, and project contingency. Confirmation and finalization of the Risk Register, the Quantitative Risk Analysis, and an update of the RCMP are components of the required FRP. FTA provided a summary of the risk workshop to MTA on June 22, 2022, for MTA's consideration and incorporation into its management plans and contingency evaluation. MTA provided responses to FTA comments on the risk workshop

summary on July 15, 2022, and clarification on August 25, 2022. In October 2022, MTA submitted RCMP Version 15 to FTA and the PMOC for review. In February 2023, FTA and the PMOC provided comments on RCMP Version 15 to support MTA's development of the project's budget contingency and schedule contingency. On April 21, 2023, MTA provided a revised RCMP to FTA and the PMOC for review, and on May 22, 2023, FTA accepted the revised RCMP with comment. In June 2023, MTA held its quarterly Risk Management Committee meeting, at which it updated the Risk Register to reflect retired and new risk items. Five of the seven new risk items are related to disputes with MTS. Two significant risks were added to the Risk Register—one related to numerous design changes that occurred during OSF but were not reflected in the amended P3 Agreement and one related to a very specific intelligent interface device.

In October 2023, MTA has indicated that it will conduct a risk workshop and a Quantitative Risk Analysis in November 2023 in conjunction with the completion of OSF activities.

2.15 Quality Assurance/Quality Control

The project's QA/QC is addressed in Section 10 of the PMP, the Quality Program Plan, and the updated MTA QAP Revision 8.0, which incorporates the quality plans prepared by PLTC. The **Project Management Plan and Sub-plans** section of this report, above, discusses the most current versions of the PMP and the QAP. MTA also submitted to FTA the package of inter-related quality plans prepared by the P3 concessionaire after the package was reviewed and approved by MTA.

MTA obtained and used PLTP's quality logs and other applicable documents and procedures for use during the transition to the replacement D-B contractor. Several former subcontractors are now under contract with MTA and conducted QA/QC activities during the replacement D-B contractor solicitation period. The budget to address nonconforming construction by PLTC remains a concern as of July 2023. MTA incorporated known defects into the MTS contract; however, MTA has not clarified the specific budget that will be used to rectify defects found since the contract with MTS was executed. MTA estimates that the potential magnitude of this budget impact will be no more than $10 million, and the current Risk Register carries this risk item.

In October 2022, MTA submitted QAP Version 10 to FTA and the PMOC for review, and on March 8, 2023, FTA provided review comments on the QAP to MTA. MTA provided a revised QAP to FTA and the PMOC in May 2023.

The project has continued to conduct its monthly meeting to review the QA/QC activities performed by the Purple Line project team, including those activities performed by the PMC and the GEC. Documentation from this meeting is distributed and maintained. The project's Monthly Progress Report to FTA also contains a summary of the significant current QA/QC activities and events, including quality audits and quality reviews.

In October 2023, quality management topics included quality process improvements, records storage, field inspections to close open issues, equipment testing inspections, design submittal reviews, records spot checks, approval of MTS's quality management plans, MTS offsite inspections at the fabrication location for OCS poles, and planning of the monthly QC meetings.

In November 2021, MTA's quality lead for the Purple Line project, Rene Schroeder, retired. Roland Carroll, the Purple Line systems and construction safety lead, added the quality lead role to his other Purple Line roles. In February 2022, MTA provided a white paper outlining Mr. Carroll's experience, his recent training, and the proposed supporting staff related to his new quality management role. The PMOC has evaluated this change as a part of the PMP review and will continue to monitor MTA's management capacity for this function and all positions through ongoing oversight activities.

The PMOC has requested that MTA provide more complete documentation for quality-related activities. ***MTA has modified the QAP to reflect many of the noted PMOC concerns. In addition, a technical work session with MTA and the PMOC to discuss outstanding issues related to the QAP was held September 20, 2023. The PMOC has since recommended acceptance of the QAP contingent that MTA incorporate outstanding items into the next regularly scheduled annual update. On October 6, 2023, FTA accepted the QAP provided that MTA incorporate the PMOC recommendations. MTA has also developed a quality dashboard to improve its tracking of quality issues.***

2.16 Safety and Security

PLTP has conducted 44 Preliminary Hazards Analysis (PHA) workshop sessions to date. These workshops were held to resolve MTA's comments on the PHAs completed to date.

To support the ultimate Safety and Security Certification of the Purple Line project, the PLTP System Safety team completed development of its first DCCC in May 2017 and submitted it to MTA for approval. MTA (assisted by the PMC) reviews the DCCCs as part of the Final Design package, according to the established submittal review process. According to PLTP, the DCCCs were being verified before the issuance of RFC packages. To date, an estimated 98 percent of the DCCCs have been verified. All previous comments on PLTP's Certified Elements List (CEL), which includes operations and maintenance and system integration testing elements, have been resolved, and CEL Revision 2 was accepted in March 2020. The Certified Items List (CIL) Revision 1 has been accepted. The next revision of the CIL is expected after MTS completes the design. MTA will provide the revised CIL to FTA and the PMOC as soon as it is completed. Approximately 23 percent of the CSCCs have been verified to date.

MTA chairs a Safety and Security Certification Committee (SSCC) that reviews, comments on, and approves any PLTP hazard management and safety and security certification issues. The first meeting of the MTA SSCC was conducted on March 20, 2018. Since July 11, 2018, the SSCC meeting has been held regularly and will continue as a monthly meeting until the level of activity requires more frequent meetings. ***As of October 2023,*** monthly SSCC meetings continue.

PLTC submitted a Threat and Vulnerability Assessment, and on July 15, 2019, MTA accepted and verified the comment responses and approved PLTC's Threat and Vulnerability Assessment. PLTC then completed its Threat and Vulnerability Assessment process.

MTA continues to conduct bimonthly Fire/Life Safety meetings with Montgomery County and Prince George's County. The meetings provide a basis for the counties' emergency responders to

understand the features of the Purple Line systems and to resolve any concerns. Topics of discussion include: Police Department MOUs; Fire Department connection and hydrant locations; access, signage, and station naming conventions; MOUs for training; the PHA at the Glenridge OMF maintenance gate; station names; and addresses/emergency phone numbers for locations along the corridor. Other topics of discussion have included closed circuit television cameras and Mobile Emergency Vehicle Response access. It is the opinion of the PMOC that MTA should emphasize resolving the project's outstanding Fire/Life Safety issues, because progress on the resolution of these issues is not apparent.

MTA police continue coordinating MOUs with local safety agencies and developing MOUs with police jurisdictions (such as the Maryland National Capital Park Police) along the Purple Line. These MOUs are related to training the existing police agencies on how to respond to transit situations. During August 2023, the PMOC reiterated that these processes have been ongoing for several years and that milestones for resolution of issues should be established.

During the September 2022 MTA/PMOC meeting, a larger related issue was discussed at length. The SSOA staff participated in this discussion as well. The crux of the issue is that MTA does not have a police force located in proximity to the Purple Line. MTA hired a consultant team to analyze alternatives for providing security and fare enforcement services for the Purple Line. Alternatives include: expanding MTA's enforcement services geographically, bringing on a third party to provide these services through a contract, or sharing police services with another party. On February 23, 2023, MTA submitted its prepared draft recommendation for providing security and fare enforcement to several State of Maryland departments. Representatives from MDOT, which is the SSOA, who are monitoring the Purple Line project development provided comments on the draft recommendation before MTA submitted it to MTA's upper management and the several state departments. In late April 2023, MTA provided FTA with the alternatives study for review. The study indicates that the preferred alternative is the development of a new Southern District of the MTA Police Department and recommends several next steps toward implementation of the new district, including hiring a commander, developing operating procedures, working on MOUs with other local jurisdictions, and developing a facility to house the district. The PMOC continues to recommend, that MTA develop a written implementation plan that includes schedule milestones and a budget for providing security and fare enforcement services.

As required by the P3 contract, PLTP was responsible for directly implementing many of the safety and security requirements for the project, including those for construction safety and the collection and maintenance of the Occupational Safety and Health Administration (OSHA) safety statistics for the project. PLTC performed this work until its departure from the project, at which time MTA assumed responsibility. MTS transitioned into the safety and security role that PLTC held. MTS and MTA are holding regular safety and security coordination meetings.

Safety is a PMOC concern. The rate of recordable incidents remains above project goals, and MTA appears to be having difficulties with incident documentation. For the period from January 1, 2022, through ***October 2023***, the OSHA statistics are:

- TCIR (Total Case Incident Rate) (Recordable Rate) – MTS and OSF activities:

- Actual: ***3.55/4.16*** (MTS/OSF)
- MTS goal: ***1.68***
- National average: 2.8 (for heavy civil construction)

- LTIR (Lost Time Injury Rate) (Recordable Rate) – MTS and OSF activities:
  - Actual: ***3.55/4.16*** (MTS/OSF)
  - MTS goal: ***0.64***
  - National average: 0.9 (Construction – heavy civil)

MTA had assumed responsibility for safety oversight until MTS assumed control of the project. As of December 2022, MTA reported that MTS needs coaching on expectations for the required reporting of safety statistics. In April 2023, the PMOC noted to MTA that both the LTIR and the TCIR have significantly increased, particularly for the MTA-managed OSF activities. In addition to the increase in incident rates, there is an apparent lack of tracking and reporting of safety issues. MTA recognizes the issue and reports that it has scheduled additional safety coordination efforts. In May 2023, the PMOC requested documentation on these additional efforts, and in July 2023, the PMOC questioned the effectiveness of the efforts. MTA acknowledges the need for safety process improvement. The PMOC recommends that MTA and MTS complete a safety process review as soon as practical and that MTA prepare a written summary. The summary should include the action items and the responsible parties for each. It is the opinion of the PMOC that there may be a lack of emphasis on safety or lack of safety-related MCC.

Due to the inconsistent reporting and high incident rate of safety issues, as of ***October 2023,*** the PMOC once again requested that MTA provide written documentation related to safety process improvements. On September 28, 2023, MTA provided a brief document that indicated it had performed an audit and proposed several safety process improvements. The PMOC needs additional detail in order to evaluate the proposed safety process changes. In the opinion of the PMOC, MTA's processes related to construction safety need significant improvement.

In late October 2022, MTA submitted updated SSMP and SSCP documents in conjunction with the updated PMP. On February 13, 2023, and March 8, 2023, FTA provided review comments to MTA on the SSMP and SSCP, respectively. MTA submitted a revised SSMP to FTA on June 28, 2023, and submitted a revised SSCP on August 28, 2023. FTA approved the SSMP in August 2023 and the PMOC is nearing completion of its SSCP review.

See the **Project Management Plan and Sub-plans** section of this report, above, for the status of the sub-plans of the PMP related to safety and security. Attachment B of this report includes additional quarterly safety- and security-related information for the Purple Line project.

2.17 Americans with Disabilities Act

The PMOC confirmed that the Design Criteria Manual applicable to the Purple Line project addresses Americans with Disabilities Act (ADA) requirements, including references to the

requirements in the Maryland Accessibility Code, the ADA Accessibility Guidelines for Buildings and Facilities, and the ADA Standards for Transportation Facilities.

Accessibility and compliance with the ADA are required as part of the functional requirements for stations and guideway, and as part of the codes and standards for LRVs within the P3 contract (Book 2, Part 2) for the Purple Line project. Based on project reviews conducted by the PMOC, MTA has confirmed that it included ADA compliance in its QA oversight reviews of PLTC's design packages. A full-time Purple Line project Maintenance of Traffic construction representative also monitors whether temporary pedestrian accommodations during construction continue to comply with ADA requirements. ADA compliance is included in the PMOC's periodic project reviews, during which the PMOC discusses timely project ADA-related items with the project team. Such discussions during the PMOC's most recent reviews identified no current ADA-related issues.

MTA indicates that the project is maintaining ADA accessibility along the project corridor during construction. In addition to planning for ADA accessibility, MTA and MTS respond to public concerns due to construction activities and temporary accessibility features**.**

2.18 Buy America

MTA understands that Buy America compliance applies not only to the rail vehicles but also to the 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 regulations is contained in MTA's standard clauses for its procurements, and the P3 contract contains explicit Buy America language in its Appendix 16.

Virginkar and Associates, Inc. conducted the Buy America pre-award audit and concluded that there is reasonable certainty that CAF will satisfy the Buy America requirements as stated in 49 Code of Federal Regulations (CFR) 661. MTA's interpretation is that, because the vehicle RFP was advertised before December 4, 2015 (which is the date of passage of the Fixing America's Surface Transportation Act, also known as the FAST Act), the 49 CFR 661 Public Interest Waiver that limits domestic content to a minimum of 60 percent, as opposed to the escalating domestic content requirements of the FAST Act, applies in this case. During the week of October 2, 2017, an intermediate post-award Buy America audit was conducted of CAF's facility in Elmira, New York, for added confidence that the post-delivery audit would not identify issues. CAF targeted 65 percent domestic content in the completed LRVs.

The project's Buy America compliance audit for the LRVs was conducted on November 14, 2022. In January 2023, CAF provided additional documentation requested to assist with evaluation of Buy America compliance. On August 17, 2023, MTA provided the Post-delivery Buy America Audit, dated April 21, 2023, to FTA. On that same day, MDOT also provided the Certificate of Compliance to FTA for the Post-delivery Audit of Rolling Stock Purchases. The audit indicates that the percentage of U.S. domestic content is 66.74 percent, which meets FTA requirements.

2.19 Start-up, Commissioning, Testing

MTA will begin documentation for the "Roadmap to Revenue Operations," which will include both MTA and MTS information on integration, testing, and commissioning. MTS indicates that it is preparing a System Integration Test Plan. ***MTA has developed a process for managing testing submittals and reviews, including detailed tracking of open items. MTS will deliver its full integration and testing plan in May 2024. MTA has not yet contracted with an Independent Integration Engineer to oversee the integration and testing process.***

2.20 Before-and-After Study Reporting

TBD

2.21 Lessons Learned

The resolicitation of a D-B contractor gave MTA the opportunity to apply several lessons learned to the new D-B contract documents and to amend the P3 agreement. After the May 2022 risk workshop with MTA and the PMOC, MTA provided an update on opportunities for improvement that MTA had identified during the resolicitation and is incorporating into the project. MTA and the PMOC will include discussion of lessons learned at future monthly meetings. ***MTA indicates that it has prepared initial Lessons Learned summary documentation, which it will transmit to the PMOC.***

2.22 Action Items

Action Items are identified at MTA/FTA Quarterly Progress Review Meetings, at MTA/PMOC Monthly Update Meetings, and at MTA/FTA Biweekly New Starts Progress Conference Calls. Action Items from the PMOC monthly call in ***October 2023*** are as follows:

1. MTA will provide updates to the OSF budget and cash flow. – OPEN
2. MTA will provide additional documentation of the findings of the internal safety process audits. – OPEN
3. MTA will provide initial Lessons Learned documentation. – OPEN
4. MTA will begin documentation for the "Roadmap to Revenue Operations," which will include MTS and MTA information on testing, commissioning, and the Independent Integration Engineer. – OPEN
5. MTA will provide the expected date that the written plan, budget, and schedule for development of police and fare enforcement services will be ready. – OPEN

ATTACHMENT A – LIST OF ACRONYMS

ADA	Americans with Disabilities Act
ARPA	American Rescue Plan Act
ATC	Alternate Technical Concept
BFMP	Bus Fleet Management Plan
BPW	Board of Public Works
CAF	Construcciones y Auxiliar de Ferrocarriles
CEL	Certified Elements List
CFR	Code of Federal Regulations
CIL	Certified Items List
CSCC	Construction Specification Conformance Checklist
CSX	CSX Corporation
D-B	Design-Build
DBE	Disadvantaged Business Enterprise
DCCC	Design Criteria Conformance Checklist
DNR	Maryland Department of Natural Resources
EAC	Estimate at Completion
FAI	First Article Inspection
FCP	Forest Conservation Plan
FFGA	Full Funding Grant Agreement
FRP	Final Recovery Plan
FTA	Federal Transit Administration
GEC	General Engineering Consultant
IBS	Initial Baseline Schedule
IRP	Interim Recovery Plan
LOD	Limits of Disturbance
LRT	Light Rail Transit
LRV	Light Rail Vehicle
LTIR	Lost Time Injury Rate
MCC	Management Capacity and Capability
MDE	Maryland Department of the Environment
MDOT	Maryland Department of Transportation
MOU	Memorandum of Understanding
MTA	Maryland Transit Administration
MTS	Maryland Transit Solutions
N/A	Not Applicable
NEPA	National Environmental Policy Act
NTP	Notice to Proceed
O&M	Operations and Maintenance
OCS	Overhead Contact System
OHA	Operational Hazard Analysis
OMF	Operation and Maintenance Facility
OP	Oversight Procedure
OSF	Operation Step Forward
OSHA	Occupational Safety and Health Administration
P3	Public-Private Partnership
PEPCO	Potomac Electric Power Company
PHA	Preliminary Hazards Analysis
PLTC	Purple Line Transit Constructors
PLTP	Purple Line Transit Partners
PMC	Project Management Consultant
PMOC	Project Management Oversight Contractor
PMP	Project Management Plan
QA/QC	Quality Assurance/Quality Control
QAP	Quality Assurance Plan
RAMP	Real Estate Acquisition Management Plan

RCMP	Risk and Contingency Management Plan
RFC	Released for Construction
RFP	Request for Proposals
RFQ	Request for Qualifications
ROD	Record of Decision
ROE	Right of Entry
ROW	Right-of-Way
RSA	Revenue Service Availability
RSD	Revenue Service Date
SCC	Standard Cost Category
SCIL	Safety Certifiable Item List
SEIS	Supplemental Environmental Impact Statement
SIT	Systems Integration Test
SOP	Standard Operating Procedure
SSCC	Safety and Security Certification Committee
SSCP	Safety and Security Certification Plan
SSCVR	Safety and Security Certification Verification Report
SSMP	Safety and Security Management Plan
SSOA	State Safety Oversight Agency
SSP	Safety and Security Plan
SSPP	System Safety Program Plan
SSTC	Silver Spring Transit Center
STP	Surface Transportation Program
SWM	Stormwater Management
TBD	To Be Determined
TCE	Temporary Construction Easement
TCIR	Total Case Incident Rate
TDD	Transit Development and Delivery
TIFIA	Transportation Infrastructure Finance and Innovation Act
TPSS	Traction Power Substation
TRO	Temporary Restraining Order
TVA	Threat and Vulnerability Analysis
UMD	University of Maryland
USACE	U.S. Army Corps of Engineers
WMATA	Washington Metropolitan Area Transit Authority
WSSC	Washington Suburban Sanitary Commission
YOE	Year of Expenditure

ATTACHMENT B – SAFETY AND SECURITY CHECKLIST

Note: References to the System Safety Program Plan (SSPP), Safety and Security Plan (SSP), and 49 Code of Federal Regulations (CFR) Part 659 as they are contained in the FTA standard checklist form have been retained in the following update. However, it is recognized that Maryland Transit Administration is transitioning to the Public Transportation Agency Safety Plan and 49 CFR Parts 673 and 674.

Refer to the July 2020 PMOC Monitoring Report for the most recent update.

ATTACHMENT C – TOP PROJECT RISKS

An internal risk workshop to support the Interim Recovery Plan (IRP) was held on January 26, 2021. Maryland Transit Administration (MTA) and Purple Line Transit Partners (PLTP) used information from the meeting as they solicited a replacement Design-Build (D-B) contractor. At the time of the workshop, the MTA Risk Management was tracking the following risks identified during development of the IRP:

Procurement/Settlement Risks:

- PLTP solicitation of replacement D-B contractor:
  - Market resolicitation in a compressed time frame
  - Delay in finalizing solicitation
  - Weak bidder interest – two or fewer proposals
- D-B contract and other contract negotiations

Schedule Risks:

- Inability of MTA subcontractors to meet the Operation Step Forward (OSF) schedule dates, causing delay to certain activities to be performed by the replacement D-B contractor
- Unanticipated delay to the replacement D-B contractor "ramp up" of activities, resulting in impacts to the critical path anticipated by MTA

Design and Construction Risks:

- Performance risk assumed by MTA by contracting for and performing work during the replacement D-B contractor resolicitation period (subcontracting risk)
- Quality, commercial, coordination, and unforeseen conditions unknown to MTA at the time of assumption of former Purple Line Transit Constructors subcontracts

A risk workshop was held May 3 through May 5, 2022. After the risk workshop, MTA prepared supplementary or updated documents for review, including an updated Risk Register. FTA provided a risk summary to MTA on June 22, 2022, for MTA's consideration when updating risk, contingency, and other project management plans. MTA incorporated the FTA comments in the revised Risk and Contingency Management Plan (RCMP) that is a part of the Final Recovery Plan. On May 22, 2023, FTA accepted the revised RCMP with conditions.

In ***October 2023, MTA presented the following significant project risks***:

1. Construction – Exhibit 24 Utility Adjustments
2. ***Construction – TCE Extensions***
3. ***Design – Intelligent Interface Device***
4. Construction – Non-conforming Work by Prior Contractor
5. ***Construction – Maintaining of Existing Utilities***

As of October 2023, MTA has indicated that it will conduct a risk workshop and Quantitative Risk Analysis in ***November 2023***, following the completion of OSF activities.

ATTACHMENT D – AWARDED CONTRACTS

A significant update to awarded contracts is forthcoming due to the transition within the original Public-Private Partnership concessionaire and Maryland Transit Administration's (MTA's) assumption of some, but not all, subcontracts. Included below is information that MTA prepared for the May 15, 2023 Quarterly Progress Review Meeting packet. The same information was provided for the August 9, 2023 Quarterly Progress Review Meeting, but it does not reflect the recent change order attributed to the OSF delays or several other smaller change orders that MTA is tracking. Please note that the total shown in this table for contracts awarded does not reflect the full project value.

Major Contracts:

Company	Vendor Type	Contract No.	Baseline Amount	Change Order Totals	Current Amount	Pending Change Orders
PB/RK&K	Engineers/ Architects	MTA-1054A	$12,000	$1,850	$13,850	
STV/Jacobs	Engineers/ Architects	MTA-1054B	$8,000	$1,300	$9,300	
AECOM/ RK&K/PB	Engineers/ Architects	MTA-1264A	$60,000	$338,500	$398,500	
Gannett Fleming/WRA	Engineers/ Architects	MTA-1265B	$80,000	$71,000	$151,000	
Purple Line Transit Partners	P3 Concession (design build portion only)	PUR16032PP	$1,988,816	$1,341,310	$3,330,126	
Total			**$2,148,816**	**$1,753,960**	**$3,902,776**	**0**

ATTACHMENT E – ROLLING STOCK VEHICLE STATUS REPORT

Date: October 31, 2023

Vendor: Construcciones y Auxiliar de Ferrocarriles (CAF)

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

Year: The first vehicle was completed in 2021, and currently 26 vehicles are designated as "Ready for Shipment." Completion of the storage and testing facilities at the Glenridge Operation and Maintenance Facility (OMF) has been delayed, so Maryland Transit Administration (MTA) and CAF negotiated terms for storage of vehicles at the CAF facility in Elmira, New York. The storage agreement has now transferred to the replacement Design-Build (D-B) contractor, Maryland Transit Solutions (MTS).

Quantity: 25 vehicles (125 cars) original contract (Full Funding Grant Agreement [FFGA]). One vehicle (5 cars) was added to the original CAF authorization by MTA, outside of the FFGA.

Two vehicles (ten cars) were added in July 2021 via change order, also outside of the FFGA.

Identification: The original light rail vehicles (LRVs) will be numbered from 101 through 126. The two additional LRVs will be numbered 127 and 128, respectively.

New Technologies: None planned (all major suppliers have service-proven equipment).

Status and Significant Activities:

- As a part of the original order, 130 cars were assembled in Spain, all of which were delivered to CAF's facility in Elmira, New York, for final assembly and static testing. Manufacture of the additional two vehicles (ten cars) in Spain is complete. All ten of those cars have been delivered to Elmira for final assembly and static testing.
- Delivery of finished vehicles was expected to begin in spring 2021; however, because the Glenridge OMF is not ready to accept railcars, MTA and CAF have negotiated an agreement for CAF to store the completed cars in Elmira.
- Cost risk for delivery of the finished vehicles has been transferred to MTS. If delays in construction cause a delay, then MTS is responsible to CAF for additional storage cost.
- Twenty-six LRVs have passed static testing, have been designated as Ready for Shipment, and have been placed into storage in Elmira. These include vehicle 110, which was returned to Ready for Shipment status after a second period in static testing.
- Delivery of the first of the original 26 vehicles is currently scheduled for early 2024. Approximately one vehicle per week will be delivered thereafter. The Glenridge OMF

will be able to store three or four vehicles on the yard and in the building, so track must be available for additional storage. The Overhead Contact System and Traction Power Substation (TPSS) Q7 and TPSS QYG must also be completed and installed before delivery of vehicles.

- SNC-Lavalin (now an MTS subcontractor) prepares a monthly quality report documenting safety, production, and quality items at both the Spain and New York production facilities.
- MTA, the Project Management Consultant, and CAF are holding weekly coordination meetings to review all outstanding testing and factory/shop activities, including onsite testing procedures for when the vehicles are delivered to Maryland.
- MTS, which has assumed the CAF contract, is preparing and submitting to MTA reports on LRV maintenance activities required during the storage period.
- The project's Buy America compliance audit for the LRVs was conducted on November 14, 2022. In January 2023, CAF provided additional documentation requested to assist with the evaluation of Buy America compliance. On August 17, 2023, MTA provided the Post-delivery Buy America Audit, dated April 21, 2023, to Federal Transit Administration (FTA). On that same day, Maryland Department of Transportation also provided the Certificate of Compliance to FTA for the Post-delivery Audit of Rolling Stock Purchases. The audit indicates that the percentage of U.S. domestic content is 66.74 percent, which meets FTA requirements.
- The resolution of the previously identified quality issue related to the M33 bolt on the LRVs and the associated final report was expected in May 2023, but submittal to FTA has been deferred until MTA coordinates confidentiality issues with CAF. MTA determined that the issue does not impact safety, and the solution is likely the use of a higher strength bolt. The effort to resolve the issue included a significant amount of work to determine whether a bolt failure would cause debris to fall on the track. As of September 2023, CAF has identified additional occurrences of the M33 bolt issue. CAF does not believe the issue will impact delivery of the vehicles, which is scheduled for spring of 2024.

ATTACHMENT F – PROJECT MILESTONES/KEY EVENTS

Photos courtesy of Maryland Transit Administration.







MSE Wall 1-073 Panels Installation and Backfill- GBT at West Lyttonsville
Week Ending 10-13-23



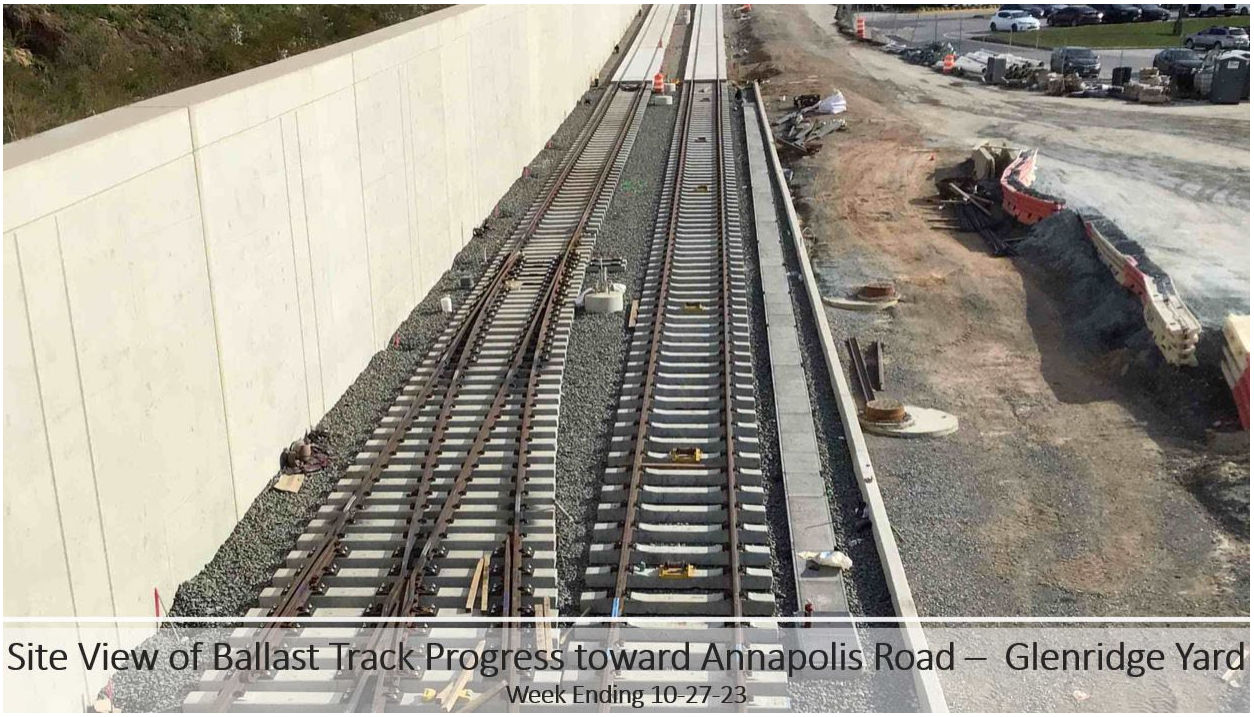
Wall Rebar and Formwork Installation– Manchester Place Station
Week Ending 10-13-23



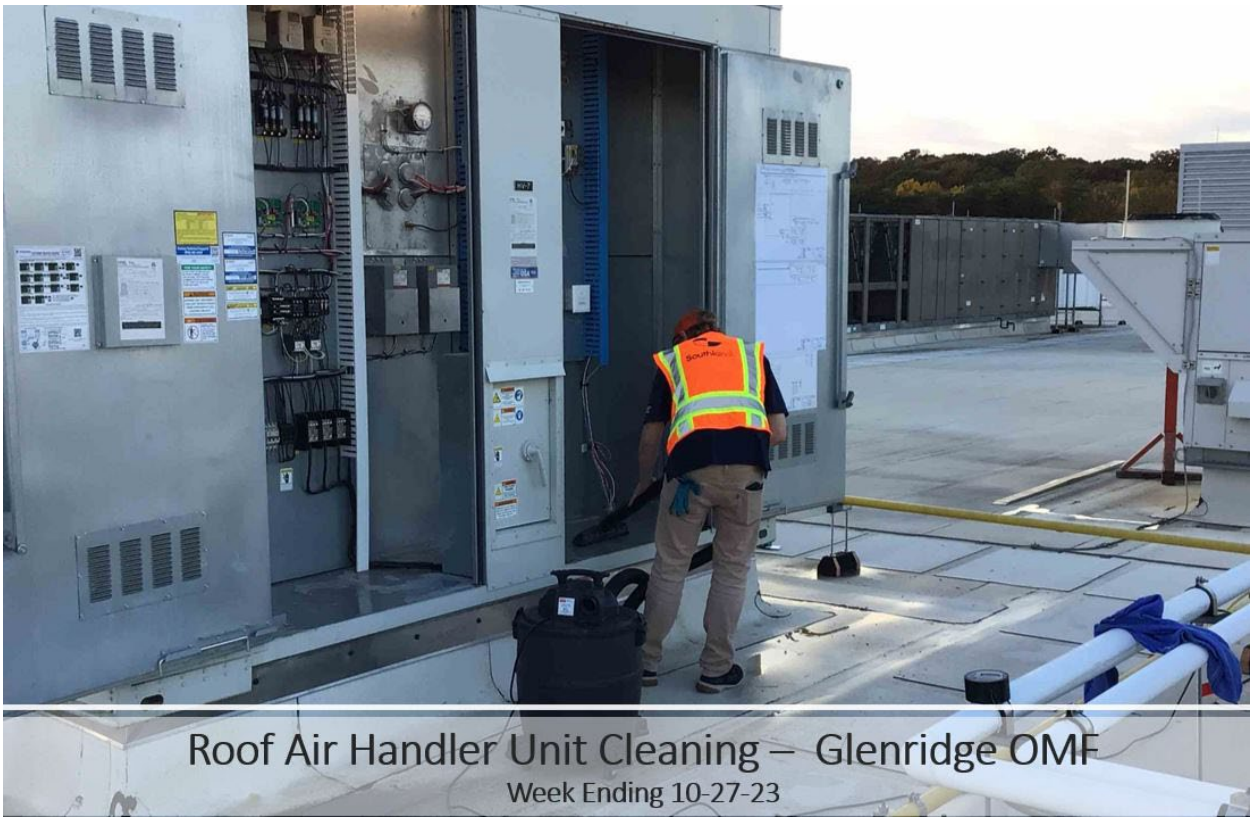
Cable Rack Installation Work – Plymouth Tunnel
Week Ending 10-20-23



Platform Canopy Installation Work – Glenridge Station
Week Ending 10-20-23



Site View of Ballast Track Progress toward Annapolis Road – Glenridge Yard
Week Ending 10-27-23



Roof Air Handler Unit Cleaning – Glenridge OMF
Week Ending 10-27-23

ATTACHMENT G – ROADMAP TO REVENUE OPERATIONS

In accordance with Oversight Procedure (OP) 25, the Project Sponsor will prepare the Roadmap to Revenue Operations template based on the current master project schedule, in the general format presented below. The PMOC will provide this template to the Project Sponsor as a separate electronic file for its use.

Due to the transition to a new Design-Build contractor, quarterly updates have not been made for some time. This quarterly update process for the roadmap is being reinstated as of August 2023, and the Project Sponsor is requested to provide quarterly updates, beginning in October 2023, for review and discussion.

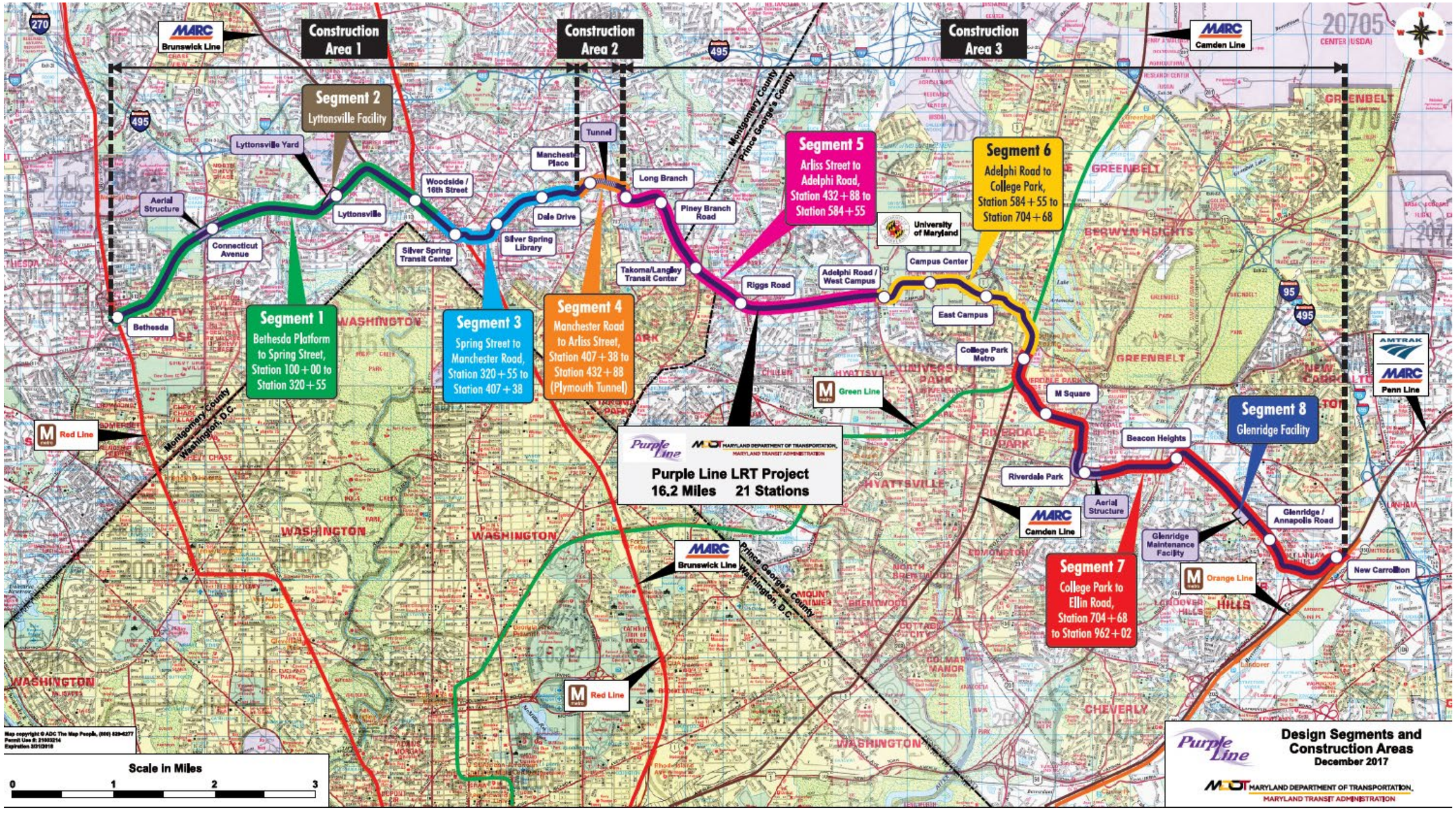
ROADMAP TO REVENUE OPERATIONS (MTA to provide updates)

Description	Responsible Party	Status	Early Start Date	Estimated Completion Date	Actual Completion Date	Agency Notes	PMOC Notes	Additional Information Required
Testing								
Finalize Comprehensive Test Plan								
Finalize / Update Systems Integration Test (SIT) Plan								
Develop Testing Schedule and Monitoring Tools								
Develop Operating Rules for Testing								
Conduct System Integrated Testing - Prioritized Traffic Signal Systems								
Certificates of Occupancy / Substantial Completion								
Finalize Operating Plan								
Finalize / Revise Standard Operating Procedures (SOPs), manuals, and rulebook as applicable								
Complete Staffing Plan								
Obtain Required Staff								
Training of Operations and Maintenance (O&M) personnel								
Emergency response plan, training, and drills								
Finalize Revenue Operations Plan								
Develop / Revise Safety and Security Certification Plan								

Description	Responsible Party	Status	Early Start Date	Estimated Completion Date	Actual Completion Date	Agency Notes	PMOC Notes	Additional Information Required
(SSCP) & Safety and Security Management Plan (SSMP)								
Federal Transit Administration (FTA) Office of Safety & Security Readiness Review								
PMOC OP-54 Readiness for Revenue Operations Review Report								
Conduct Operational Hazard Analysis (OHA) and resolve other hazards / vulnerabilities								
Pre-Revenue Operations								
Develop Safety Outreach Plan								
Provide Community Outreach								
Public Timetables / Maps / Website Updates, etc.								
Grand Opening Plan								
Update / Finalize SSMP								
Finalize and/or update Safety Certifiable Item List (SCIL) and SSCP								
Implement Safety and Security Certification Committee								
Implement Fire Life Safety Committee								
Verify design criteria, Preliminary Hazards Analysis (PHA), Threat and Vulnerability Analysis (TVA), change orders are implemented within the project								
Review status of quality non-conformances								
Closeout of non-safety critical items/non-conformances								
Closeout of safety critical items/nonconformances								
Complete Safety and Security Certification Verification Report (SSCVR)								
Document Workarounds / Open Items List								

Description	Responsible Party	Status	Early Start Date	Estimated Completion Date	Actual Completion Date	Agency Notes	PMOC Notes	Additional Information Required
Verify emergency drills, tabletops, training, etc. are completed								
SSO final certification / signature								
Revenue Service								
Target Revenue Service Date (RSD)								
Public RSD								
Full Funding Grant Agreement (FFGA) RSD								

ATTACHMENT H – PROJECT MAP



COMPREHENSIVE MONITORING REPORT
August 2023–October 2023

Metro Fleet and Train Control Replacement Project
MTA Non-New Starts Capital Projects

Maryland Transit Administration
Baltimore, Maryland
Final

Draft Report Delivered to FTA on November 04, 2023
Final Report Delivered to FTA on November 26, 2023

PMOC Contract No.: 69319519D000016
Task Order No.: 69319520F300095
Project No.: 69319519D000016/69319520F300095
Requisition/Reference No.: FTA-TPM20-20-0106
OPs Referenced: 20, 22, 24, 25, 26
CLINs 0001, 0002, and 0005

David Evans and Associates, Inc.
John Susino, Task Order Manager
Voice: 610-570-6496; Email: john.susino@deainc.com
Time on Project: 05/18/2020 through 05/17/2025

REPORT FORMAT AND FOCUS

This report is submitted in compliance with the terms of the Federal Transit Administration (FTA) Contract #69319519D000016, Task Order #69319520F300095. Its purpose is to provide information and data to assist FTA as it continually monitors the management capacity and capability of the Maryland Transit Administration (MTA) (the Project Sponsor) to execute the project efficiently and effectively, and hence, whether the Project Sponsor continues to be ready to receive federal funds for further project development. This report covers the project management activities on the Metro Fleet and Train Control Replacement Project and the MTA Non-New Starts Capital Projects managed by MTA as the Project Sponsor. The cost and schedule information in this report was extracted from MTA's October 18, 2023, monthly report, except where noted. This report has been organized to comply with the requirements of updated Oversight Procedure 25 – Recurring Oversight and Related Reports dated June 2020.

THIRD-PARTY DISCLAIMER

This report and all subsidiary reports are prepared solely for FTA. This report should not be relied upon by any party, except FTA or the Project Sponsor, in accordance with the purposes as described below.

Projects funded by FTA and monitored by its Project Management Oversight Contractor (PMOC) can utilize a risk-based assessment process to review and validate a Project Sponsor's budget and schedule. This risk-based assessment process is a tool for analyzing project development and management. Moreover, the assessment process is iterative in nature; any results of an FTA or PMOC risk-based assessment represent a "snapshot in time" for a particular project under the conditions known at that same point in time. The status of any assessment may be altered at any time by new information, changes in circumstances, or further developments in the project, including any specific measures a Project Sponsor may take to mitigate the risks to project costs, budget, and schedule, or the strategy a Project Sponsor may develop for project execution. Therefore, the information in the reports will change from quarter to quarter, based on relevant factors for the period and/or previous periods.

TABLE OF CONTENTS

1. EXECUTIVE SUMMARY 1
1.1. Project Description 1
1.2. Project Status 1
1.3. Major Issues and/or Concerns 6
1.4. Status of Key Indicators Dashboard (Post-Grant) 9
1.5. Core Accountability Items 10
2. OBSERVATIONS AND FINDINGS 12
2.1. Summary of Monitoring Activities 12
2.2. Oversight Triggers 12
2.3. Project Management Plan and Subplans 13
2.4. Management Capacity and Capability 13
2.5. National Environmental Policy Act Process and Environmental Mitigation 13
2.6. Project Delivery Method and Procurement 13
2.7. Design 13
2.8. Value Engineering and Constructability Reviews 15
2.9. Real Estate Acquisition and Relocation 15
2.10. Third-party Agreements and Utilities 15
2.11. Construction 15
2.12. Vehicle Technology and Procurement 17
2.13. Project Cost 18
2.14. Project Schedule 20
2.15. Project Risk 22
2.16. Quality Assurance/Quality Control 22
2.17. Safety and Security 23
2.18. Americans with Disabilities Act 23
2.19. Buy America 23
2.20. Start-Up, Commissioning, Testing 23
2.21. Before-and-After Study Reporting 24
2.22. Lessons Learned 24
2.23. Actions Items Table 24

ATTACHMENT A – LIST OF ACRONYMS 25
ATTACHMENT B – SAFETY AND SECURITY CHECKLIST 27
ATTACHMENT C – TOP 5 PROJECT RISKS 30
ATTACHMENT D – AWARDED CONTRACTS 31
ATTACHMENT E – ROLLING STOCK VEHICLE STATUS REPORT 32
ATTACHMENT F – PROJECT MILESTONES/KEY EVENTS 33
ATTACHMENT G – ROADMAP TO REVENUE OPERATIONS 34
ATTACHMENT H – PROJECT MAP 37

LIST OF TABLES

Table 1 – Major Issues/Concerns and Action Items 7
Table 2 – Key Indicators Dashboard 9
Table 3 – Core Accountability Items 10
Table 4 – Project Federal Grants 18
Table 5 – Project Funding Summary 19
Table 6 – Project Schedule 21

1. EXECUTIVE SUMMARY

1.1. Project Description

The Metro Fleet and Train Control Replacement Project, as part of the Maryland Transit Administration (MTA) (Project Sponsor) Non-New Starts Capital Projects, renovates the MTA Metro System that consists of a double-tracked train-controlled signaling system that is 15 miles long and a Metro railcar fleet consisting of 100 cars that are now more than 30 years old. The MTA Metro System is located in Baltimore, Maryland. The Metro railcars were designed with a 30-year life and are now due for replacement. The Automatic Train Protection system is currently experiencing reliability problems due to its age and parts obsolescence. The Metro Fleet and Train Control Replacement Project, which is using phased construction, consists of installation of a new Communications Based Train Control (CBTC) system, 78 new railcars (based on a needs assessment), phaseout of the old fleet, and decommissioning of the old train control system. The project cost is budgeted at $476,851,000, which is unchanged from the value reported in the 2022 Quarter 3 Project Management Oversight Contractor (PMOC) comprehensive monitoring report.

1.2. Project Status

The contract was awarded to Hitachi Ansaldo Baltimore Rail Partners, LLC (HAB) (now Hitachi Baltimore Rail Partners LLC [HBR]) in July 2017. Notice to Proceed was issued on September 1, 2017. HBR is making contract submittals and conducting project training. Submissions of Train Control and Railcar Conceptual Design Reviews and Preliminary Design Reviews (PDRs) and review meetings have been completed. The PDR phase for the Train Control system was completed in February 2019, and the Railcar PDR phase was completed in March 2019 (with the exception of Lighting, which was completed in early May 2019).

Work by HBR to complete the Reliability, Availability, Maintainability, and System Safety (RAMS) documentation for the vehicles continues, and the impacts of COVID-19 have delayed completion of the Final Design Review phase from the original September 2020 due date. **As of October 31, 2023, HBR continues to progress RAMS Railcar documentation towards completion, with only four RAMS documents remaining to complete, as well as minor MTA comments on engineering documents to process. MTA expressed concern that the guiding document for yard and test track certification does not appear to have been shared between the safety, test, and engineering teams, because there are still questions from each about what can and cannot be done. HBR noted that work to define the checklist approach still needs to be conducted, and that work will be addressed in the coming days. MTA warned HBR that its staff will not witness Factory Acceptance Tests (FATs) of software that is not fully developed and configured. MTA also indicated that HBR is free to deploy the test track version for testing while the full MTA mainline development continues. MTA stated that HBR will need to complete all safety certifications by the end of March 2024 in order to meet the milestone for system cutover for revenue service to the Main Operations Control Center (OCC).**

- Scope: No significant changes to the scope have been initiated since MTA added axle counters in the existing Metro vehicle yard as part of the Train Control portion of the project. There is also a credit due to scope removal of $3.7 million, which is also planned to be used for Construction Management (CM) services.

  In May 2023, MTA issued HBR a cure notification regarding HBR's performance or lack thereof. HBR executives are committed to addressing the cure notification and improving HBR's performance overall. In the on July 20, 2023 meeting of MTA and Hitachi executives, , the discussion topics were current mitigations Hitachi has been providing, Hitachi's desire to vet the systems testing predominately in the lab versus in the field, and increased validation in-house with Hitachi's RAMS group. Hitachi told MTA that when HBR is settled in at the Hagerstown, Maryland facility and initial production is running smoothly, it will increase the vehicle production rate at a steady pace to minimize the impact from the loss of the 33 carshells (see Section 2.2, Oversight Triggers, for information on the scrapping of 33 carshells). At the meeting on September 26, 2023, MTA expressed concern over HBR's slowdown with safety certifications and not addressing the schedule slippage. MTA had a conversation with Hitachi executives regarding the purchase of Thales to discuss a plan around compatibility, especially the zone controllers for the CBTC hardware/software based on the Thalis purchase and products and how it will affect Hitachi's support of the Train Control Systems portion of the project. Hitachi suggested a follow-up meeting specific to this topic.

- Summary of COVID-19-related Items:
  - Most COVID-19 staffing-related delays to the Train Control system ended by September 2021.
  - The final first-round training session for the Solid-state Interlocking (SSI)/Data Communication System (DCS)/Local Automatic Train Supervision (LATS) was postponed and rescheduled to be completed just before startup of the first interlocking.
  - HBR's Italian carshell manufacturer (OMEP) reopened to approximately 95 percent to 100 percent of its normal capacity in June 2020; carshell production work continues.
  - Railcar First Article Inspections (FAIs) did not occur on schedule because of travel restrictions and closed facilities. Railcar FAIs began in late June 2020 and are continuing. Accommodations were made for remote FAIs where needed.
  - Maryland on-site construction and Train Control testing and commissioning were initially shut down in April 2020 and restarted in May 2020; however, these activities experienced another two-week shutdown in December 2020.
  - FATs for SSI were postponed due to travel restrictions but are now complete.
  - SSI manufacturing was shut down but has resumed.

  - The structural qualification testing required for carshell acceptance that was to be performed on Carshell X, which has a reworked roof, was moved from Italy to Germany as a result of new COVID-19 restrictions that were imposed in October 2020. The beginning of structural qualification testing was delayed from April 2021 to September 2021 due to backlogs and employee COVID-19 exposures at the testing vendor.
  - MTA has not reported new issues or impacts from COVID-19 since June 2021, with the exception of the global supply chain disruptions that delayed the delivery of vehicle subsystems and materials. MTA indicated that it is able to segregate COVID-19-related impacts (i.e., labor, material supply, superchips) from other project costs. **Regarding HBR's claim for the second no-cost time extension of 20 months due to COVID-19, MTA reported that negotiations have stalled once more; however, MTA now has imposed a deadline of October 31, 2023, tied to a proposed new baseline schedule.** This second request by HBR for a no-cost time extension is for issues above and beyond the previously granted extension. ***The PMOC recommends that MTA maintain records related to these disruptions in case additional claims on this subject arise in the future.***

- Schedule:
  - MTA approved HBR's February 28, 2018, project baseline schedule (Rev. 3), which showed a project completion date of May 2024, with warranty completion and project closeout scheduled to occur in May 2026. HBR submitted its Project Schedule Update V11, with a data date of March 1, 2019, to address some of MTA's prior comments. In its April 2019 and May 2019 schedule submissions, HBR presented schedule recovery plans to MTA that attempted to recover the Full Revenue Service date (although these recovery plans did not recover the interim milestones, including the Phased Revenue Service Start date).
  - In May 2020, MTA decided to proceed with the addition of axle counters in the yard. Because of uncertainty related to testing requirements for these axle counters, HBR's Project Schedule Update V25 showed a delay of the Full Revenue Service date to February 6, 2024. MTA rejected HBR's Project Schedule Update V25.
  - After multiple submittals, rejections, and comments, MTA accepted Project Schedule Update V28 from HBR in September 2020 as the new baseline schedule. Project Schedule Update V28 showed the completion of the "Train Control" construction milestone on May 5, 2025; the "Last Vehicle Final Acceptance" milestone on March 1, 2024; and the "Revenue Service Full Project" milestone on September 15, 2024.
  - Starting in April 2021 and continuing through January 2022, MTA reported that the project was delayed compared to the previously accepted September 2020 baseline schedule. As of January 12, 2022, HBR projected that the "Last Vehicle

Final Acceptance" milestone was delayed by 257 days from the baseline schedule to November 13, 2024, and that the "Revenue Service Full Project" milestone was delayed by 258 days from the baseline schedule to November 12, 2024.

- In January 2022, HBR proposed a new baseline schedule to MTA, referred to as Schedule Update 41. Since January 2022, MTA and HBR have been negotiating the details of the proposed baseline schedule (Schedule Update 41). HBR requested that MTA accept Schedule Update 41 as the new baseline schedule. In the interim, HBR has submitted **17 schedule revisions after receiving comments from MTA. MTA and HBR currently are working off of the latest revision (Schedule Update 41R17), submitted in August 2023. MTA indicated that it is awaiting a baseline schedule that it can approve, the documentation for resolution of the COVID-19-related no-cost time extension, and completion of the RAMS documentation. MTA remains in negotiations with HBR as it works through the commercial aspects of a change order to officially replace the contract's baseline schedule.** MTA is working under the expectation that the milestones in the upcoming revision will be accepted as the new baseline schedule. **MTA reported that the "First Vehicle Delivery" (aka the "First Married Pair") milestone occurred on September 13, 2023, which is 24.5 months later than the date shown in the current baseline schedule. Schedule Update 41R17 also shows that the "First Vehicle Final Acceptance" milestone will be delayed until June 2025, and the "Last Vehicle Final Acceptance" milestone will be delayed until August 2026. Both of these dates are 30 months or more later than those shown in the current baseline schedule. Schedule Update 41R17 shows that the "Project Closeout" milestone will be delayed until March 2029, which is 22.5 months later than shown in the current baseline schedule.**

- Cost: On **October 18, 2023,** MTA reported that **$223,252,000** of the $476,851,000 project budget had been expended through **August 1, 2023**. Forty-six change requests were in various stages of development, negotiation, and authorization; many were credits or no-cost changes, and the scope of two were funded by other sources. The total cost of the change requests is within the $20,000,000 contract contingency included in the project's budget. **The $476,851,000 project cost contains a miscellaneous work allowance (MWA) budget that is referred to as contingency. Currently, just over $8 million is left in the MWA, and the rest was used for change notices and upcoming estimated change notices. MTA plans to use the remaining $8 million (or whatever portion is left after change notices) for CM services. MTA feels that unless something unforeseen occurs, most, if not all, risks have been identified and estimated. There is also a credit of $3,700,000 due to scope removal that is also planned to be used for CM services**.
  - Based on the current estimate at completion (EAC), MTA is approximately $1.0 million short for CM services through the end of the contract. MTA believes

that this amount is a conservative estimate, because the EAC assumes a cost of $900,000 per month in CM services, which has been the average for the last two years, during which time MTA had its peak requirement for design reviews, test engineers, and inspectors. **The Metro Fleet and Train Control Replacement Project is a force-funded project for MTA; therefore, after this next fiscal year, based on the EAC, MTA will request more funds.** MTA stated that the Hitachi budget will not increase. There are no changes that will require the budget to increase past the$400,517,000 . This amount of $400,517,000 includes the $20,000,000 MWA, the remainder of which will be used for CM services, as described above. Given that HBR will need 24 to 26 months until it can increase production to mitigate scrapping 33 rail carshells because of corrosion, and barring any other undetermined delays to railcar production, ***the PMOC forecasts that additional funds may be required until there is an approved realistic baseline schedule that incorporates mitigations to address carshell issues, safety certification, CM, and schedule delays.***

- Significant Project Activities and/or Key Milestones:
    - Monthly meetings between Hitachi executives and MTA leadership began in January 2021 to address issues related to vehicle quality and the project schedule. **At the meeting on September 26, 2023, MTA expressed concern over HBR's slowdown with safety certifications and not addressing the schedule slippage. MTA had a conversation with Hitachi executives regarding the purchase of Thales to discuss a plan around compatibility, especially the zone controllers for the CBTC hardware/software based on the Thalis purchase and products and how it will affect Hitachi's support of the Train Control Systems portion of the project. Hitachi suggested a follow-up meeting specific to this topic.**

      The PMOC continues to recommend that MTA continue to hold the partnering meetings with Hitachi and focus on resolution of key project issues with Hitachi executives, as well as continue to provide the Federal Transit Administration (FTA) and PMOC with summaries of meetings with Hitachi executives.
    - **The Automatic Train Supervision (ATS) team provided a comprehensive schedule showing the path to having the Backup Operations Control Center (BOCC) achieve revenue service in February 2024 and the Main OCC entering into revenue service in May 2024. HBR resolved the issue related to the Master Clock interface during ATS-Mainline testing. HBR continues to work on the Penta Corporation (PENTA) Customer Information Systems and Google Transit interfaces.**
    - **The CBTC FAT that was scheduled for the week of August 21, 2023, did not occur because HBR did not have all points and turn backs ready for the system. MTA reported that HBR plans to have a release ready for the yard test track testing during the week of November 13, 2023, and a release for the**

full mainline ready in March 2024. However, MTA will not attend the FAT until HBR has proven that all functionality has been configured and tested for the complete mainline release before March 2024. MTA indicated that it had informed Hitachi that a fully functional CBTC consists of meeting the requirements that include the functionality for speed restriction, interlockings, and back-ins for all points, especially Baltimore, by March 2024.

- **Regarding safety certification, HBR continues to make progress on Design Conformance Checklist (DCC) verification for ATS, CBTC, and Automatic Train Control (full integration). HBR is also progressing DCC verification for the yard at the last SSI location. MTA indicated that verification of the DCC is nearly complete, and HBR will shift to the ATS construction conformance checklist (CCC) once Hitachi submits the reports. The focus is to have everything ready for the December 8, 2023 weekend outage in the yard. HBR must submit a report for the completed Supervisory Control and Data Acquisition (SCADA) system and separate reports for Google Transit and PENTA to MTA.**
- **With respect to testing updates, final Phase 3 testing will occur in the laboratory, allowing Hitachi to be ready for cutover of service to the BOCC and then the Main OCC. Hitachi will continue ATS-Mainline testing and will finalize the Penta and Google Transit interfaces in order to conduct FAT and field testing. HBR is expected to complete the open items related to the yard dynamic testing track so that everything will be ready for the December 8, 2023 weekend outage to bring the yard into revenue service. Phase 4 testing on the mainline is expected to continue.**
- **HBR planned an MTA visit to the Hagerstown facility on October 30, 2023. MTA mentioned that the elevated track has been completed. In September 2023, the Hagerstown facility received occupancy certification. HBR is still on target for equipment installation by the end of the fourth quarter of 2023. MTA thinks that HBR can still achieve the schedule for its Hagerstown facility to start railcar production in April 2024.**

1.3. Major Issues and/or Concerns

Table 1 discusses the major issues or concerns impacting the project's scope, schedule, cost, risks, quality, safety, etc., as well as the Project Sponsor actions and FTA and PMOC recommendations.

Table 1 – Major Issues/Concerns and Action Items

Issue/Concern	HBR's schedule updates continue to show slippage of the project baseline schedule interim milestones and the project completion dates. Project Schedule Update V28 has been accepted as the new baseline schedule and reflects initial COVID-19-related impacts, but the pandemic has caused additional impacts not covered by the new baseline schedule. This September 2020 baseline schedule does not include contingency time or "float." HBR has now proposed a new baseline schedule (Schedule Update **41R17**) that delays most vehicle delivery and acceptance milestones by approximately **22 to more than 25 months** from the current baseline schedule.
Date Identified	June 2020
Status	In progress
Project Sponsor Action	MTA is conducting monthly executive meetings throughout the calendar year 2023. At the meeting in May 2023, MTA issued HBR a cure notification regarding HBR's performance or lack thereof. HBR executives are committed to addressing the cure notification and improving their performance overall. **In the most recent meeting, which occurred on September 26, 2023, MTA expressed concern over HBR's slowdown of safety certifications and its lack of addressing the schedule slippage. MTA wants to ensure that HBR is incorporating all the necessary functionality for the Train Control system programming. MTA is requesting a meeting to discuss a plan to address compatibility, especially the zone controllers for the CBTC hardware/software based on the Thalis purchase and use of Thalis products.**
PMOC Recommendation	MTA should continue to perform its own schedule analysis to forecast realistic key milestones. This analysis should include a reasonable amount of schedule contingency based on MTA's experience with HBR's performance to date and MTA's professional experience. It should be used as the basis to report schedule status to FTA and the PMOC. MTA should track delays closely and continue to provide monthly updates to assess how delays are being mitigated. **MTA should maintain the partnering meetings and focus on resolution of key project issues with Hitachi executives, as well as continue to provide FTA and the PMOC with summaries of meetings with Hitachi executives.**
Issue/Concern	Since the incident when MTA rejected Roof #1 due to significant quality issues, HBR continues to experience significant quality issues. Corrosion of carshells due to desiccant, corrosive dust, the need to rework axle counters, and a cracked structural bolster beam and roof dimpling are a few of the more recent quality concerns and issues affecting the project.
Date Identified	July 2020
Status	Ongoing
Project Sponsor Action	In the May 2023 executive meeting with Hitachi, MTA issued a cure notification. HBR executives are committed to rectifying the quality issues and improving quality and performance. **HBR has improved its quality program and improved its production process in the OMEP plant in Italy, and will resume shipping of carshells to Baltimore, Maryland, in April 2024. HBR developed a fix for the bolster beams, but the related warranty testing has not been developed.**
PMOC Recommendation	**Upon HBR's resuming carshell delivery to the United States, MTA should have a periodic inspection program in place to validate that HBR has addressed the quality and corrosion issues. MTA also should consider informing the Hitachi executives of MTA's concern regarding the HBR team's lack of partnering to develop the seven-year warranty testing plan for the bolster beams.**
Issue/Concern	Outstanding change notifications yet to be finalized, such as the second COVID-19 no-cost time extension.
Date Identified	May 2022
Status	Ongoing
Project Sponsor Action	MTA reports that there are no further COVID-19-related impacts aside from those that are the basis for HBR's latest request for a no-cost time extension. **MTA stated that it has issued a deadline to resolve the remaining COVID-19-related change notice, and MTA continues to work closely with HBR to resolve the remaining three non-COVID-19-related change notices.**

PMOC Recommendation	**In the opinion of the PMOC, MTA has taken a positive management step in issuing HBR a deadline to complete the COVID-19-related no-cost time extension, as well as taking additional steps to attempt to close out the three remaining non-COVID-19-related change notices. MTA should ensure that the impact of the resulting cost or schedule delays to the project are incorporated into an approved baseline schedule and project budget.**

1.4. Status of Key Indicators Dashboard (Post-Grant)

Table 2 shows the key indicators dashboard for the project.

Table 2 – Key Indicators Dashboard

Project Sponsor:				Maryland Transit Administration	
Project Name:				Metro Fleet and Train Control Replacement Project/MTA Non-New Starts Capital Projects	
Date:				**November 4, 2023**	
Project Detail					
Oversight Frequency:				**Monthly**	
Element	**Status**			**Prior Status**	**Issue or Concern**
	●	●	●		
	G	**Y**	**R**		
Project Management Plan (PMP)		●		●	The PMP is due for another update now that MTA is getting ready to receive railcars and entering the significant test phase.
Management Capacity and Capability		●		●	Management capacity and capability reviews are not being performed on this Non-New Starts Project. However, the PMOC is evaluating MTA's project management capacity because of a change in staff: Michael Ollinger was promoted, and Wane-Jang Lin has assumed Mr. Ollinger's role temporarily until the vacancy can be filled.
Cost*			●	●	The recently added funds are not currently reflected; however, MTA maintains a $1 million deficit in the project budget. MTA's MWA may not be able to cover change orders under negotiation or other project risks that still can occur.
Schedule			●	●	The currently proposed baseline schedule extends the project by up to 27 more months without float.
Quality			●	●	**No new quality issues have been presented since the previous Quarterly Progress Review Meeting; a fix has been developed for the bolster beam, but the required testing is still under resolution. MTA is trying to prevent a future quality issue regarding the CBTC system as it relates to HBR's purchase of Thalis and HBR's use of Thalis equipment and software for CBTC.**
Safety	●			●	No issues.
Risk			●	●	Schedule, cost, and quality risks remain high.
Legend					
Green	*Satisfactory: No corrective action necessary.*				
Yellow	*Caution: Risk/issues exist. Corrective action may be necessary.*				
Red	*Elevated for immediate corrective action: Significant risk to the health of the project.*				

*Note: With regard to cost:
Yellow – Forecast cost exceeds the project budget by up to 3%.
Red – Forecast cost exceeds the project budget by more than 5%.

1.5. Core Accountability Items

Table 3 shows the core accountability items for the project, including the current status of the project and the major issues and how they are being addressed.

Table 3 – Core Accountability Items

		Original (Grant)	Current Forecast	PMOC Assessment of Current Forecast
Cost	Capital Cost Estimate	$465,851,000	$476,851,000	**This estimate does not include $10 million of additional budget from state funds for CM and administration or the $3.7 million credit from removed project scope.**
Contingency	Unallocated Contingency		$0	MTA only has an MWA, which can be considered as contingency that is assigned to CM and administration. MTA has just over $8 million left in the MWA, with the rest having been used for change notices and upcoming estimated change notices. That $8 million (or whatever portion is left after change notices are resolved) is to be used for CM services. Most, if not all change notices, have been identified and estimated, although unforeseen change notices may arise). There is also a credit of $3.7 million due to scope removal, which is also planned to be used for CM services.
	Allocated Contingency		$20,000,000	This contingency level does not appear adequate at this point in the project; schedule delays are likely to exhaust this amount before project completion.
	Total Contingency	$20,000,000	$20,000,000	MTA is about $1 million short for CM services through the end of the contract. This amount is conservative estimate, because the EAC assumes a cost of $900,000 per month in CM services, which has been the average for the last two years during which MTA had peak requirements for design reviews, test engineers, and inspectors**. The project is a force-funded project for MTA; therefore, after this next fiscal year, based on the EAC, more funds will be requested to cover additional needs/shortfalls.**
Schedule	Revenue Service Date	11/29/2022	08/06/2026	This forecasted date is **30** months later than shown in the baseline schedule agreed to by the contractor in January 2021. **MTA has given HBR a deadline of the end of October 2023 to deliver a baseline schedule that incorporates all risks and mitigations.**

Project Progress		Amount ($)	Percent of Total
Total Expenditures	Actual cost of all eligible expenditures completed to date	**226,815,000**	**48.6%**
Planned Value to Date	Estimated value of work planned to date	Not Available	Not Applicable (N/A)
Actual Value to Date	Actual value of work completed to date	Not Available	N/A

Contract Status		Amount ($)	Percent of Total
Total Contracts Awarded	Value of all contracts (design, support, construction, equipment) awarded; % of total value to be awarded	466,767,000*	97.9%
Construction Contracts Awarded	Value of construction contracts awarded; % of total construction value to be awarded	449,924,000*	96.4%
Physical Construction Completed	Value of physical construction (infrastructure) completed; % of total construction value completed	**226,815,000****	**48.6%**

Rolling Stock Vehicle Status	Date Awarded	No. Ordered	No. Delivered
300 through 377	**09/01/2017**	78	0

Next Quarterly Progress Review Meeting:	**November 8, 2023**

*** Includes change orders issued through October 17, 2023.**

**** Does not include invoices on hold due to cure letter.**

2. OBSERVATIONS AND FINDINGS

2.1. Summary of Monitoring Activities

The PMOC attended a virtual quarterly progress review meeting on **August 9, 2023,** and monthly virtual meetings on **September 20, 2023, and October 18, 2023,** with MTA project staff and MTA's Project Management Consultant. The PMOC prepared a trip report for each meeting to document the discussions.

2.2. Oversight Triggers

The oversight triggers most applicable to the project are the Oversight Procedure (OP) 25 schedule, cost, and quality triggers. The project schedule has been in one form of update or another throughout the current quarter. MTA and HBR agreed upon a no-cost change order in January 2021 that extended the Project Closeout date by 12 months to May 2027. Since the September 2020 revised baseline schedule was agreed upon with the contractor in December 2020, nearly every key milestone has been delayed by more than 12 months. MTA and HBR are trying to wrap up a negotiation for another no-cost time extension, the last one associated with COVID-19. The current unapproved Schedule Update 41R17 projects that the "Revenue Service Full Project" milestone will be delayed to August 2026, which represents an additional **30 months from the approved schedule baseline.** Project schedule delays typically impact project cost, another significant indicator of project health.

Quality issues in carshell manufacturing, first noted in July 2020, reportedly have been addressed. A second issue resulted in a roof buckling after it was assembled on Carshell #002 in November 2020. MTA reported additional minor quality issues with the carshells in March, April, June, and July 2021, which HBR has addressed. HBR completed root cause analysis of the nonconforming paint inclusions on frame subassemblies on three carshells and of paint on the F-end mask assemblies. HBR determined that the causes were related to shipping and handling, and painting errors. HBR has not confirmed the corrective actions but was inspecting for paint errors, so that they can be repaired before the mask assemblies arrive at the Miami, Florida facility. In November 2022, MTA reported that calcium chloride from desiccant packs had caused corrosion on the floor beams of the carshells, including small holes less than 1/4 inch in diameter in some floor beams where desiccant packs had been placed before shipment from Italy. MTA then reported in December 2022 that, upon closer inspection of the first 16 cars, HBR found the same corrosion on the floor beams on cars that were in production and FAI. As of January 18, 2023, HBR was assessing whether each car could be repaired or would need to be scrapped. At the May 2023 FTA quarterly progress review meeting, MTA reported that HBR was scrapping all 33 carshells that have the corrosion issue. HBR found the issue with the manufacturing process it has in its facility in Italy, and has since corrected the manufacturing process and developed a means to clean rail carshells that have minor corrosion dust on them. HBR has successfully cleaned the seven rail carshells in Miami. HBR continues to reuse components from corroded carshells. MTA indicated that Hitachi would need 24 to 26 months before it can increase production at Hagerstown to mitigate the scrapping of the 33 rail carshells because of corrosion.

2.3. Project Management Plan and Subplans

Project Management Plan (PMP) Rev. 5, dated 2022, is the latest formal version issued for this project. Due to significant schedule and budget revisions, quality issues, and project status regarding delivery and testing, MTA should consider updating the PMP. Incorporating lessons learned into MTA's daily management practices could benefit project performance moving forward.

2.4. Management Capacity and Capability

The PMOC is not performing comprehensive Management Capacity and Capability Reviews for these Non-New Starts Capital Projects.

2.5. National Environmental Policy Act Process and Environmental Mitigation

The National Environmental Policy Act process and environmental mitigation are not applicable to this task order assignment.

2.6. Project Delivery Method and Procurement

Project delivery method and procurement reviews are not being performed on this task order assignment.

2.7. Design

On October 18, 2023, MTA reported that it is working with HBR on finalizing design changes.

2.7.1. Train Control

On October 18, 2023, MTA reported that, for Married Pair (MP) 2 and MP 3, *that HBR continues to make progress toward completing the design certification and system certification checklists. HBR has submitted 3 documents that have the largest number of associated construction criteria. Two of the documents were approved, allowing closure of over 200 checklist items, and one needs to be resubmitted. For the latter, MTA told HBR to make the document comprehensive, similar to the package submitted for MP2. MTA mentioned that HBR is expected to resubmit this document on October 20, 2023. There remain 50 to 60 documents yet to be approved, and each of these documents contains less than 10 checklist items with most having only 1 or 2. HBR has set a goal of reducing the number of criteria to 30 by November 2023. The goal is to reduce the number of open items so that they can be handled through the open items list with proper mitigation if needed. HBR continues to conduct static testing on MP 1, but it will not be allowed on the test track until the DCC and CCC are complete. MTA is providing HBR with a weekend yard outage on December 8, 2023, to enable MP 1 to be tested and for MTA and HBR to make improvements in the operator training. MTA indicated that this training was to be pilot training specific to yard operations that will be built upon for future training events. HBR must complete yard dynamic testing track open items for the December 8 outage in order to test MP 1 and put the yard into revenue service.*

The ATS team provided a comprehensive schedule showing the path to achieving revenue service at the BOCC in February 2024 and at the Main OCC in May 2024. HBR must perform yard axle counter training before the December 8, 2023 weekend outage can take place. Phase 3 testing will be considered completed once the software update has been provided for the whole system. Final Phase 3 testing is to occur in the laboratory, allowing HBR to be ready for revenue service at the BOCC and then Main OCC. HBR resolved the issue with the Master Clock interface during ATS-mainline testing. HBR continues to work on the PENTA (CIS) and Google Transit interfaces. MTA has completed its responsibilities with respect to the PENTA interface, thereby allowing HBR to perform the FAT. For the Google Transit interface, HBR is testing the data dump with the MTA network. MTA indicated that cutover still will occur in February 2024; cutover in February 2024 will not affect the overall schedule because it is not on the critical path. MTA mentioned that HBR has almost completed the Phase 4 testing at Rogers Avenue and Reistertown Plaza and the yard interface. MTA indicated that the DCC was complete, and the CCC is split into seven packages, six of which have been reviewed and the last of which is expected to be submitted by October 20, 2023.

MTA reported that HBR plans to have a CBTC release ready for test track testing the week of November 13, 2023, and a full mainline release in March 2024. However, MTA will not attend the FAT until all functionality is configured and testing for the mainline release is complete. MTA indicated that it had informed HBR that a fully functional CBTC includes meeting the requirements for a fully functional system that includes Baltimore by March 2024. HBR also must finalize the functionality for speed restriction, interlockings, and back-ins.

Regarding safety certification, MTA indicated that verification of the DCC is nearly complete, and Hitachi will shift to the ATS CCC once it submits the certification reports. The focus is to have everything ready for the December 8, 2023 weekend yard outage. Hitachi must submit to MTA a report for the completed SCADA system and separate reports for Google Transit and PENTA.

With respect to testing updates, final Phase 3 testing will occur in the laboratory, allowing Hitachi to be ready for revenue service at the BOCC and then the Main OCC. Hitachi will continue ATS-mainline testing and will finalize the PENTA and Google Transit interfaces in order to conduct FAT and field testing. Hitachi is expected to complete the open items related to the yard dynamic testing track so that everything is ready for the December 8, 2023 weekend outage to put the yard into revenue service. Phase 4 testing on the mainline is expected to continue.

On May 15, 20232, MTA reported that Michael Ollinger was promoted, and Wane-Jang Lin has assumed his role temporarily until the vacancy can be filled. On June 29, 2023, MTA reported that HBR had hired additional safety experts to assist with addressing the problems with developing safety certification documents. On July 26, 2023, MTA reported that the additional safety staff have proven helpful, and HBR has made progress with respect to safety. Also, MTA stated that since issuance of the cure notice, HBR has been improving its quality and making adjustments in quality staff. **As of October 18, 2023, MTA has not filled the vacant position left by Michael Ollinger. Mr. Noureddine Benkaza was introduced at the September 2023 executive meeting as HBR's new Project Director for the Metro Fleet and Train Control Replacement Project, replacing Brian Freerks. HBR is planning to hire a new Railcar Commissioning Manager.**

Considering the potential negative impacts on the schedule related to any position remaining vacant for an extended period of time, the PMOC recommends that MTA fill the open position being covered by Wane-Jang Lin and continue to monitor the progress HBR makes in safety and quality.

2.7.2. Metro Fleet

As of **October 18, 2023**, the vehicle design milestone was projected to be complete on **October 27, 2023.** This date is **two** months later than reported in the PMOC's Comprehensive Monitoring Report for **the second quarter of 2023**, and more than **32** months later than shown in the current baseline schedule. ***The PMOC recommends that MTA continue to analyze the schedule and require the contractor to develop and implement recovery activities, and that MTA incorporate float and report realistic milestone dates to FTA.***

2.8. Value Engineering and Constructability Reviews

Value Engineering and constructability reviews are not applicable to this task order assignment.

2.9. Real Estate Acquisition and Relocation

Real estate acquisition and relocation reviews are not applicable to this task order assignment.

2.10. Third-party Agreements and Utilities

Third-party agreements and utilities are not applicable to this task order assignment.

2.11. Construction

2.11.1. Control System Construction

HBR started construction field work to identify available existing conduits and installation of pull strings in April 2018. HBR began inner duct and fiber backbone material deliveries in July 2018. In addition, HBR started cable tray installation in October 2018 and completed this installation at Owings Mills and Milford Mill in November 2018. HBR began installation of the inner duct in December 2018, and continued installation of inner duct, power cable, and fiber each weekend through October 2019.

HBR scheduled pilot training for SSI/DCS/LATS to start in October 2019, with regular student training to follow starting in January 2020. However, HBR has since delayed this training to align with the revised Owings Mills SSI/DCS/LATS revenue service date.

HBR provided the DCS pilot training in November 2019, but the training did not meet the needs of MTA. MTA and HBR held a workshop, and HBR subsequently updated the DCS pilot training. HBR was able to address all concerns about the training and provide a rack of hardware identical to that to be used by MTA for a successful dry run of the DCS pilot training, which was held on December 18, 2019. On January 6, 2020, HBR began actual student training, which included DCS, SSI, and LATS, and the second five-day training session was completed on February 7, 2020.

In July 2020, HBR completed wiring at Rogers Avenue and continued wiring at Portal. HBR continued fiber terminations at the DCS Ring 2 locations. Testing and commissioning staff were finalizing tests at Owings Mills, Old Court, and Milford Mill. The SSI manufacturer was working on the equipment for Johns Hopkins. HBR continued Train Control work in July 2020, working on verification of the CCC for SSI/DCS/LATS.

As of May 15, 2023, MTA's outside service provider completed installation of the logging Protective Circuit Device (PCD) at the Johns Hopkins traction power substation and continued to install the logging PCD at other locations. This activity remains off the schedule's critical path.

MTA reported on April 17, 2023, that negotiations between HBR and its subcontractor were continuing to delay the start of the axle counter work. The subcontractor has filed a claim against HBR. If this claim is not resolved and the required axle counters are not moved by June 2023, the dynamic testing will be affected. MTA mentioned that the subcontractor was ready to move forward, and axle relocation would take two weeks, but the subcontractor would not move forward until the claim by HBR's subcontractor was resolved.

On July 26, 2023, MTA indicated that HBR had replaced the subcontractor and moved forward with replacing the axle counters in the yard and on the main line, including junction boxes, counters, and S21 cable replacements for melters and switches. MTA mentioned that train operator training was set to begin the third week of September 2023 after the first MP arrived in Baltimore. MTA indicated that HBR still needed to address a full set of comments and perform a language review of the train operator training material. MTA also indicated that staffing is no longer a risk because HBR increased the level of dedicated staff.

MTA reported on October 18, 2023, that the train operator training did not occur in September 2023 as planned because HBR had not completed system certifications. The planned train operator training will be a pilot course with reduced scope that will allow MTA to document improvements for the official training, which will occur in the future. This training will be only for the test track and to address yard operations, and must occur before the December 8, 2023 weekend outage. MTA indicated that Hitachi will provide axle counter training for the yard. Hitachi also must demonstrate how the axle counters are to be used in the yard and explain the functionality of the axle counter layout. Hitachi is still working on replacing the axle counters along the mainline, including junction boxes, counters, and S21 cable replacements for melters and switches. MTA mentioned that Hitachi will perform a similar training for the mainline upon its completion. MTA expects the cable replacement at Old Court Interlocking to be completed by October 31, 2023, and then Hitachi will move on to the cable replacement at Owings Mills, which is to be completed by mid-December 2023. Hitachi is expected to provide ATS training materials by October 27, 2023, and perform the training before the BOCC is in operation in the first quarter of 2024.

2.11.2. Metro Fleet Fabrication and Assembly

On April 17, 2023, MTA reported that, at the HBR progress meeting during the week of April 11, 2023, HBR discussed an unofficial plan to possibly scrap 33 carshells because they do not comply with HBR's Quality Standards, as a result of desiccant-related corrosion. MTA indicated that HBR has provided a process to clean the corrosion dust from the other carshells not affected by the

desiccant-related corrosion. In addition, a new issue regarding corrosion has appeared on some of the carshells. MTA provided as an example Carshell #034, which is exhibiting corrosion dust but also displaying flash rust in some areas, similar to carshells with corrosion from the desiccant. HBR has also identified similar noncompliance issues with the seven shipped completed carshells. MTA has reminded HBR that it cannot continue forward with the seven completed carshells until the noncompliance issue is resolved. HBR continues to reuse components from corroded carshells.

At the May 15, 2023, FTA Quarterly Progress Review Meeting, MTA announced that HBR made the decision to scrap the 33 carshells.

On October 18, 2023, MTA indicated that there are no new corrosion issues. MTA reported that the new cleaning process HBR instituted in Italy appears to be functioning well. MTA stated that the proof will be when the carshells ship from Italy to Hagerstown. ***The PMOC recommends tabling this issue until HBR restarts production at Hagerstown and, at that time, MTA should revisit the condition of the carshells being shipped from Europe.*** *MTA will not allow MP 2 and MP 3 to be shipped until Hitachi completes the safety certification checklists. HBR will stop the final assembly work in Miami, Florida, on MPs 4, 5, and 6 in November 2023 and complete those vehicles in Hagerstown, once production restarts in April 2024.*

Regarding the structural steel issues, MTA's meeting to discuss the results of the fatigue testing report regarding the bolster beams and how HBR can best address the issue has been delayed. MTA is trying to schedule the meeting to occur before the end of October 2023. MTA indicated that HBR is still reviewing the results and does not want to perform additional testing on a non-safety issue because doing so could lead to the development of additional non-safety issues. MTA stated that HBR is inclined to perform a review at the time of the seven-year warranty inspection, but MTA finds that approach unreasonable. HBR has not provided any specifics about how the warranty inspection would be structured differently in order to check the bolster beams at that time. In addition, MTA believes there is no guarantee that in 2032 (the seven-year warranty inspection date) there would be anyone involved who would remember the problem with the bolster beams. MTA indicated that if the HBR project team does not address this concern, then MTA will raise it during the MTA's meeting with Hitachi executives.

Regarding the Hagerstown facility, HBR planned for MTA to visit the facility on October 30, 2023. MTA mentioned that the elevated track at the facility has been completed. In September 2023, the Hagerstown facility received occupancy certification. HBR is still on target for equipment installation in the fourth quarter of 2023. MTA also thinks that HBR is still on schedule for the Hagerstown facility to start railcar production in April 2024.

The PMOC recommends that MTA continue to require HBR to develop a mitigation plan to address the scrapping of the 33 carshells that includes a realistic schedule, along with an EAC cost that includes sufficient contingency based on that mitigation plan.

2.12. Vehicle Technology and Procurement

Vendor: Hitachi Ansaldo Baltimore Rail Partners, LLC

Model: Hitachi Rail Italy (HRI)-MTA

Year: 2023 (first vehicle delivery)

Quantity: 78

Identification: 300 through 377

New Technologies: Not applicable

Upcoming Significant Events:

Time Frame	Event
October 2023	**Manufacturer's Design Complete**
September 2023	**First Vehicle Delivery (Married Pair)**

Bus Vehicle Testing: Not applicable

2.13. Project Cost

2.13.1. Project Budget

MTA reported the latest project cost data to the PMOC on October 18, 2023. Based on this data, which is through **August 31, 2023,** the project has total expenditures of **$226,815,000.** Table 4 shows the federal grants used for the project, and Table 5 shows the total project funding and the drawdowns on that funding through **August 2023**, as reported by MTA on **October 18, 2023**. ***The PMOC recommends that MTA continue to analyze the overall project budget, including administrative and oversight costs, in light of the ongoing schedule delays.***

Table 4 – Project Federal Grants

Federal Grants	Federal Amount	Drawdown
MD-2016-006	$34,054,000	$34,054,000
MD-2016-007	$3,645,000	$3,645,000
MD-2019-014 / ZC02XX	$19,621,000	$18,435,000
MD-2019-017	$5,002,000	$5,002,000
MD-2019-018 / ZC01XX / ZC03XX	$5,785,000	$5,785,000
MD-2020-003 / ZD22XX	$16,847,000	$16,847,000
MD-2021-004 / STP-20	$13,730,000	$8,687,000
MD-2021-013 / ZD20XX	$27,946,000	$27,490,000
MD-2022-010/ **ZF08XX**	$7,578,000	$2,286,000
1401-2021-30 / ZE02XX	$9,745,000	-
1401-2021-18 / ZF20XX	$38,032,000	-
5307-22 / *ZG24XX*	$45,178,000	-
5307-23 / ZH02XX	$26,098,000	-
B5307-24	$24,010,000	-
B5307-25	$15,043,000	-

Federal Grants	Federal Amount	Drawdown
B5307-26	$3,331,000	-
ZG08XX	$10,301,000	-
CMAQ-23 / ZH11XX	$29,072,000	-
B5337-25	$12,163,000	-
B5337-26	$2,469,000	-
Total	**$349,650,000**	**$122,231,000**

Note: Rounding in grant values is not reflected in the total.

Table 5 – Project Funding Summary

Funding Source	Amount	Drawdown
Federal	$349,650,000	$122,231,000
State/County	$127,201,000	**$104,584,000**
Total	$476,851,000	**$226,815,000**

MTA continues to manage change orders and change requests. The following is the status of contract changes as reported by MTA on **October 18, 2023:**

- Forty-six change requests have been initiated to date.
- Three of the change requests were cancelled.
- MTA and HBR have negotiated **42** change orders (with a related net increase to the contract value of **$10,148,670.66**), which include two change orders funded by separate MTA projects and Change Notice (CN)-34 (Yard Axle Counters).
- MTA and HBR need to finalize negotiations on the following change requests: CN-16 (Train Control Specs), CN-36 (Emergency Walkover Plate), CN-41 (Unit Testing Mod), and CN-45 (COVID No-Cost Time Extension). CN-16 has one open item that Hitachi is attempting to address through software development. Hitachi and MTA are discussing the design for the emergency plate. MTA expects to issue a deadline on CN-41 and, if Hitachi cannot meet the deadline, then MTA will require a credit. CN-41 is tied to the new baseline schedule, and Hitachi has failed to provide feedback on or pricing for the Sharable Content Object Reference Model-compliant railcar training videos and requested train control spares, which may be replaced with additional warranty items in order to move the negotiations forward.

2.13.2. Disadvantaged Business Enterprise Performance

The project has the following Disadvantaged Business Enterprise (DBE) goals:

- HRI DBE goal: **4.00** percent (**2021**)
- Ansaldo (STS) DBE goal: 9.72 percent

Actual performance relative to these goals is reported separately to FTA by HRI and by Ansaldo STS (as a transit vehicle manufacturer) in accordance with the U.S. Department of Transportation DBE regulations.

2.14. Project Schedule

HBR submitted a preliminary project schedule that was revised to address comments that MTA provided in November 2017. MTA approved the February 28, 2018 Project Schedule (Rev. 3) as the project baseline schedule in March 2018.

After initial delays, HBR submitted the integrated Train Control and Railcar schedule recovery plan (HBR's Project Schedule Update V12) in May 2019. MTA reviewed Project Schedule Update V12 and accepted it as the schedule recovery plan. HBR's project schedule updates through March 2020 continued to show delays to interim milestones and the Full Revenue Service date. Delays due to COVID-19 then began to occur.

In May 2020, MTA decided to proceed with the addition of axle counters in the yard, which MTA understood would result in delays that would be experienced concurrently with delays already resulting from design delays and COVID-19 restrictions.

HBR submitted Project Schedule Update V28 on September 10, 2020. MTA and its consultant reviewed it and returned it to HBR for revision and resubmission. MTA and HBR then met twice to resolve the comments and concerns, and HBR resubmitted Project Schedule Update V28 in October 2020. MTA's comments on Project Schedule Update V28 related to changes to the schedule since the previous update that were not fully documented and to other scheduling practices. HBR's proposed Schedule Update V28 also included the past delays related to COVID-19, but the documentation to back up the COVID-19-related delays (starts and stops) of each activity was not provided.

In December 2020, MTA accepted Project Schedule Update V28 from HBR as the new baseline schedule. Comparison of the prior baseline schedule to the new baseline schedule indicated that the completion of the Train Control system construction was delayed by 343 days (just over 11 months), and the "Revenue Service Full Project" milestone was delayed by 456 days (just under 15 months). MTA reported that this baseline schedule did not include contingency time, or float.

Since MTA accepted Schedule Update V28 as the revised contract baseline schedule, HBR has submitted 13 updates that MTA has accepted. HBR submitted Schedule Update 41 in January 2022, requesting that MTA accept it as the new baseline schedule. HBR has since submitted **16** schedule revisions after receiving comments from MTA. The latest revision being reported on is (Schedule Update **41R17**) that was submitted on August 1, 2023.

Schedule Update **41R17** shows that the **"Contractor Design Completion"** milestone has been delayed until **October 27, 2023,** 34 months later than shown in the current baseline schedule and 2 months later than previously reported. In addition, Schedule Update **41R17** indicates that the **"Manufacturer Design Complete"** milestone has been delayed until **October 27, 2023**, 32 months later than shown in the current baseline schedule and 2 months later than previously reported, and also indicates that the **"First Vehicle Final Acceptance"** milestone will occur on

June 9, 2025, 33.5 months later than shown in the current baseline schedule and 3.5 months later than previously reported. *The **"Revenue Service Full Project"** milestone has been delayed until **August 6, 2026**, 32.5 months later than shown in the current baseline schedule and 0.5 month later than previously reported.*

MTA mentioned that it expects that HBR will submit a new baseline schedule at the end of October 2023. This new baseline schedule will be reviewed and formalized, and then made effective in December 2023.

Based on the consistent schedule slippage and lack of float in the project schedule, the current project schedule and budget do not appear achievable. ***The PMOC recommends that MTA continue to require HBR to develop a mitigation plan that includes a realistic schedule, along with an EAC cost that includes sufficient contingency based on that mitigation plan.***

Table 6 – Project Schedule

Activity	Original Contract or Grant Date	Current Approved Baseline Completion Schedule (Update V28,	Last Quarter Completion Dates	Current Completion Date (Update 41R17, 8/1/2023)	Change Since Last Quarter*	Actual
MTA Design Complete	3/1/2015	3/1/2015	3/1/2015	3/1/2015	-	3/1/2015
Right-of-Way Complete	N/A	N/A	N/A	N/A	N/A	N/A
Advertisement	9/30/2015	9/30/2015	9/30/2015	9/30/2015	-	9/30/2015
Bids/Proposal Due	3/31/2016	3/31/2016	8/12/2016	8/12/2016	-	8/12/2016
Award/**Board of Public Works** Date	11/30/2016	11/30/2016	7/26/2017	7/26/2017	-	7/26/2017
Notice to Proceed	12/15/2016	12/15/2016	9/1/2017	9/1/2017	-	9/1/2017
Construction:						
Contractor Design Complete	2/7/2019	12/15/2020	**8/31/2023**	**10/27/2023**	**-57 Days**	
Construction Start	5/14/2018	5/14/2018	4/2/2018	4/2/2018	-	4/2/2018
Construction Complete	5/26/2024	5/4/2025	9/19/2025	9/19/2025	-	
Vehicles:						
Mfgr Design Complete	5/29/2019	2/23/2021	**8/31/2023**	**10/27/2023**	**-57 Days**	
First Vehicle Delivery	5/29/2020	8/23/2021	**9/4/2023**	**9/4/2023**		**9/13/2023**
First Vehicle Cond. Accept	6/26/2021	11/3/2022	2/20/2025	**6/8/2025**	**108 Days**	
First Vehicle Final Accept	6/26/2021	11/4/2022	2/21/2025	**6/9/2025**	**108 Days**	
Last Vehicle Delivery	10/25/2022	1/23/2024	6/19/2026	6/19/2026	0 Days	
Last Vehicle Cond. Accept	11/28/2022	2/28/2024	7/22/2026	**8/5/2026**	**14 Days**	
Last Vehicle Final Accept	11/29/2022	3/1/2024	7/23/2026	**8/6/2026**	**14 Days**	
Integrated Test Start	6/26/2021	6/21/2022	7/31/2023	**12/4/2023**	**126 Days**	
Revenue Service Start, if Phased	6/26/2021	11/3/2022	3/20/2025	**6/8/2025**	**80 Days**	
Revenue Service Full Project	11/29/2022	2/28/2024	7/22/2026	**8/6/2026**	**15 Days**	
Last Car Delivery	11/29/2022	10/25/2022	6/19/2026	6/19/2026	0 Days	

Activity	Original Contract or Grant Date	Current Approved Baseline Completion Schedule (Update V28,	Last Quarter Completion Dates	Current Completion Date (Update 41R17, 8/1/2023)	Change Since Last Quarter*	Actual
Project Closeout	5/26/2026	5/4/2027	**3/26/2029**	3/10/2029	**16 Days**	

***Reason for Change:** HBR updated the schedule as the new proposed baseline. The schedule includes delays due to late delivery of the first married pair from testing in Miami, expected delays related to the move to Hagerstown, and delays associated with repair/replacement of corroded carshells.

2.15. Project Risk

It is recognized that the Train Control system work has been very challenging, because both the new system and the existing system need to operate simultaneously during the transition period, when both new railcars and existing railcars are in operation. MTA has recently identified a new potential risk: HBR's purchase of Thalis.

During the September 26, 2023 meeting with Hitachi executives, MTA requested a discussion regarding the plan for how HBR will support the MTA CBTC system. A meeting will be set up to discuss MTA's concerns related to this topic. MTA indicated that the Thales system is more robust and well-tested than the Hitachi system. MTA indicated that Bay Area Rapid Transit had provided MTA with information regarding Microlok and other CBTC products that Hitachi is proposing. The products are supposed to be backwards compatible, but items such as zone controllers do not appear to be. MTA has concerns about the product life cycle, the use of a mixed system, and spares. MTA will be discussing these items in a separate meeting with HBR.

The impacts of a second COVID-19 no-cost time extension and the scrapping of 33 rail carshells, although it eliminated the issue regarding the rust/corrosion impacts, both still pose risks to the production schedule. HBR needs to develop a mitigation plan for these risks. As well, MTA must wait for the Hagerstown plant to restart production in 2024 in order to validate that HBR's mitigation for the corrosion issue has been addressed. The impacts of ongoing schedule delays are significantly increasing the risk of project cost overruns.

2.16. Quality Assurance/Quality Control

MTA's contract with HBR establishes the quality assurance/quality control requirements for the project in accordance with FTA Quality Management System Guidelines. Quality problems related to carshell manufacturing, which were first noted in July 2020, reportedly have been addressed. See the discussion in Section 2.11.2, above.

MTA indicated that no new quality issues related to railcars have been reported since the May 2023 Quarterly Progress Review Meeting. HBR is concentrating on closing out old issues. Similarly, no new quality issues related to systems have been reported recently, and HBR is closing out old issues.

2.17. Safety and Security

MTA's contract with HBR establishes the requirements for safety and security, including those for safety certification of the work performed on this project. Railway Worker Protection safety training is ongoing. MTA announced that HBR hired well-known industry consultants to assist with addressing the security certification issues that have been plaguing HBR. MTA has since noticed positive movement toward resolution of these issues, *albeit slower than MTA anticipated.*

2.18. Americans with Disabilities Act

The contract for this project requires compliance with the Americans with Disabilities Act regulations. The new vehicles do not have barriers to guide sight-impaired passengers from mistaking the gap between the vehicles as an entry door. See the discussion in Section 2.7, above, for more information.

2.19. Buy America

The contract for this project requires compliance with FTA's Buy America requirements. MTA reported in January 2022 that it had completed the interim Buy America audit and found that both the train control and the railcar materials exceeded the requirements. MTA plans to conduct another audit after the first railcars are delivered and the train control materials have all been installed.

2.20. Start-Up, Commissioning, Testing

As MTA reported on October 18, 2023, the Hagerstown facility received occupancy certification on September 13, 2023. HBR is still on target for equipment installation in the fourth quarter of 2023. MTA believes that HBR is still on schedule for the Hagerstown facility to start railcar production in April 2024.

Based on the current Schedule Update 41R17, the ATS system schedule shows a path for the BOCC to enter revenue service in February 2024 and the Main OCC to enter revenue service in May 2024.

Unfortunately, the CBTC FAT that was scheduled for the week of August 21, 2023, did not occur, because HBR did not have all points and turn backs ready for the system. MTA reported that HBR plans to have a release ready for the yard test track testing during the week of November 13, 2023, and a full mainline release in March 2024. However, MTA staff will not attend FAT until HBR has proven that all functionality has been configured and tested for the complete mainline release prior to March 2024. MTA indicated that it had informed Hitachi that a fully functional CBTC includes meeting the requirements that includes the functionality for speed restriction, interlockings, and back-ins for all points, especially Baltimore, by March 2024.

As for testing updates, final Phase 3 testing will occur in the laboratory, allowing Hitachi to be ready for the BOCC and then the Main OCC to enter revenue service. Hitachi will continue ATS-mainline testing and will finalize the Penta and Google Transit interfaces in order to conduct FAT and field testing. HBR is expected to complete the open items related to the yard dynamic testing

track so that everything will be ready for the December 8, 2023 weekend outage to put the yard into revenue service. Phase 4 testing on the mainline is expected to continue.

The PMOC recommends that MTA maintain a general Systems Start-up, Commissioning, and Testing Plan that can be utilized on all types of projects and issue a project-specific supplemental plan. These plans would aid both MTA's project team and the contractor's team to better manage key/critical activities and also would be a valuable input to the project schedule.

2.21. Before-and-After Study Reporting

Before-and-after study reporting is not applicable to this task order.

2.22. Lessons Learned

At the PMOC's request, MTA provided four Lessons Learned documents on September 25, 2020, to illustrate the project processes that were using lessons learned from past events during the control system construction and railcar manufacturing. At the time, MTA and the PMOC reviewed and briefly discussed these documents during their monthly meeting.

The process of incorporating lessons learned involves review of those events from the last major work activity (either positive or negative) that should be agenda items for the next major work activity being prepared. There are generally one or two meetings before a major activity, including those activities that require a power outage.

After a major activity, a new Lessons Learned document is prepared. MTA staff, consultant staff, and HBR each provide a list of lessons learned and recommend future actions separately, and then these are consolidated into post-activity debriefing meeting minutes. However, the meeting minutes document does not build upon items from previous major activities; thus, the lessons learned are not cumulatively documented.

As first stated in the October 2020 PMOC Comprehensive Monitoring Report, in the opinion of the PMOC, MTA should record and track lessons learned in a cumulative fashion. MTA should then refer to this more complete document in order to integrate lessons learned into the construction process and adjust them as project conditions dictate.

2.23. Actions Items Table

All action items identified at the previous quarterly meetings and monthly meetings related to this project have been closed.

ATTACHMENT A – LIST OF ACRONYMS

ATS	Automatic Train Supervision
BOCC	Backup Operations Control Center
BRT	Bus Rapid Transit
CBTC	Communications Based Train Control
CCC	Construction Conformance Checklist
CFR	Code of Federal Regulations
CM	Construction Management
CMGC	Construction Manager General Contractor
CN	Change Notice
CSSP	Construction Safety and Security Plan
DBE	Disadvantaged Business Enterprise
DBOM	Design, Build, Operate, and Maintain
DCC	Design Conformance Checklist
DCS	Data Communication System
DF	Designated Function
EAC	Estimate at Completion
FAI	First Article Inspection
FAT	Factory Acceptance Test
FRA	Federal Railroad Administration
FTA	Federal Transit Administration
HAB	Hitachi Ansaldo Baltimore Rail Partners, LLC
HBR	Hitachi Baltimore Rail Partners LLC
HRI	Hitachi Rail Italy
LATS	Local Automatic Train Supervision
MP	Married Pair
MTA	Maryland Transit Administration
MWA	Miscellaneous Work Allowance
N/A	Not Applicable
O&M	Operations and Maintenance

OCC	Operations Control Center
OHA	Operational Hazard Analysis
OP	Oversight Procedure
OSHA	Occupational Safety and Health Administration
PCD	Protective Circuit Device
PDR	Preliminary Design Review
PHA	Preliminary Hazard Analysis
PMOC	Project Management Oversight Contractor
PMP	Project Management Plan
RAMS	Reliability, Availability, Maintainability, and System Safety
RAP	Rail Activation Plan
SCADA	Supervisory Control and Data Acquisition
SCIL	Safety Certifiable Item List
SEPP	Security and Emergency Preparedness Plan
SIT	Systems Integration Test
SOP	Standard Operating Procedure
SSCP	Safety and Security Certification Plan
SSCVR	Safety & Security Certification Verification Report
SSI	Solid-state Interlocking
SSMP	Safety and Security Management Plan
SSO	State Safety Oversight
SSPP	System Safety Program Plan
STS	Signaling and Transportation Systems
TVA	Threat and Vulnerability Assessment

ATTACHMENT B – SAFETY AND SECURITY CHECKLIST

To be revised and populated in future reports.

Project Overview			
Project Mode (Rail, Bus, BRT, Multimode)			
Project Phase (Project Development, Engineering, Construction, Start-Up)			
Project Delivery Method (Design/Build, DBOM, CMGC, etc.)			
Project Plans	**Version**	**Review by FTA**	**Status**
Safety and Security Management Plan (SSMP)			
Safety and Security Certification Plan (SSCP)			
System Safety Program Plan (SSPP)			
System Security Plan or Security and Emergency Preparedness Plan (SEPP)			
Construction Safety and Security Plan (CSSP)			

Area of Focus	**Y/N**	**Notes/Status**
Safety and Security Authority		
Is the project sponsor subject to 49 CFR Part 659 state safety oversight requirements?		
Has the state designated an oversight agency as per Part 659.9?		
Has the oversight agency reviewed and approved the project sponsor's Security Plan or SSPP as per 49 CFR Part 659.17?		
Did the oversight agency participate in the last Quarterly Program Review Meeting?		
Has the project sponsor submitted its safety certification plan to the oversight agency?		
Has the project sponsor implemented security directives issues by the Department Homeland Security and/or Transportation Security Administration?		
SSMP Monitoring		
Is the SSMP project-specific, clearly demonstrating the scope of safety and security activities for this project?		
Does the project sponsor review the SSMP and related project plans to determine if updates are necessary?		
Does the project sponsor implement a process through which the Designated Function (DF) for Safety and DF for Security are integrated into the overall project management team? Please specify.		
Does the project sponsor maintain a regularly scheduled report on the status of safety and security activities?		
Has the project sponsor established staffing requirements, procedures, and authority for safety and security activities throughout all project phases?		
Does the project sponsor update the safety and security responsibility matrix/organizational chart as necessary?		
Has the project sponsor allocated sufficient resources to oversee or carry out safety and security activities?		
Has the project sponsor developed hazard and vulnerability analysis techniques, including specific types of analysis to be performed during different project phases?		

Does the project sponsor implement regularly scheduled meetings to track to resolution any identified hazards and/or vulnerabilities?		
Does the project sponsor monitor the progress of safety and security activities throughout all project phases? Please describe briefly.		
Does the project sponsor ensure the conduct of preliminary hazard and vulnerability analyses? Please specify analyses conducted.		
Has the project sponsor ensured the development of safety design criteria?		
Has the project sponsor ensured the development of security design criteria?		
Has the project sponsor ensured conformance with safety and security requirements in design?		
Has the project sponsor verified construction specifications conformance?		
Has the project sponsor identified safety and security critical tests to be performed prior to passenger operations?		
Has the project sponsor verified conformance with safety and security requirements during testing, inspection, and start-up phases?		
Does the project sponsor evaluate change orders, design waivers, or test variances for potential hazards and/or vulnerabilities?		
Has the project sponsor ensured the performance of safety and security analyses for proposed workarounds?		
Has the project sponsor demonstrated through meetings or other methods, the integration of safety and security in the following? • Activation Plan and Procedures • Integrated Test Plan and Procedures • Operations and Maintenance Plan • Emergency Operations Plan		
Has the project sponsor issued final safety and security certification?		
Has the project sponsor issued the final safety and security verification report?		
Construction Safety		
Does the project sponsor have a documented/implemented Contractor Safety Program with which it expects to comply?		
Does the project sponsor's contractor(s) have a documented companywide safety and security program plan?		
Does the project sponsor's contractor(s) have a site-specific safety and security program plan?		
How do the project sponsor's OSHA statistics compare to the national average for the same type of work?		
If the comparison is not favorable, what actions are being taken by the project sponsor to improve its safety record?		

Federal Railroad Administration		
If shared track, has the project sponsor submitted its waiver request application to FRA? (Please identify specific regulations for which waivers are being requested.)		
If shared corridor: has the project sponsor specified specific measures to address shared corridor safety concerns?	N/A	This is not a shared corridor.
Is the Collision Hazard Analysis underway?		
Other FRA required Hazard Analysis – Fencing, etc.?		
Does the project have Quiet Zones?		
Does FRA attend the Quarterly Review Meetings?	N	

ATTACHMENT C – TOP 5 PROJECT RISKS

Please see Table 1 – Major Issues/Concerns and Section 2.15, Project Risk, in this report for top risks.

ATTACHMENT D – AWARDED CONTRACTS

As reported by MTA on **April 17, 2023**.

Company	Vendor Type	Contract Number	Baseline Amount (in thousands)	Current Amount (in thousands)	Projected Amount (in thousands)	Percent of Projected Total
RKK	Design	1354A	$800	$163	$252	0.05%
JMT	Design	1354B	$487	$452	$698	0.15%
PB	Design	1265A	$2,030	$97	$150	0.03%
HAB Rail Partners	Contractor	T-8000-1415	$400,517	$400,517	$400,517	84.01%
AECOM	Construction Services	1445A	$16,396	$16,093	$24,834	5.21%
CH2M Hill	Construction Services	1345A/ AGY-16A	$6,191	$7,025	$10,842	2.27%
HNTB	Construction Services	1445A/ AGY-16A	$7,785	$8,598	$13,269	2.78%
STV	Construction Services	1345B/ AGY-16D	$5,030	$6,118	$9,442	1.98%
OMNI	Construction Services	AGY-16B	$1,907	$1,728	$2,667	0.56%
WSP	Construction Services	1345C/ AGY-16E	$247	$1,921	$2,965	0.62%
Urban	Construction Services	15-01C	$505	$846	$1,306	0.27%
GF	Construction Services	1445C	$3,044	$73	$113	0.02%
MTA	Construction Services	Misc.	$15,973	$438	$676	0.14%
ADS	Construction Services	AE-19-04D/1399C	$5,855	$5,855	$9,036	1.90%
Contracted Total			$466,767	$449,924	$476,767	100.00%*

* Totals may vary slightly due to rounding.

ATTACHMENT E – ROLLING STOCK VEHICLE STATUS REPORT

Vendor: Hitachi Ansaldo Baltimore Rail Partners, LLC

Model: Hitachi Rail Italy (HRI)-MTA

Year: 2023 (first vehicle delivery)

Quantity Ordered: 78

Quantity Delivered to Date: 0

Identification: 300 through 377

New Technologies: Not applicable

Upcoming Significant Events:

Time Frame	Event
October 2023	Manufacturer's Design Complete
September 2023	First Vehicle Delivery (Married Pair)

ATTACHMENT F – PROJECT MILESTONES/KEY EVENTS

Milestones	Actual or Currently Planned Dates
MTA Design Complete	March 2015
Notice to Proceed	September 2017
Control System	
Contractor Design Complete	**October 2023**
Construction Start	April 2018
Construction Complete	September 2025
Fleet	
Manufacturer's Design Complete	**October 2023**
First Vehicle Delivery	September 2023
First Vehicle Final Acceptance	**June 2025**
Last Vehicle Delivery	June 2026
Last Vehicle Final Acceptance	**August 2026**
Integrated Project	
Integrated Test Start	**December 2023**
Revenue Service, if Phased	**June 2025**
Revenue Service Full Project	**August 2026**
Last Car Delivery	**June 2026**
Project Closeout	March 2029

Note: Dates shown are based on Project Schedule Update 41R17.

ATTACHMENT G – ROADMAP TO REVENUE OPERATIONS

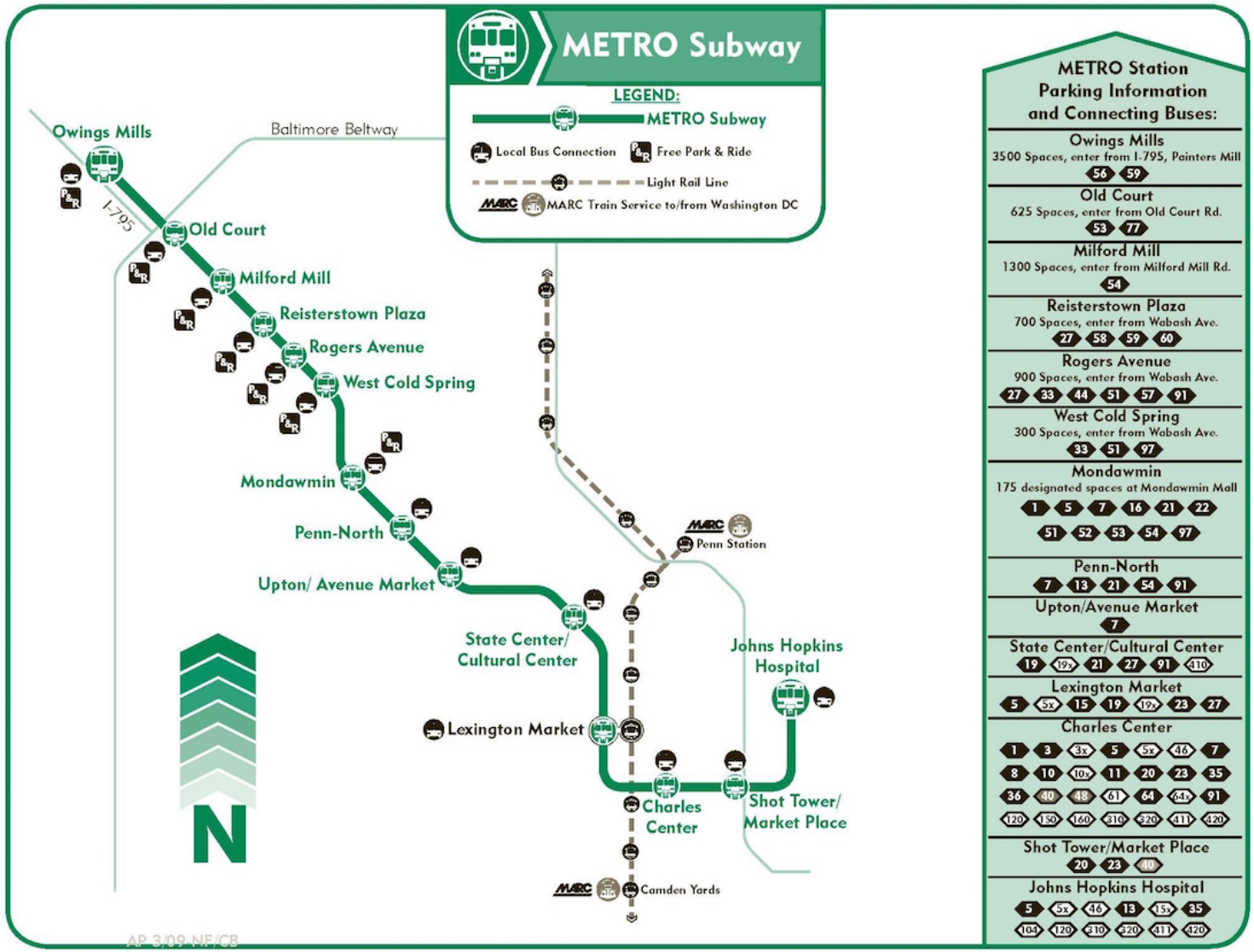
In accordance with Oversight Procedure 25, the Roadmap to Revenue Operations, prepared from the Project Sponsor's Master Schedule, is issued quarterly as a separate electronic file. It will be revised and populated in future reports.

Description	Responsible Party	Status	Estimated Start Date	Estimated Completion Date	Actual Completion Date	Notes
Testing						
Finalize Comprehensive Test Plan						
Finalize/update Systems Integration Test (SIT) Plan						
Develop Testing Schedule and Monitoring Tools						
Develop Operating Rules for Testing						
Conduct System Integrated Testing - Building Systems						
Conduct System Integrated Testing - Train Systems						
Conduct Testing and Commissioning - Train Systems						
Certificates of Occupancy/Substantial Completion						
Operating Plan, Rules						
Finalize Operating Plan						
Finalize/revise SOPs, manuals, and rulebook as applicable						
Complete Staffing Plan						
Obtain Required Staff						
Training of O&M personnel						
Emergency response plan, training, and drills						

Description	Responsible Party	Status	Estimated Start Date	Estimated Completion Date	Actual Completion Date	Notes
Maintenance and Asset Management						
Pre-Revenue Operations						
Finalize and/or update Rail Activation Plan (RAP) and/or Pre-Revenue Operations Plan						
Implement Rail Activation Committee						
Develop/revise SSPP and Security Plan (approved by State Safety Oversight (SSO))						
FTA Office of Safety and Security Readiness Review						
PMOC OP-54 Readiness for Revenue Operations Review Report, Phase I						
PMOC OP-54 Readiness for Revenue Operations Review Report, Phase II						
Conduct Operational Hazard Analysis (OHA) and resolve other hazards/ vulnerabilities						
Pre-revenue Operations						
Public Outreach						
Develop Safety Outreach Plan						
Provide Community Outreach						
Public Timetables/Maps/Website Updates, etc.						
Grand Opening Plan						
Safety, Security, and Fire-Life Safety Certifications						
Update/Finalize SSMP						

Description	Responsible Party	Status	Estimated Start Date	Estimated Completion Date	Actual Completion Date	Notes
Finalize and/or update SCIL and SSCP						
Implement Safety and Security Certification Committee						
Implement Fire Life Safety Committee						
Verify design criteria, PHA, TVA, change orders are implemented within the project						
Review status of quality nonconformances						
Close-out of non-safety critical items/ non-conformances						
Close-out of safety critical items/ nonconformances						
Complete Safety & Security Certification Verification Report (SSCVR)						
Document Workarounds/Open Items List						
Verify emergency drills, tabletops, training, etc. are completed						
SSO final certification/signature						
FRA?						
Revenue Service						
Target Revenue Service Date						
Public Revenue Service Date						
Revenue Service Date						

ATTACHMENT H – PROJECT MAP



PMOC MONITORING REPORT
November 2023

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

Maryland Transit Administration
Baltimore, Maryland
FINAL

Draft Report Delivered to FTA on ***December 6, 2023***
Final Report Delivered to FTA on ***December 11, 2023***

PMOC Contract No.: 69319519D000016
Task Order No.: 69319520F300095
Project No.: 69319519D000016/69319520F300095
Requisition/Reference No.: FTA-TPM20-20-0106
OPs Referenced: 20, 22, 23, 24, 25, 26, 37, 40
CLINs 0001, 0002, and 0005

David Evans and Associates, Inc.
Pete Hankovszky, Task Order Manager
Voice –720.448.6730; Email – pzh@deainc.com
Time on Project: 05/18/2020 through 05/17/2025

REPORT FORMAT AND FOCUS

This report is submitted in compliance with the terms of the Federal Transit Administration (FTA) Contract #69319519D000016, Task Order #69319520F300095. Its purpose is to provide information and data to assist FTA as it continually monitors the management capacity and capability of the Maryland Transit Administration (MTA) (the Project Sponsor) to execute the project efficiently and effectively, and hence, whether the Project Sponsor continues to be ready to receive federal funds for further project development. This report covers the project management activities on the National Capital Purple Line Light Rail Transit Project managed by MTA as the Project Sponsor and financed by the FTA Full Funding Grant Agreement (FFGA). The cost and schedule information in this report was extracted from MTA's submitted information except where noted. The report is organized to comply with the requirements of updated Oversight Procedure 25 – Recurring Oversight and Related Reports, dated June 2020.

THIRD-PARTY DISCLAIMER

This report and all subsidiary reports are prepared solely for FTA. This report should not be relied upon by any party, except FTA or the Project Sponsor, in accordance with the purposes as described below.

For projects funded through the FTA FFGA program, FTA and its Project Management Oversight Contractor (PMOC) use a risk-based assessment process to review and validate a Project Sponsor's budget and schedule. This risk-based assessment process is a tool for analyzing project development and management. Moreover, the assessment process is iterative in nature; any results of an FTA or PMOC risk-based assessment represent a "snapshot in time" for a particular project under the conditions known at that same point in time. The status of any assessment may be altered at any time by new information, changes in circumstances, or further developments in the project, including any specific measures a Project Sponsor may take to mitigate the risks to project costs, budget, and schedule, or the strategy a Project Sponsor may develop for project execution. Therefore, the information in the monthly reports will change from month to month, based on relevant factors for the month and/or previous months.

TABLE OF CONTENTS

1. EXECUTIVE SUMMARY 1
1.1. Project Description 1
1.2. Project Status 1
1.3. Major Issues and/or Concerns 10
1.4. Status of Key Indicators Dashboard (Post-grant) 11
1.5. Core Accountability Items 13
2. OBSERVATIONS AND FINDINGS 14
2.1. Summary of Monitoring Activities 14
2.2. Oversight Triggers 14
2.3. Project Management Plan and Sub-plans 15
2.4. Management Capacity and Capability 18
2.5. NEPA Process and Environmental Mitigation 19
2.6. Project Delivery Method and Procurement 22
2.7. Design 23
2.8. Real Estate Acquisition and Relocation 26
2.9. Third-party Agreements and Utilities 27
2.10. Construction 28
2.11. Vehicle Technology and Procurement 31
2.12. Project Cost 32
2.13. Project Schedule 34
2.14 Project Risk 38
2.15 Quality Assurance/Quality Control 39
2.16 Safety and Security 40
2.17 Americans with Disabilities Act 43
2.18 Buy America 44
2.19 Start-up, Commissioning, Testing 44
2.20 Before-and-After Study Reporting 44
2.21 Lessons Learned 44
2.22 Action Items 45
ATTACHMENT A – LIST OF ACRONYMS 46
ATTACHMENT B – TOP PROJECT RISKS 48

ATTACHMENT C – AWARDED CONTRACTS 49
ATTACHMENT D – ROLLING STOCK VEHICLE STATUS REPORT 50
ATTACHMENT E – PROJECT MILESTONES/KEY EVENTS 52
ATTACHMENT F – ROADMAP TO REVENUE OPERATIONS 56
ATTACHMENT G – PROJECT MAP 60

LIST OF TABLES

Table 1 – MTA Master Project Schedule Dates 4
Table 2 – Current Major Issues and Concerns 10
Table 3 – Key Indicators Dashboard 11
Table 4 – Core Accountability Items 13
Table 5 – Project Cost Versus Budget 32
Table 6 – Baseline Cost Estimate by Source Funding 34
Table 7 – Key Milestone Dates 37

1. EXECUTIVE SUMMARY

1.1. 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, Maryland, to New Carrollton in Prince George's County, Maryland. The Purple Line will operate largely at street level in a combination of dedicated and semi-exclusive right-of-way (ROW) and 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) service at Bethesda, Silver Spring, College Park, and New Carrollton, Maryland. The project will also connect to all three Maryland Area Regional Commuter rail lines, Amtrak, and local bus routes. The project includes 21 stations, 2 operations control/vehicle storage and maintenance facilities, and 25 light rail vehicles (LRVs). Maryland Transit Administration (MTA) is executing the project using a Public-Private Partnership (P3) method of project delivery.

As documented in the Federal Transit Administration (FTA) Full Funding Grant Agreement (FFGA), the original estimated project cost was $2,407,030,289, and the scheduled Revenue Service date (RSD) was December 31, 2022. On January 26, 2022, the Maryland Board of Public Works (BPW) approved significant revisions to the project cost and the Revenue Service Availability (RSA) date. The Transportation Infrastructure Finance and Innovation Act (TIFIA) loan closed on April 14, 2022. Financing approvals and subsequent financial close allowed Purple Line Transit Partners (PLTP), the P3 concessionaire, to issue Notice to Proceed (NTP) to the replacement Design-Build (D-B) contractor, Maryland Transit Solutions (MTS). MTA prepared a Final Recovery Plan (FRP), which FTA accepted on April 17, 2023, and which had a revised project cost of $5,116,020,380 and a revised RSD of February 28, 2028. MTA has submitted multiple management plan updates for FTA and Project Management Oversight Contractor (PMOC) review. Several of these management plans have been reviewed and accepted, while only the Safety and Security Certification Plan (SSCP) update remains in progress.

1.2. Project Status

The FFGA was executed on August 22, 2017. The Purple Line project is currently in the construction phase. Due to a contractual dispute, PLTP demobilized the assets/staff and subcontractors of the original D-B contractor, Purple Line Transit Constructors (PLTC), from the project in September 2020.

On November 24, 2020, MTA and PLTP reached a settlement agreement to release PLTC from the P3 consortium and continue the project with the remaining parties. The BPW approved the agreement on December 17, 2020. PLTP agreed to procure a replacement D-B contractor to complete the project and to obtain project financing.

Despite changes within the P3 consortium, MTA intends to complete the full scope of the project as envisioned in the original contract documents, with some minor exceptions such as the addition of three more LRVs. After a procurement process for a replacement D-B contractor, PLTP

selected MTS (a joint venture of Dragados USA and OHL USA) on November 5, 2021. The contract with MTS was executed on April 14, 2022.

MTA submitted a draft Interim Recovery Plan (IRP), dated December 15, 2020, to FTA, and subsequently prepared and submitted the FRP to FTA. FTA accepted the FRP on April 17, 2023.

MTA made deliberate choices about how to proceed with the major project elements once PLTC was released from the project. MTA's planning criteria included schedule, budget, and the reduction of risk for the replacement D-B contractor. To address budget constraints, some project activities that were identified for completion in the IRP were deferred. MTA and its Project Management Consultant (PMC) added staff to support subcontractor invoicing, payment processes, and other administrative tasks.

MTA was managing a significant number of construction activities during MTA's IRP period, called Operation Step Forward (OSF), and several activities fell behind schedule. Delays related to third-party utility relocations and other unforeseen issues continued to cause MTA to miss milestone dates included in MTA's revised agreements with PLTP that were executed in April 2022. Through October 2023, MTA executed two change orders caused by delays in OSF activities, and there continued to be potential for additional cost and schedule claims from MTS related to OSF. ***In early November 2023, MTA completed the OSF activities and currently is evaluating potential impacts from additional MTS claims related to OSF delays.***

Construction work continues under the management of MTS, including activities and elements such as erosion and sediment control maintenance, bridge structures, platform construction, retaining walls, the Glenridge Operation and Maintenance Facility (OMF), and utility installation. The Polk Street Maintenance Facility (for Prince George's County Parks) is complete, and the Paint Branch stream restoration and the Ken-Gar wetlands mitigation projects are complete with the exception of warranty periods.

Completion of the Glenridge OMF has been on or near the critical path and continues to be a focus. MTA completed the majority of the OMF building and utilities, but construction of track that accommodates LRV storage and testing was deferred for completion by MTS. MTS was scheduled to assume control of the facility in early 2023, but as ***of November 21, 2023,*** the date of the turnover of the facility from MTA to MTS ***is still undetermined due to disputes over completeness of the PLTC and OMF work.*** MTS is installing rail and other features both inside and outside of the building.

Delayed completion of the OMF construction upon PLTC's departure required finding an alternative location to store completed LRVs. MTA reached an agreement with Construcciones y Auxiliar de Ferrocarriles (CAF) to store the LRVs at CAF's Elmira, New York facility until track is ready for acceptance of the LRVs. MTS assumed the storage agreement with CAF upon finalization of the replacement D-B contract.

MTA has revised and submitted the Project Management Plan (PMP), Risk and Contingency Management Plan (RCMP), Quality Assurance Plan (QAP), project schedule, Safety and Security Management Plan (SSMP), and Safety and Security Certification Plan (SSCP). FTA and the PMOC have reviewed these revised plan documents in conjunction with their review of the FRP.

FTA has accepted MTA's revisions to the QAP. The PMOC and FTA continued review of the SSCP.

MTA provides FTA and the PMOC with updates on the progress of MTA and MTS construction activities and monthly updates that track project milestones.

- Scope: There have been no significant reductions or changes to project scope. Three LRVs were added to the project scope (non-FFGA) to support improved operations once service commences.
- Schedule:
  - PLTC never developed an approved recovery schedule to address the delayed start of construction caused by the environmental lawsuit (please see the **NEPA Process and Environmental Mitigation** section, below, for a discussion of the environmental lawsuit). In fall 2019, the P3 concessionaire submitted a revised, fully cost-loaded schedule reflecting a phased project opening (with the first phase opening at the end of 2022 and the second phase opening in mid-2023). This schedule was never incorporated into the working master project schedule.
  - In accordance with the IRP, MTA developed a schedule for the period during which the D-B contractor was being replaced. PLTP and MTA identified several milestones and the requirement to establish a full project schedule before the end of the D-B contractor replacement period. The IRP included project milestones for PLTP to procure a replacement D-B contractor, obtain new financing, and execute contract amendments with MTA. The IRP period also included development of the FRP. In early 2023, MTA submitted an FRP and requested an extension to the RSD of December 31, 2022, that is in the original FFGA. FTA subsequently accepted the FRP that includes a revised RSD of February 28, 2028.
  - See also the **Significant Project Activities and/or Key Milestones** subsection of this Executive Summary, below.
  - Table 1 presents MTA's key milestone dates for the project. This table has been updated to show the dates included in the FRP. The schedule in the FRP is considered the baseline schedule for the project. Through the Quantitative Risk Analysis and processes described in MTA's RCMP, a schedule contingency of 16 months was deemed appropriate. However, the delays attributed to OSF activities have consumed significant contingency. The utilization of a large portion of the schedule contingency at the early stages of MTS's contract is a concern.
  - To clarify schedule terminology used by MTA: The RSA date is a contractual date critical to the agreement between MTA and PLTP. The RSD is the contractual date tied to FTA FFGA funding and other project approvals.
  - MTA and MTS have executed two change orders related to delays attributed to OSF activities. These change orders extended the project RSA date to May 24, 2027. MTA and MTS are currently reviewing additional potential delays and opportunities

for schedule recovery. The RSA date in MTA's master project schedule is July 2, 2027, and the float for the RSD milestone is 172 days. ***However, MTS's current project schedule indicates 227 days of additional delay, which results in an RSA date of December 23, 2027.*** MTA and MTS are developing schedule mitigation options in an effort to reduce the total delay.

Table 1 – MTA Master Project Schedule Dates

Activity	Current MTA Master Project Schedule (Dated *November 1, 2023)* Milestone
Original FFGA	August 22, 2017
Financial Close / NTP / Amendment Agreement Effective Date for Revised PLTP Agreement	April 14, 2022
Commencement of Integration Testing	September 2, 2025
Commencement of Trial Running	May 27, 2026
Construction Complete All Segments	November 12, 2026
RSA	July 2, 2027
FFGA RSD (includes contingency)	February 28, 2028

- Cost:
  - The project's documented expenditures are ***$3,150,396,594.69 through October 31, 2023***. The current Estimate at Completion (EAC) for the project (construction, management, and LRVs) is $5,116,020,380.00. This budget has been accepted by FTA, and MTA has adopted it as the project cost.
  - The accepted project cost includes $307,293,174 of unallocated contingency, of which ***$210,459,438.32*** have been committed through change orders (although not yet fully expended).
  - Refer to **Table 4 – Core Accountability Items**, in Section 1.5 below, for additional project cost information.
  - MTA prepared a summary of actual versus planned expenditures for high-level OSF activities in Standard Cost Category (SCC) format and is updating this summary each month. Through December 31, 2022, MTA forecasted OSF expenditures of $556.15 million, which exceeds the original OSF budget by approximately $136 million. A significant portion of the overrun previously had been incorporated into the project budget, but additional contingency may be needed to address the increase of $35 million to $45 million that has occurred since the final recovery budget was developed. MTA states that these overruns are due to labor and material cost inflation as well as the extended duration of the OSF activities. The PMOC has requested an update on the OSF expenditures, and MTA has indicated that it will prepare a revised EAC for OSF and provide it to FTA and the PMOC ***after the invoices from the OSF contractors are reconciled***. On September 28, 2023, MTA verbally reported (i.e., not in writing) to FTA and the PMOC an EAC for OSF of

approximately $469 million. This amount does not include the previously executed and potential future MTS change orders related to OSF delays.

- The budget includes funds to address nonconforming construction by PLTC. MTA incorporated known defects into the contract with MTS. However, MTA must pay to address any defects unknown at the time of execution of the MTS contract. In February 2023, MTA estimated the total cost of these unknown defects to be approximately $10 million. As with the OSF overruns, the PMOC continues to recommend that MTA closely monitor utilization of contingency to cover these costs. Many instances of PLTC's nonconforming construction and/or defects have been discovered. Nonconforming PLTC work and several other disputes are being evaluated by MTA and MTS, and each is included as an item in the Risk Register.

- Significant Project Activities and/or Key Milestones:

  The COVID-19 pandemic impacted the project in different ways and at different levels. These impacts were primarily related to availability of resources and labor. MTA, PMC, and other project staff followed recommended COVID-19 protocols. On January 30, 2023, MTA stated that COVID-19 protocols for the project had been suspended.

  - The third lawsuit filed by the Friends of the Capital Crescent Trail in January 2019 against U.S. Army Corps of Engineers (USACE) was dismissed in April 2020. The plaintiff subsequently filed an appeal on May 11, 2020. The District Court denied the appeal on May 13, 2021. The decision resolved the last active lawsuit related to the project.
  - The original baseline schedule indicated design completion by late fall 2017. The progress through ***November 21, 2023***, is that 214 of the 218 total planned design packages have been issued as Released for Construction (RFC). The packages that remain in design or approval include fare collection, the fire management system at the WMATA/Silver Spring Transit Center (SSTC) combined station, guideway signage, and the train control system. A 90 percent design submittal for train control is expected in ***December 2023. The PMOC observed that MTS indicates that the design portion of its contract is 99.9% billed; however,*** there is a dispute pending related to the cost of design changes that were made after execution of the agreement with MTS. MTA's team estimates that the disputed amount is approximately $15 million.
  - WMATA's comments on design plans for the SSTC mezzanine connector pedestrian bridge (over CSX Corporation [CSX] ROW) will result in what MTA deems are betterments. Resolution of WMATA comments continued as of July 2023 at the SSTC and at other locations where WMATA and Purple Line stations coincide. MTA reports that the slow resolution of these issues has not impacted critical path activities. ***MTA is supporting coordination of a significant work effort that will occur during a planned WMATA shutdown in the summer of 2024.***

- Storm sewer construction under the CSX railroad is required in several locations. Two jack-and-bore installations of culvert pipes were completed in November 2022. One jack-and-bore installation remains to be completed by MTS as of ***November 2023***.
- Proposed construction near the SSTC will require significant coordination with both WMATA and CSX. Track protection (flagging) and planning of a shutdown of the railroads to allow Purple Line activities near the SSTC in 2024 have been identified as schedule risk items.
- MTA and Washington Suburban Sanitary Commission (WSSC) reached agreement on the relocation of the 66-inch water main that was under the Glenridge OMF. This part of the project is now considered fully complete.
- PLTC reached resolution on the final remaining Alternate Technical Concept (ATC) identified during the proposal process, which is related to the use of jet fans at the Bethesda Station in lieu of vent shafts. In accordance with the established process, MTA reviewed PLTC's design package for National Environmental Policy Act (NEPA) compliance. Final documentation for the ATC is still pending as of ***November 2023.*** MTA will schedule a review of the documentation with FTA as soon as it is complete. MTA and MTS optimistically predict that the ATC will have no Section 4(f) impacts or other impacts to the project's Record of Decision (ROD).
- MTA has completed its non-P3 construction contract activities, as follows:
  - Prince George's County Parks (Parks) Polk Street Maintenance Facility D-B – A substantial completion letter was issued to the contractor on March 30, 2021. Parks has taken possession of the facility, and the warranty period has expired. ***The only remaining action for this portion of the project is a real estate swap that will transfer the maintenance facility property to Parks in exchange for the property needed by MTA for the Purple Line project.***
  - Offsite Wetlands Mitigation (Ken-Gar) – The Design-Bid-Build construction NTP was issued on September 5, 2019. The one-year warranty review occurred on January 9, 2022, and the project is now in quarterly monitoring and annual reporting by MTA that will continue through 2028.
  - Offsite Stream Mitigation (Paint Branch) – The Design-Bid-Build construction NTP was issued on September 5, 2019, and the contractor mobilized in late November 2019. Quarterly monitoring and annual reporting by MTA will continue through 2028.
- Building construction at the Glenridge OMF is essentially complete; however, construction of items outside of the building continues, as does final commissioning of systems inside the building. MTS was scheduled to take possession of the Glenridge OMF on December 31, 2022, but that did not occur because MTA had several remaining items to complete. Although transfer of the facility has not

occurred, MTS is working in and around the OMF, installing track and conduit outside the building, and completing other interior features. The turnover letter to transfer possession of the facility from MTA to MTS is on hold as ***of November 2023,*** pending resolution of disputes and punch list items. ***It is uncertain when this issue will be resolved or if additional impacts will result.***

- Preparation of Traction Power Substations (TPSSs) continues. As of October 2023, TPSSs Q1, Q8, Q7, and QYG have been placed on their foundations and are being commissioned. The foundations for TPSSs Q1 and Q3 are being prepared for substation installation.
- The following is the status of LRV manufacturing as of ***November 21, 2023:***
  - All 25 of the vehicles in the FFGA project scope description and one additional vehicle are designated as "Ready for Shipment" and are in storage at CAF's facility in Elmira, New York. These vehicles are under a schedule of inspection and maintenance until delivery can occur.
  - MTA has added three vehicles by change order to CAF's contract. The additional LRVs will support better operations at the RSA date. It is important to note that these three additional LRVs are not a part of the FFGA between MTA and FTA. One of the three additional vehicles is in storage in Elmira along with the 25 FFGA LRVs. All ten railcars that make up the two remaining vehicles are in final assembly.
  - The previously identified quality issue related to the M33 bolt on the LRVs is nearly resolved. MTA determined that the issue does not impact safety, and the solution is likely the use of a higher strength bolt. The final report on this issue was expected in May 2023, although the PMOC has not yet received it. As of September 2023, CAF has identified additional occurrences of the M33 bolt quality issue. CAF does not believe that this issue will impact delivery of the vehicles, which currently is scheduled for spring of 2024.
  - Delivery of vehicles was expected to begin in spring of 2021; however, the location for their delivery was uncertain because the Glenridge OMF was not ready to accept railcars. MTA and CAF negotiated an agreement for CAF to store the completed railcars in Elmira to await delivery. The terms of the agreement became a part of MTS's agreement. Deliveries of LRVs to the Glenridge OMF have been delayed to early 2024.
  - The project's Buy America compliance audit for the LRVs was conducted on November 14, 2022. The audit indicates that the percentage of U.S. domestic content is 66.74 percent, which meets FTA requirements.
  - MTA staff visited the CAF facility in Elmira, New York, in October 2023 to observe the stored vehicles and the two vehicles currently being assembled.

- MTA is responsible for providing offsite stormwater mitigation in Montgomery County. To date, MTA has accumulated a credit for more than 10 acres of designed, Maryland Department of the Environment (MDE)-approved, offsite stormwater management (SWM) capacity in its "bank." MTA has determined that there is a need for additional mitigation in Prince George's County, and a project to construct additional mitigation is included in the scope of work for MTS.
- ROW acquisition activities continue for the original required 464 private parcels and 137 public parcels (a total of 601 parcels). All of the private parcels related to the original P3 contract Exhibit 9 FFGA scope are in MTA's possession for construction. ***As of November 21, 2023***, ***426*** of the 464 private parcels have completed settlement, and an additional ***13*** parcels have settlements pending.
- MTA has identified 188 small property acquisitions that are required for utility relocations, of which 134 are private and 54 are public. As of April 25, 2023, all of the additional properties were in MTA's possession through Right of Entry (ROE), through options, and/or through agreements. As of ***November 21, 2023,*** MTA estimated that approximately ***$37.5 million*** of exposure remains in the acquisition process. This amount is included in the risk assessment and in the available project contingency.
- To date, all 177 required property relocation agreements are complete. Costs for the completed relocations continue to be processed in accordance with the applicable procedures. As of August 9, 2023, there is only one relocation property that the former owner still occupies. Two additional relocations may be required.
- MTA estimates that necessary extensions of Temporary Construction Easements (TCEs) will cost approximately ***$13.2 million***. Allowance for this amount has been included in the risk assessment and in the project contingency.
- Preparation for safety certification is an ongoing process for MTA, including the development of the appropriate checklists for both design and construction. Design Criteria Conformance Checklists (DCCCs) are more than 98 percent validated. Construction Specification Conformance Checklists (CSCCs) are 23 percent validated.
- MTA adjusted staffing of management personnel to address the varying activities that MTA was managing during the OSF period. On May 25, 2023, MTA communicated the departure of Executive Director Matthew Pollack, Deputy Project Director and Contracting Officer Anita Rodgers, and Director of Communications David Abrams, from the Purple Line project team. A new Deputy Project Director, Alexa Heidrich, started with the Purple Line project team on July 26, 2023. Kathryn (Kat) Lamb joined the team in August 2023 as the Communications Director, which completes the hiring for open senior staff positions for the Purple Line project. ***In November 2023, MTA announced that PMC Project Director Jim Mitchell will leave the project team in December, and that a replacement has been identified.*** A search for

a new MTA Transit Development and Delivery (TDD) Executive Director is still in progress. The TDD Executive Director will be responsible for the Purple Line project in addition to other State of Maryland transit projects. The PMOC has expressed concern related to MTA staff continuity and will continue to monitor MTA's management capacity and capabilities.

- MTA carefully considered a request from Montgomery County to single-track the Purple Line through the Bethesda tunnel. Maryland Department of Transportation (MDOT)/MTA determined that it would not be able to accommodate the request.
- MTA and PLTP coordinated to obtain a modified version of the existing TIFIA loan for the project. On April 14, 2022, the TIFIA loan closed, and all bonds were marketed. MTA was required to update the Transportation Investment Program and State Transportation Investment Program plans to reflect changes in the project.
- MTA's Equal Employment Opportunity Officer assigned to the project is Marcques Washington. He is supporting MTS in its hiring program and monitoring project adherence to hiring of specific companies and personnel. As MTS ramps up construction, it is making significant progress toward achieving the project's hiring, wage, and Disadvantaged Business Enterprise (DBE) goals. ***As of November 2023***, the PMOC continues to recommend that MTA report the projected end-of-project values for these goals in addition to the current values to allow for a more comprehensive evaluation of progress toward meeting the goals. MTA states that due to the D-B contracting method being utilized to deliver the project, continuous diligence is required to monitor contracted DBE work in the current and upcoming work packages, making it challenging to project future values of DBE participation.
- MTA hired a consultant team that is analyzing alternatives for providing security and fare enforcement services for the Purple Line. MTA does not currently have existing facilities or staff that can adequately provide these services, because the distance from their location to the Purple Line light rail facilities is too far. In late April 2023, MTA provided FTA with the alternatives study for review. The study indicates that the preferred alternative is the development of a Southern District of the MTA Police Department and recommends several next steps toward implementation of the new district, including hiring a commander, developing operating procedures, working on Memorandums of Understanding (MOUs) with other local jurisdictions, and developing a facility to house the district. ***As of November 2023,*** the PMOC continues to recommend that MTA develop a written implementation plan that includes schedule milestones and a budget.
- MTA held several Community Advisory Team meetings in October 2023 ***and completed these meetings in November 2023. MTA will hold the next round of Community Advisory Team meetings in April 2024.***

1.3. Major Issues and/or Concerns

Table 2 discusses any major issues or concerns impacting the project's scope, schedule, cost, risks, quality, safety, etc.

Table 2 – Current Major Issues and Concerns

Issue/Concern	Continuation of the project after PLTC's departure was a significant challenge for the project. The replacement D-B contractor, MTS, has now been under contract to PLTP for nearly 18 months.
Date Identified	September 2020.
Status	The IRP was approved in January 2021, and an update was approved in July 2021. MTA has now completed the FRP, which FTA reviewed and accepted in April 2023.
Project Sponsor Action	Management of a transition plan and support of PLTP in the replacement of the D-B contractor was the focus of the Project Sponsor. Another focus was the management of MTA's contractors to continue key activities that maintained the integrity of the schedule under OSF.
PMOC Recommendation	***Now that the construction directly managed by MTA is complete, the PMOC recommends that MTA focus on effective oversight of the D-B contractor, MTS. The PMOC recommends that MTA ensure that sufficient staff is dedicated to oversight, execution of the accepted management plans, and implementation of process improvements.***
Issue/Concern	According to the PMP, the master project schedule should be updated monthly.
Date Identified	2022.
Status	Ongoing.
Project Sponsor Action	FTA accepted the FRP schedule in April 2023 as the new project baseline schedule. Two significant change orders, both of which are based on delays to OSF activities, have caused a substantial utilization of the schedule contingency outlined in the FRP. Additional delays have been identified, and MTA is coordinating potential schedule recovery with MTS. Compensation for the delays will be negotiated between PLTP/MTS and MTA, as appropriate.
PMOC Recommendation	The PMOC continues to recommend that MTA track all schedule elements according to the FRP and report status to FTA and the PMOC each month. MTA should employ additional methods of evaluating schedule progression and performance, including earned-value metrics, to identify issues as soon as possible. ***The PMOC recommends that MTA secure a mutually agreed-to (with MTS and PLTP) revised baseline schedule before executing any change order that commits compensation for delays.***
Issue/Concern	Changes in the project have significantly impacted the project cost as reflected in the original FFGA. The April 2023 FRP includes a revised project cost estimate and a reasonable cost contingency to address remaining project risks.
Date Identified	September 2020.
Status	Ongoing.
Project Sponsor Action	MTA should continue to monitor project progress against the total project cost estimate. As of July 2023, two significant change orders, both of which were based on delays to OSF activities, caused substantial utilization of the cost contingency outlined in the FRP. Additional delays have been identified, and MTA is coordinating potential schedule mitigation (which would support cost mitigation) with MTS. Disputes between MTA and MTS are impacting project contingency.
PMOC Recommendation	The PMOC recommends that MTA ***consider the results of the pending Quantitative Risk Analysis and, if necessary, adjust the cost and schedule contingencies.***
Issue/Concern	MTA does not have a police force located in proximity to the Purple Line.
Date Identified	September 2022.

Status	As of May 2023, MTA has determined a preferred alternative for providing security and fare enforcement, and has identified several next steps for implementation.
Project Sponsor Action	MTA's preferred security alternative includes the creation of a new Southern District of the MTA Police Department and will require associated staff, operating procedures, and a facility.
PMOC Recommendation	Although the currently forecasted RSA date is in 2027, the PMOC recommends that MTA promptly move toward implementation of the preferred security alternative. MTA should identify the parties responsible for implementing the preferred alternative and determine a detailed schedule and budget in a written plan. The PMOC also recommends that the State Safety Oversight Agency be included in the review and comment process for security and fare enforcement.
Issue/Concern	The Lost Time Injury Rate and Total Case Incident Rate have increased significantly since 2022. The current rates are significantly higher than the stated project goals. ***The PMOC also notes that there are inconsistencies in incident reporting between MTA and MTS.***
Date Identified	April 2023.
Project Sponsor Action	MTA has increased coordination with MTS through additional biweekly coordination meetings. MTA has acknowledged the need for safety process improvements. ***In November 2023, MTA stated that MTS has replaced its safety director and has added safety staff, although MTA did not review the qualifications of the new director or staff.***
PMOC Recommendation	The PMOC recommends that MTA ***review MTS safety staff qualifications and that MTA and*** MTS review the safety procedures and the implementation of those procedures to identify opportunities for improvement. The PMOC also recommends that MTA and MTS complete the safety process review as soon as practical and that MTA prepare a written summary. The summary should include the action items and the responsible parties for each.

1.4. Status of Key Indicators Dashboard (Post-grant)

Table 3 shows the project Key Indicators Dashboard after the FFGA was awarded.

Table 3 – Key Indicators Dashboard

Project Sponsor:				Maryland Transit Administration	
Project Name:				MTA National Capital Purple Line Light Rail Transit Project	
Date:				***November 30, 2023***	
Project Detail					
Oversight Frequency:				**Monthly**	
Element	**Status**			**Prior Status**	**Issue or Concern**
	●	●	●		
	G	**Y**	**R**		
Project Management Plan		●		●	MTA has developed an updated PMP that reflects revised project conditions, and in October 2022, MTA submitted a revised PMP to the PMOC and FTA for review. On February 1, 2023, FTA provided its review comments on the PMP, and on April 28, 2023, MTA submitted the second revision of the PMP to FTA. In May 2023, MTA announced significant changes to the Purple Line leadership staff, including departure of the staff in the TDD Executive Director, Communications Director, and Deputy Project Director positions. As of September 2023, MTA has filled the vacant Purple Line Deputy Project Director position, but the TDD Executive Director position remains open. This concern also applies to the Management Capacity and Capability (MCC) element below.

Management Capacity and Capability			●	●	Management staff changes within MTA ***and within the supporting PMC*** have magnified the need for MTA to focus on MCC issues.
Cost*		●		●	MTA has developed a revised cost estimate that reflects new project conditions. Based on PMOC and FTA review comments and a revised MTA Quantitative Risk Analysis, MTA established a budget contingency that appeared appropriate for the stage of the project at the time. However, large change orders and potential change orders have required commitment of a significant portion of the contingency budget. MTA should track project status according to the FRP and the updated PMP and management plans. The PMOC is concerned that significant additional change orders could further reduce the project cost contingency. ***The Quantitative Risk Analysis currently being prepared will inform project cost and contingency decisions.***
Schedule			●	●	MTA has a revised master project schedule that incorporates the current project status in place. Despite the execution of several change orders with significant contract extensions, there has not been a mutually agreed-to construction schedule since the Initial Baseline Schedule in September 2022. MTA has rejected MTS's schedule updates each month, citing technical issues. It is the PMOC's opinion that change orders that include adjustments to the RSA date should not be executed unless a mutually agreed-to revised baseline schedule is included with the change order.
Quality			●	●	There are a significant number of nonconforming items from the PLTC-constructed work and the work performed under MTA's management of OSF. The PMOC finds that the quality reporting related to OSF activities is inconsistent. Also, it appears that some key quality management staff have not participated in the project for some time due to contractual issues. The QAP has been modified to reflect many of the noted PMOC concerns, and MTA will incorporate the remaining concerns in the next annual QAP update. MTA has also developed a quality dashboard to improve the tracking of quality issues.
Safety			●	●	In April 2023, the PMOC noted to MTA that both the Lost Time Injury Rate and the Total Case Incident Rate had significantly increased, particularly for the MTA-managed OSF activities. In addition to the increase in the incident rates, there continues to be an apparent lack of tracking and reporting of safety issues. MTA recognizes the issue and reports that it has scheduled additional safety coordination efforts. In May 2023, the PMOC requested documentation on these additional efforts, and in July 2023, the PMOC questioned the effectiveness of the efforts. MTA acknowledges the need for safety process improvement. It is the opinion of the PMOC that there may be a lack of emphasis on safety or MCC issues that are affecting safety. On September 28, 2023, MTA provided to the PMOC a brief document that indicated it had performed an audit and proposed several safety process improvements. The PMOC needs additional detail in order to evaluate the proposed changes to the safety process. In the opinion of the PMOC, MTA's processes related to construction safety need significant improvement.
Risk		●		●	MTA updated the RCMP and the Risk Register to reflect the changes driven by the FRP and updates to the project management plans. In May 2023, FTA accepted the RCMP but also noted additional comments that MTA should address in future updates to the plan. ***In November 2023, MTA held a risk workshop and began a Quantitative Risk Analysis. A risk review is scheduled to be***

					completed in January 2024 and results shared with the FTA and PMOC at that time.
Legend					
Green	Satisfactory: No Corrective Action necessary.				
Yellow	Caution: Risk/Issues exist. Corrective Action may be necessary.				
Red	Elevated for immediate Corrective Action: Significant risk to the health of the project.				

*Note: With regard to cost, the colors indicate the following status:
Yellow – Forecast cost exceeds the project budget by up to 3%.
Red – Forecast cost exceeds the project budget by more than 5%.

1.5. Core Accountability Items

Table 4 shows the core accountability items for the project, including the current status of the project and the major issues and how they are being addressed.

Table 4 – Core Accountability Items

		Original (Grant)	Current Forecast	PMOC Assessment of Current Forecast
Cost	Capital Cost Estimate	$2,407,030,289	$5,116,020,380	Acceptable
Contingency	Unallocated Contingency	$90,535,748	***$96,833,735***	Acceptable
	Allocated Contingency	$59,500,464	$0	Acceptable
	Total Contingency	$150,036,212	***$96,833,735***	Acceptable
Schedule	Revenue Service Date	12/31/2022	02/28/2028	Acceptable

Project Progress		**Amount ($)**	**Percent of Total**
Total Expenditures	Actual cost of all eligible expenditures completed to date	***$3,150,396,595***	***61.6%***
Planned Value to Date[1]	Estimated value of work planned to date	Not Applicable (N/A)	N/A
Actual Value to Date[1]	Actual value of work completed to date	N/A	N/A

Contract Status		**Amount ($)**	**Percent of Total**
Total Contracts Awarded	Value of all contracts (design, support, construction, equipment) awarded; % of total value to be awarded	To Be Determined (TBD)	TBD
Construction Contracts Awarded	Value of construction contracts awarded; % of total construction value to be awarded	TBD	TBD
Physical Construction Completed	Value of physical construction (***SCC10-50***) completed; % of total construction value completed	***$1,027,207,270***	***53.2%***

Rolling Stock Vehicle Status	**Date Awarded**	**No. Ordered**	**No. Delivered**
28 total car sets[2]	First 26 LRVs: 2016 Additional 2 LRVs: January 2022	28 car sets	0

Next Quarterly Progress Review Meeting Date:	***February 7, 2024***

[1]Earned value information is not available.
[2]The approved FFGA includes a total of 25 LRVs.

2. OBSERVATIONS AND FINDINGS

2.1. Summary of Monitoring Activities

The PMOC received an update from the Purple Line project team during ***the November 21, 2023,*** virtual monthly meeting with MTA, the PMC, and the PMOC. ***FTA, the PMOC, and MTA held two virtual twice-monthly meetings, on November 14 and October 28, 2023, to review project status. On November 7, 2023, MTA provided a project site tour to FTA and PMOC staff. On November 8, 2023, the PMOC attended the Quarterly Progress Review Meeting and prepared meeting notes. On November 20, 2023, the PMOC attended the virtual risk workshop.*** MTA provides supplementary information before the PMOC monthly meetings. PMOC monitoring activities include review of MTA-provided scope, schedule, risk, financial, construction, safety and security, and real estate information.

After the U.S. Court of Appeals reversed the vacation of the ROD in July 2017 (refer to the **NEPA Process and Environmental Mitigation** section, below, for details), the FFGA was executed on August 22, 2017. In September 2020, the construction (D-B) contractor, PLTC, left the project, and a new project delivery plan was developed, including replacement of the D-B contractor. During the period when the replacement D-B contractor was being solicited, MTA managed specific construction and design activities (OSF activities) in order to reduce uncertainty and support the project schedule. On November 5, 2021, MTS was selected as the replacement D-B contractor, and financial and commercial close occurred on April 14, 2022. MTA continues to manage OSF construction and design activities. MTS is performing construction activities across the entire project corridor.

MTA and MTS held initial partnering activities during which they developed relationships, general project priorities for teamwork, and an understanding of key issues for different stakeholders. MTA provided partnering process information to FTA and the PMOC on March 29, 2023. As of August 2023, MTA has replaced the consultant who was leading partnering activities and is developing new processes to facilitate the coordination and relationship between MTA and the MTS/PLTP team. MTA held an internal partnering meeting on October 27, 2023, to help align MTA and PMC staff. ***MTA stated that it will hold another partnering meeting with PLTP and MTS on December 11, 2023.*** MTA will provide agendas, action items, and other partnering information to the PMOC when it becomes available.

2.2. Oversight Triggers

The oversight triggers most applicable to the project are the Oversight Procedure (OP) 25 cost and schedule triggers. The project did not have a mutually agreed-upon baseline schedule between March 2017 and September 2022. Significant schedule delays and a significant increase in project cost keep the project eligible for rigorous oversight. Project schedule delays typically impact project cost, another significant indicator of project health. MTA has developed a revised project EAC in conjunction with development of the project's schedule and FRP. Significant utilization of schedule and budget contingencies has occurred since development of the FRP. In the opinion of the PMOC, significant additional cost and schedule impacts are occurring.

2.3. Project Management Plan and Sub-plans

2.3.1. Project Management Plan

The PMOC reviewed the Purple Line PMP Version 10 in accordance with OP 20 for a PMP at the FFGA execution stage of a project. Subsequently, FTA and the PMOC reviewed Versions 11, 12, and 13. Due to significant project team changes since those versions, another update to the PMP was required. In October 2022, MTA provided an updated PMP (Version 14) to FTA and the PMOC for review, and FTA and the PMOC provided comments on PMP Version 14 to MTA. On April 27, 2023, MTA provided PMP Version 15, which FTA accepted, with comment, on June 21, 2023.

2.3.2. Safety and Security Management Plan

In February 2016, the PMOC reviewed the project's SSMP Version 6, dated October 22, 2014, in accordance with OP 22 for a project at the FFGA execution stage. The PMOC review found that the SSMP was compliant with FTA content requirements for execution of the FFGA, but the PMOC requested that MTA resubmit the SSMP after execution of the FFGA and address the comments in the PMOC report with updated information from the P3 concessionaire. Subsequently, FTA and the PMOC reviewed SSMP Versions 7 through 11 over the next four years. MDOT, which is the State Safety Oversight Agency (SSOA) for the project, also reviewed SSMP Versions 8 through 11. On January 13, 2022, FTA provided comments on SSMP Version 12 to MTA. MTA submitted SSMP Version 13 as well as Version 5 of the Purple Line SSCP to FTA and the PMOC for review in October 2022. FTA and the PMOC reviewed the SSCP and SSMP updates and provided their comments to MTA in February 2023. MTA submitted a revised SSMP to FTA on June 28, 2023, and submitted a revised SSCP on August 28, 2023. FTA approved the revised SSMP in August 2023, and the PMOC SSCP review is approaching completion.

2.3.3. Quality Assurance Plan

In October 2022, MTA submitted QAP Version 10 to FTA and the PMOC for review, and on March 8, 2023, FTA provided review comments on QAP Version 10 to MTA. MTA then submitted a revised QAP to FTA for review in May 2023, and FTA and the PMOC provided comments to MTA in June 2023. In July 2023, MTA provided a response to each specific comment and committed to submitting a revised QAP in August 2023. On August 11, 2023, MTA resubmitted the QAP as Version 12. A technical work session with MTA and the PMOC to discuss outstanding issues related to the QAP was held September 20, 2023, after which the PMOC recommended acceptance of the plan and that MTA should incorporate the outstanding items into the next regularly scheduled plan update. On October 6, 2023, FTA accepted the QAP contingent upon MTA's acceptance of the PMOC recommendations.

The PMOC requested that MTA provide more complete documentation for quality-related activities. In September 2023, MTA presented the PMOC with a quality process dashboard that MTA had developed to display monthly statistics on audits, Deficiency Notices, Nonconformance Reports, and quality oversight assessment reports.

MTA meets with PLTP, the PMC, and the General Engineering Consultant (GEC) monthly to review quality status. In ***November 2023,*** MTA reported the following quality management activities by MTA, PMC, or GEC staff that took place ***in October 2023***:

- Field inspections of OSF and MTS activities such as work on stormwater systems, retaining walls, concrete flatwork, bridge construction, and others. More than 1,000 observations were made.
- Reviews and processes to close out outstanding Nonconformance Reports and Deficiency Notices.
- The witnessing of subcontractors' testing procedures.
- Participation in MTA/MTS Quality Meetings.

MTS also performs significant Quality Assurance/Quality Control (QA/QC) activities and reports having more than 60 full-time quality staff assigned to the project. ***In October 2023***, those QA/QC activities by MTS included:

- Offsite inspections of structural steel girders and canopies, Overhead Contact System (OCS) poles and hardware, traffic signal poles, special trackwork, and other items.
- ***25*** Design Services During Construction reviews and ***2,313*** design submittal reviews.
- Completion of numerous quality audits of MTS and subcontractor work, testing, and quality plans.
- Approximately ***800*** materials tests.
- Approximately ***1,000*** materials samples.

In 2022, MTA frequently provided notes from monthly CAF and SNC-Lavalin LRV manufacturing quality meetings for PMOC review. The information provided a summary of issues and corrective actions, and upcoming quality audits. MTS is now responsible for preparing these notes.

One manufacturing quality issue, the recurring failure of a bolt in multiple vehicles, has not been resolved. MTA determined that the issue does not impact safety, and the solution is likely the use of a higher strength bolt. The final report on this issue was expected in May 2023, although ***as of November 2023,*** the PMOC has not yet received it. As of September 2023, CAF had identified additional occurrences of the M33 bolt quality issue. CAF does not believe the issue will impact delivery of the vehicles, which is scheduled for spring of 2024.

2.3.4. Real Estate Acquisition Management Plan

The PMOC reviewed the project's Real Estate Acquisition Management Plan (RAMP) Versions 10, 11, and 12. The PMOC reviewed the plans with respect to the guidelines in OP 23 for a project in the construction phase. MTA submitted an updated RAMP Version 13 to FTA and the PMOC in October 2022. FTA provided review comments on RAMP Version 13 to MTA on February 27, 2023, and accepted RAMP Version 13 with comments.

2.3.5. Fleet Management Plans

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 on March 4, 2016, issued its final OP 37 BFMP review report, concluding that the BFMP met the requirements of OP 37 for the execution of an FFGA for the Purple Line project.

2.3.6. Risk and Contingency Management Plan

In early 2020, MTA commenced another update to the RCMP to incorporate the results of the latest Quantitative Risk Analysis that, in turn, incorporated the results of the replacement D-B contractor resolicitation and the revised project implementation details. MTA held a risk management workshop on January 26, 2021, that focused on the interim period.

MTA provided a comprehensive Risk Register and risk mitigation activities in conjunction with the draft FRP. In preparation for a risk analysis, MTA held risk assessment interviews with individual risk owners to review existing risk items and identify new risks. In December 2021, MTA prepared an updated Risk Register that includes over 100 risk items, including PLTP and MTS risks.

At a risk workshop held the week of May 2, 2022, the PMOC and FTA participated in an OP 40 risk and contingency review that evaluated cost, schedule, and project contingency. MTA confirmed and finalized the Risk Register, and prepared the Quantitative Risk Analysis and an update of the RCMP. The PMOC developed a draft summary of the risk and contingency review results. FTA provided a risk summary to MTA on June 22, 2022, for MTA's consideration while it was updating the RCMP. MTA provided responses to FTA's comments on the risk summary on July 15, 2022, and provided further clarification on August 25, 2022. MTA submitted RCMP Version 15 to FTA and the PMOC for review in October 2022. In February 2023, FTA and the PMOC provided comments on the revised RCMP, which supported MTA's development of the project's budget and schedule contingency. MTA subsequently submitted the revised RCMP Version 16, dated April 21, 2023, and FTA accepted it on May 22, 2023.

In November 2023, MTA held a risk workshop and began a Quantitative Risk Analysis. Project risks were reassessed, and information needed to reevaluate cost and schedule contingencies was determined. MTA expects to complete the Quantitative Risk Analysis and contingency review in January 2024 and the results shared with the FTA and the PMOC at that time

2.3.7. Safety and Security Certification Plan

Version 3 of the Purple Line SSCP is dated November 4, 2014. The PMOC review found that the SSCP Version 3 met the FTA requirements in support of the FFGA application. MTA submitted SSCP Version 4 on February 3, 2020, in conjunction with the updated SSMP submittal (see the **Safety and Security Management Plan** subsection, above). The SSOA completed its review of SSCP Version 4 and discussed its comments with the PMOC. MTA decided that the new emergency management working group would be a subcommittee to the Fire Life Safety and Security Committee, and this decision would be reflected in the next revisions of the SSMP and

the SSCP, which were planned for after the replacement D-B contractor was in place. MTA submitted SSMP Version 13 and SSCP Version 5 to FTA and the PMOC in October 2022. In February 2023, FTA and the PMOC completed their reviews and provided comments on these plan documents to MTA. MTA provided a response to the SSCP review comments to FTA and the PMOC in May 2023. On July 12, 2023, the PMOC and MTA held a call to review and reconcile PMOC/FTA comments on the SSCP. MTA submitted a revised SSMP to FTA on June 28, 2023, and submitted a revised SSCP on August 28, 2023. FTA approved the SSMP in August 2023, and FTA/the PMOC ***are nearing completion of the SSCP review. MTA indicated that the SSOA provided comments on the SSCP in November 2023.***

2.4. Management Capacity and Capability

MTA continues to identify and assign sufficient Management Capacity and Capability (MCC), as needed, to complete the project in compliance with applicable FTA requirements. These efforts have included bringing staff, either MTA or MDOT personnel or consultants, onto the project to manage the current needs, such as planning, P3 procurement and contracting, real estate acquisition, and construction.

In November 2021, MTA's quality lead for the Purple Line project, Rene Schroeder, retired. It was proposed that Roland Carroll, the Purple Line systems safety and construction safety lead, add the quality lead role to his other Purple Line roles. In February 2022, MTA provided a white paper outlining Mr. Carroll's experience, his recent training, and the proposed supporting staff related to the new quality management role. The PMOC has evaluated this change as a part of the PMP review and will continue to monitor management capacity for this function and all positions through ongoing oversight activities. Specific to safety, the PMOC is concerned that there may be a lack of emphasis on safety or on management capacity or capability. Injury rates, particularly for OSF activities, are higher than the MTA goals. Also, reporting of injury and incident statistics is inconsistent. See Section 2.16, below, for more detail.

In March 2023, MTA hired John Donovan in the role of Construction Manager and MTA also formed a commercial project controls team. These changes were in response to: (1) the near completion of OSF and (2) the need to support the management of MTS's increasing amount of work.

On May 25, 2023, MTA communicated the departure of Executive Director Matthew Pollack, Deputy Project Director and Contracting Officer Anita Rodgers, and Communications Director David Abrams from the Purple Line project team. Project Director Ray Biggs, Jim Mitchell of the PMC, and MDOT Chief Financial Officer Jaclyn Hartman were leading the project while those vacated positions were being filled. Ken Forsythe's role changed from his role as Deputy Director to the interim Director of Communications role. A new Deputy Project Director, Alexa Heidrich, started with the Purple Line project team on July 26, 2023. Kathryn (Kat) Lamb joined the team in August 2023 as the Communications Director, which completed the hiring for the open senior staff positions for the Purple Line project at that time. In August 2023, MTA provided an updated Purple Line organizational chart that included those newly hired staff. ***In November 2023, MTA***

announced that PMC Project Director Jim Mitchell will leave the project team in December, and that a replacement has been identified.

A search for a new MTA TDD Executive Director is in progress. The TDD Executive Director will be responsible for the Purple Line project in addition to other State of Maryland transit projects.

2.5. NEPA Process and Environmental Mitigation

2.5.1. NEPA Process

FTA issued a ROD on March 19, 2014. The National Park Service issued its ROD on July 16, 2014.

MTA has continued to submit environmental re-evaluations as required based on design advancement and other causes. To date, PLTC (before it left the project) 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. The most recent status ***(as of November 2023)*** of NEPA items is:

- All formally submitted LOD cases have been approved. MTA currently expects one additional LOD case and is preparing a submittal for review by FTA. MTA intends to submit the new LOD to FTA after MTA has obtained all applicable information from MTS. This additional LOD case submittal has been delayed because MTA is awaiting necessary clarification from MTS.
- The ATC for the Bethesda Station jet fan has been vetted, and final documentation is being prepared for submittal to FTA for concurrence that the ATC meets project requirements. Final documentation for the ATC is still pending as of ***November 2023***. MTA will schedule a review of the documentation with FTA as soon as it is complete. MTA and MTS optimistically predict that the ATC will have no Section 4(f) impacts or other impacts to the project's ROD.

On August 3, 2016, in response to the lawsuit filed by the Friends of the Capital Crescent Trail against FTA, a federal judge filed his Order and accompanying Memorandum Opinion. In those documents, it was ordered that the ROD for the Purple Line project be 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 whether 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 in 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 U.S. Court of Appeals issued its ruling on December 19, 2017, in which the judges ruled in favor of FTA and the project, and ruled that the transit agencies would

not have to conduct a new environmental study to examine other potential routes for the Purple Line.

The Friends of the Capital Crescent Trail filed a second lawsuit after the FFGA signing and after the groundbreaking ceremony was held on August 28, 2017. The September 19, 2017, Preliminary Hearing for this suit resulted in no temporary injunctions or restraining orders, and project construction proceeded as the case progressed 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 FTA.

The Friends of the Capital Crescent Trail filed a third lawsuit in January 2019, this time against USACE. The USACE legal staff and the Office of the Attorney General provided the defense. 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 USACE. In October 2019, USACE filed for a Summary Judgment to Dismiss the case, and the plaintiffs filed their response; a hearing date was set for March 23, 2020. However, in late February 2020, the assigned judge recused himself from the case, and the scheduled hearing was canceled. In mid-April 2020, the District Court ruled in favor of the USACE/MTA motion for a Summary Judgement to Dismiss, and the case was dismissed. The plaintiff subsequently filed an appeal on May 11, 2020, and the case continued in the legal process. Oral arguments related to the appeal occurred on March 11, 2021. The District Court denied the appeal on May 13, 2021. The decision resolved the last remaining lawsuit related to the project.

2.5.2. Environmental Mitigation

The project achieved the required mitigation for reforestation through the purchase of 82.5 acres of offsite credits (combined, in both Montgomery County and Prince George's County). This amount of offsite credits is expected to be more than needed, and the P3 concessionaire will monitor that this remains the case. PLTP's Forest Conservation Plan (FCP), which documented a need of 75.73 acres, 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. In Maryland, need is based on land disturbance rather than only forest removal. MTA's tracking of additional disturbance due to the progress of design and construction indicated that the total need is still within the amount of available offsite credits.

The Joint Permit Application for Wetlands and Stream Mitigation was formally submitted to USACE and 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, because time had passed since the permit was drafted, MDE updated and issued the finalized permit the first week of April 2018. USACE completed its NEPA and conditions review as well as its 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 the longer construction periods resulting from construction moratoriums for forests and streams. The project received approval from MDE during the week of December 3, 2018, and received the USACE approval letter in mid-June 2019.

The project team has been addressing the environmental mitigation for wetlands through the development of the offsite Ken-Gar location, which is implemented through 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 the bids underwent MTA Procurement Department review. BPW approval of the award was received on September 4, 2019. As of June 2021, the Ken-Gar wetlands mitigation project was complete and had completed its one-year warranty period. See the **Construction** section of this report, below, for further discussion of the status of this Ken-Gar Wetlands Mitigation construction contract.

The project team has addressed the environmental mitigation for streams through the development of the offsite Paint Branch location, which is implemented through 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 the award was received on September 4, 2019. The Paint Branch stream restoration is complete, and warranty corrections (partial replanting) occurred in December 2022. See the **Construction** section of this report, below, for further discussion of the status of this contract.

The project has plans to address stormwater mitigation, beyond what can be mitigated on the project site, through retrofitting offsite locations in both Montgomery County and Prince George's County. On November 12, 2021, MTA determined that there is a need for additional stormwater mitigation in Prince George's County. A project to construct additional stormwater mitigation is included in the scope of work for MTS.

The joint MTA and University of Maryland (UMD) technical board resumed meetings in December 2021 to coordinate efforts related to the mitigation of noise, vibration, and electromagnetic interference at the UMD facilities. Following this meeting, the members of the joint technical board voted to approve the outstanding design packages. This action effectively ended the activities of the technical board until the LRT is in trial running.

The Purple Line project team submits quarterly Environmental Mitigation Monitoring Reports for the project. MTA managed the environmental mitigation and monitoring activities as the project transitioned to the replacement D-B contractor, MTS. Because MTS is now performing construction, MTA will monitor the environmental activities performed by MTS. ***On November 30, 2023, MTA provided the Third Quarter 2023 Environmental Commitment and Mitigation Monitoring Program Report.*** The report conveys the status of progress toward meeting commitments in the ROD that was issued in March 2014 and any pending actions required. In the

report, MTA notes that "no problems, gaps, nonconformances, or NEPA issues of any sort were found during this quarterly assessment."

The MTA Purple Line team communicated that MDE is implementing a change to the state's construction dewatering monitoring and turbidity requirements. Pumped water discharge from construction sites will need to meet specific requirements—something that Maryland lacked but is common in many states. MTS has indicated that these requirements are a change to the project scope of work and is developing a change order request. In September 2023, MTA and MTS participated in training for managers on the new requirements, and a future round of training for field staff is being planned.

2.6. Project Delivery Method and Procurement

The majority of the capital cost of the Purple Line project has been packaged into a Design-Build-Finance-Operate-Maintain 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") in which appropriate risks and benefits are allocated in a cost-effective manner between the contractual partners. The P3 concessionaire is intended to perform some functions normally undertaken by the transit agency, but MTA remains ultimately accountable for the Purple Line project 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 PLTP had been selected as the P3 concessionaire. Commercial close of the P3 contract occurred on April 7, 2016, and financial close occurred on June 17, 2016.

In late April 2020, PLTC notified PLTP that due to PLTC's forecasted schedule delays on the project (which did not receive agreement from MTA), PLTC intended to exercise the clause that allowed it to terminate its contract with PLTP for the design and construction services under the P3 contract if delays exceed 365 days. MTA sent a formal request to PLTP for a response that would include a definitive path forward. On the response due date of May 14, 2020, PLTP submitted its response, which stated that PLTP intended to continue to negotiate with PLTC to retain PLTC as part of the P3 concessionaire team. On June 23, 2020, PLTP sent a formal Notice of Unconditional Election to Terminate the P3 Agreement to MTA, although PLTP indicated a willingness to negotiate a settlement. On June 24, 2020, MTA sent a Formal Notice of Concessionaire Default. This notice essentially refuted the validity of the PLTP delay claims and stated that if PLTP fails to perform, MTA has a number of options related to the P3 Agreement. Through July 2020, construction activities continued at the levels previously planned and were not affected by the dispute.

In early August 2020, PLTC and subcontractors demobilized equipment, materials, and personnel. In response, the Maryland Attorney General filed a motion for a Temporary Restraining Order (TRO) that prevented PLTP from abandoning the work or demobilizing. Upon issuance of the TRO, the contractor and subcontractors remobilized some equipment and restarted many construction activities. A hearing to uphold or rescind the TRO occurred before the expiration of

the TRO on September 14, 2020, and the court rescinded the TRO, allowing PLTP to leave the project.

When an agreement was not reached, the bond holder firms had the first right to take over the project. However, MTA planned an alternate path forward based on its exercise of step-in rights. To that end, MTA assumed the contracts of over 100 subcontractors, indicating MTA's intent to continue the project. MTA adjusted staffing for construction management, resident engineers, and inspectors to move forward with the project.

On November 24, 2020, MTA and the P3 concessionaire, PLTP, reached a settlement agreement to release the project's D-B contractor from the P3 consortium and continue the project with the remaining parties. The state's BPW approved the settlement agreement on December 17, 2020. Activities set out in the agreement and the IRP have proceeded with multiple modifications to milestone dates as needed.

The agreement included the following key aspects, as MTA has communicated to the PMOC:

- PLTP agreed to procure a replacement D-B contractor to complete the project and to obtain project financing. The selection of the preferred replacement D-B contractor, MTS, occurred on November 5, 2021. The TIFIA loan for the project closed on April 14, 2022, allowing financial close and commercial close on that same day. MTS is now the D-B contractor for the project.
- The settlement agreement provided a mutual release from all disputed and undisputed amounts (incurred before September 28, 2020) for PLTP, PLTC, and subcontractors. The agreement also released outstanding litigation among the parties.

2.7. Design

2.7.1. MTA Design

MTA's GEC completed the project design to approximately the 30 percent design level in fall of 2013 and provided incremental enhancements through late 2015. This design formed the basis of the Request for Proposals (RFP) for the P3 contract. See the **P3 Design** subsection, below, for a discussion of the advancement of this design by PLTC, the former PLTP partner that was responsible for the design and construction of the capital project, and continued design under MTA.

A 90 percent design submittal for train control is expected in December 2023. The PMOC observed that MTS indicates that the design portion of its contract is billed out to 99.9 percent; however, there is a dispute pending related to the cost of design changes that were made after execution of the agreement with MTS. MTA's team estimates that the disputed amount is approximately $15 million.

MTA was responsible for the design and construction contracts under a Design-Bid-Build delivery method (separate from the P3 scope) for the following projects:

- Stream mitigation – MTA completed the 100 percent design packages in June 2017 and received approval from MDE in May 2018. Construction of the stream mitigation is now complete. See the **Environmental Mitigation** subsection of this report, above, for additional details.
- Wetlands mitigation – MTA completed the 100 percent design packages in June 2017. Several design adjustments were subsequently made based on MDE and Montgomery County comments. The construction contract was advertised on May 3, 2019. Construction of the original wetlands mitigation is now complete. See the **Environmental Mitigation** subsection of this report, above, for additional details.
- Offsite SWM sites – MTA completed design and obtained MDE approval of more than the P3 contract-required 5 acres of offsite mitigation in Montgomery County on May 29, 2018. In late October 2019, MTA received MDE approvals for the next 5 acres to be added to the mitigation credit "bank," thus satisfying the contract requirements for 2019. MTA has determined that there is a need for additional mitigation in Prince George's County, and a project to construct additional mitigation is included in the scope of work for MTS.
- See the **Environmental Mitigation** subsection of this report, above, for the current requirements.

MTA also completed the design to support a D-B contract for the replacement of the existing Parks Maintenance Facility with a facility on Polk Street. Construction of the facility is now complete. See the **Real Estate Acquisition and Relocation** and the **Construction** (MTA Scope) sections of this report, below, for further details.

2.7.2. P3 Design

PLTC's design progress was forecasted to achieve substantial design completion of Civil packages in August 2020, substantial design completion of Systems packages (except for Fare Collection) in September 2020, and completion of the Fare Collection design package in 2021. The original baseline schedule anticipated design completion by late fall 2017. As of August 2020, the number of planned Civil, Systems, and Utility design packages was 218.

Upon the departure of PLTC, MTA contracted with the project's engineer of record, Atkins, to continue to advance the design of limited aspects of the project.

The current progress through ***November 21, 2023,*** is that 214 of the 218 total planned design packages have been issued as RFC. The packages that remain in design or approval include fare collection, the fire management system at the WMATA/SSTC combined station, guideway signage, and the train control system. A 90 percent design submittal for the train control system is expected in ***December 2023***. The State Highway Administration approved the last traffic signal package in October 2023.

A new item related to design has been added to the Risk Register regarding an intelligent interface device that could impact implementation and operational costs. MTA and MTS have agreed to

put this design change item before the Dispute Resolution Board for feedback, because MTA believes that the change in question would be a betterment that PTLP selected.

PLTC reached resolution on the final remaining ATC identified during the proposal process. The ATC is related to the use of jet fans at the Bethesda Station in lieu of vent shafts. In accordance with the established process, MTA is reviewing the design package for NEPA compliance. Final documentation for the ATC is still pending as of ***November 2023***. MTA and MTS are coordinating to address the noise and aesthetic impacts of the fans, and they optimistically report that the ATC will have no Section 4(f) impacts or associated impacts to the ROD.

MTA and CSX worked to resolve issues related to the applicable design criteria and which project areas were affected until, in July 2019, a mutually agreeable path forward was defined for all areas. 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 SSTC 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 May 2020, CSX indicated that the final design is acceptable. Revised documents, providing some minor clarifications related to ROW, were submitted to CSX on September 8, 2020, and ultimately CSX approved the design. The revised documents were submitted to WMATA several times in early 2021.

- WMATA's comments on design plans for the SSTC mezzanine connector pedestrian bridge (over CSX ROW) will result in what MTA deems are betterments. Resolution of WMATA comments continues as of ***November 2023*** for the SSTC and for other locations where WMATA and Purple Line stations coincide. MTA reports that the slow resolution of these comments has not impacted critical path activities.

- An encroachment into the CSX vertical clearance was discovered upon installation of girders at the SSTC. Although the designer believed the loading of the bridge deck might alleviate the issue, shimming was discussed as a potential solution. Shimming was not MTA's preferred solution; therefore, an exception was requested from CSX to allow the ¾-inch encroachment to remain. CSX denied the exception. MTA and the designer prepared for a contractor to jack and shim the structure to create the required clearance. Construction of this work was completed in August 2021.

- Proposed construction near the SSTC will require significant coordination with both WMATA and CSX. Track protection (flagging) and planning of a shutdown of the railroads to allow Purple Line activities near the SSTC in 2024 have been identified as schedule risk items.

- CSX provided review comments disallowing revised drainage networks, related to the Capital Crescent Trail work, which would connect to CSX's existing drainage culverts. The work on the Capital Crescent Trail is not part of the FFGA and is separately funded by Montgomery County. As a result of work with Montgomery County, the connections

were relocated from CSX property to Montgomery County property and therefore are no longer a CSX issue. To fully accomplish this approach, two connections required resolution. Montgomery County acquired two parcels of land from CSX (not FFGA-funded) and then accepted responsibility for one connection currently under the responsibility of CSX. Storm sewer construction under the CSX railroad was required in several locations. Two jack-and-bore installations of culvert pipes were completed in November 2022. ***As of November 2023,*** completion of another 72-inch-diameter culvert is pending construction by MTS. The work plan for the culvert installation is in the approval process at CSX.

2.8. Real Estate Acquisition and Relocation

As of November 2023, the total number of planned property acquisitions is 601, including 464 privately owned properties and 137 public acquisitions. All of the original Exhibit 9 FFGA-scope private parcels in the P3 contract are in MTA's possession, some of which are properties that continue in condemnation under the State Highway Administration process. To date, ***426*** of the original 464 private properties have completed settlement, ***13*** additional properties (not part of the original 464 private properties) are pending settlement, and 36 condemnations remain to be settled.

All required public properties have been available for construction when needed. Several public property rights transfers are currently being coordinated to accommodate sidewalk changes, utility easements, and ROW exchanges.

As the project has progressed and new utility relocation needs have been identified, additional small parcel acquisitions have been added to the total as utility down-guys. In December 2017, PLTC initially submitted a list of approximately 280 such parcels related to utility relocations and subsequently added to that list. MTA resolved that it would acquire these properties, rather than execute amendments to the utility agreement that would 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 has been expediting the process somewhat. ***As of November 21, 2023,*** the list of additional acquisitions totals 188 parcels, and several more acquisitions potentially may be needed for stormwater facilities. Of these parcels, 54 are public property and will be acquired by agreement, and 134 are private acquisitions. Sixty-six of the 188 properties are filed for condemnation, excluding those that were subsequently optioned or settled, and 20 condemnations remain to be filed. MTA estimates that approximately ***$37.5 million*** of exposure remains in the acquisition process. This amount has been included in the Quantitative Risk Analysis.

The project required a total of 177 relocations, of which 57 were residential and 120 were businesses. To date, all 177 of those identified relocations have been completed in accordance with the applicable procedures, and no active claims remain to be settled. Also, MTA is monitoring terms of agreement of the property acquisitions discussed above that have not yet completed settlement, because some of them could potentially result in the need for additional relocations. As of October 2023, there were two new relocations related to commercial properties that potentially will be needed.

In August 2023, MTA indicated that the goal for completion of all real estate transactions is December 2024.

On April 25, 2023, MTA reported that BPW had approved the last of seven critical project acquisitions. These acquisitions were required to allow MTS access to construction areas that include activities on or near the critical path.

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 MTA shares this information with the PMOC. Based on actual settlement amounts and projected amounts for those not yet closed, settlement/condemnation values are ***56.9 percent higher*** than the original 2014 SCC budget for ROW. MTA included current ROW cost projections in its development of an FRP project cost estimate (see the **Project Cost** section of this report, below).

Due to the extended project duration, some agreements will expire before the expected RSA date. MTA and MTS have started the process of identifying the end dates now needed for the agreements and will begin the process of obtaining extensions. MTA has evaluated the risks, estimated the cost of the extensions, and included those costs in a budget contingency. MTA estimates that approximately $13.2 million of risk exposure remains due to necessary TCE extensions.

2.9. Third-party Agreements and Utilities

All major third-party agreements (specifically, those agreements with Washington Gas, Verizon, Potomac Electric Power Company [PEPCO], CSX, UMD, Montgomery County Parks, Prince George's County Parks, WMATA, 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 lines that are currently overhead be placed underground when they cross the light rail alignment. To minimize the total cost impact of this change, MTA and Verizon reduced the number of locations where Verizon lines cross the alignment to 34. MTA is of the opinion that this reduction 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 for placing 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 upon in early March 2019. MTA had planned to negotiate the cost responsibility with PLTC and Verizon after all major Verizon relocations were completed. However, since the departure of PLTC, MTA carries this cost as a betterment outside of the FFGA scope.

In early June 2018, MTA and PLTP completed the negotiation of all remaining third-party agreements with the smaller utility and telecommunications (telecom) 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 to existing executed agreements continues to be evaluated. The significant items include:

- To date, the design differences with CSX, as discussed earlier in this report, have been adequately resolved through design review and concurrences, and have not resulted in the need to amend the CSX agreement.
- WSSC proposed that the project relocate a 66-inch underground water main that runs through the Glenridge OMF site. In March 2020, MTA and WSSC agreed on a water main alignment primarily in the median of Veterans Parkway, as well as a strategy for completing the relocation. The original Purple Line project GEC performed the design; WSSC provided the material; and MTA separately contracted for the construction, thus avoiding impact to the P3 concessionaire's scope of work. On May 21, 2021, WSSC authorized work, and mobilization began August 9, 2021. Energizing of the cathodic protection ***was the last remaining activity, and it was completed in November 2023.***
- In late July 2022, MTA and MDOT held a summit with the many utility providers that experience relocations related to transportation projects to discuss best practices and improvements to the utility relocation process. As of May 2023, some of the utility providers are experiencing staff shortages that limit construction production rates. These staff shortages present an ongoing challenge to the project.

The project has been addressing its interface with 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 MOU with the Montgomery County Schools system, which was approved by the School Board and signed by the School Superintendent, Montgomery County, and MTA. A similar MOU was negotiated between MTA and the Rosemary Hills School and was approved at the School Board meeting on February 12, 2019. MTA submitted a draft second MOU to Montgomery County Schools on November 3, 2022. The Purple Line project team is developing information on the utility pole locations and retaining wall maintenance before going back to the school district for final property transfer negotiations. Work will continue under ROE agreements with these parties through 2024.

As MTS commenced construction work, coordination meetings were held to ensure that prior agreements with third parties (utility companies and others) are followed. It is MTA's position that the transfer of third-party agreements from PLTC to MTA and now to MTS should not allow for a change in the terms of the agreements.

2.10. Construction

2.10.1. 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 replacement Parks Maintenance Facility (which is part of the real estate effort and budget), wetlands mitigation, stream mitigation, and possibly some offsite SWM sites. MTA has accomplished forest mitigation without the need for

additional construction. The following discussion presents the current status of the MTA construction contracts:

- **Prince George's County Parks Polk Street Replacement Maintenance Facility** – This D-B contract was awarded after the BPW approved the construction contract award on March 20, 2019. Forrester Construction Company completed construction, Parks has taken possession of the facility, and the warranty period has expired. The only remaining action for this portion of the project is a real estate swap that will transfer the maintenance facility property to Parks in exchange for the property needed by the Purple Line project to MTA.
- **Offsite Wetlands Mitigation (Ken-Gar)** – The Wetlands Mitigation construction contract was awarded after the BPW approved the award on September 4, 2019, and NTP was issued to Environmental Quality Resources, LLC on September 5, 2019. The contractor mobilized in December 2019 and completed site surveys and the installation of Erosion and Sedimentation controls. Clearing and grubbing began in February 2020. Prince George's County took partial acceptance of the entire project on March 3, 2021. Acceptable growth of vegetation has been achieved, allowing for closure of this project. The one-year warranty review occurred on January 9, 2022, and now the project requires MTA quarterly monitoring until closeout in 2028.
- **Offsite Stream Mitigation (Paint Branch)** – The Stream Mitigation construction contract was awarded after the BPW approved the award on September 4, 2019, 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. The one-year warranty inspection occurred on August 4, 2022, and 1,700 plants were replaced in November 2022.

2.10.2. P3 Scope

Highlights of construction activities ***through November 2023*** throughout the alignment include*:*

- General: As a result of the dispute with PLTC (see the **Project Delivery Method and Procurement** section, above), all project activities slowed in the fall of 2020. In early August 2020, contractor forces, equipment, and materials were demobilized, and work in some areas ceased. Upon legal action from MTA, partial remobilization occurred. Following the court's rescission of the TRO, demobilization and safe-up activities in the construction area began in earnest in mid-September 2020 and continued into October 2020. Following PLTC's exit, MTA engaged a number of former PLTC subcontractors to continue select project activities. This work was progressed under MTA management with a goal of advancing critical path activities and reducing risk for the replacement D-B contractor.
- Status of ongoing P3 construction items that MTA manages:

- Utility installations of all types are underway, including construction by the electric provider, PEPCO, and the communications company (Verizon). Water, storm sewer, sanitary sewer, and gas lines are also being constructed.
- As a part of OSF, MTA ordered rail, ties, special trackwork, and turnouts to mitigate supply chain risks. MTA also secured materials previously procured by PLTC for use by the replacement D-B contractor (MTS). As of September 2023, a dispute between MTA and MTS over the availability of MTA-supplied materials has been resolved. The materials were located along the project corridor and available for use, resolving the dispute.
- Building construction at the Glenridge OMF is essentially complete; however, construction of civil items outside of the building continues, as does final commissioning of systems inside the building. MTS was scheduled to assume control of the facility in early 2023; however, as of July 2023, there was a dispute over the completeness of the OMF that was delaying turnover from MTA to MTS. The PMOC recommends that this issue be added to the Risk Register, and mitigation plans and an estimate of cost and schedule impacts be developed. The turnover letter to transfer possession of the facility from MTA to MTS is on hold as ***of November 2023,*** pending resolution of disputes and punch list items. ***MTA reports that the transfer of possession date has not been determined.*** MTS is currently installing rail and other features both inside and outside of the building. MTS will complete the tracks for storage and testing of LRVs.
- Based on the status of construction at the time of PLTC's departure, MTA determined which items would be completed before mobilization of the replacement D-B contractor. OSF construction activities were expected to be completed before September 1, 2022, but caused some activities to continue to November 2023. OSF utility relocations that fell behind schedule caused impacts to MTS's work, and delays in OSF activities have driven two MTS change orders ***as of November 2023.*** MTA and PLTP mobilized the Tiger Team to develop schedule alternatives to mitigate additional delays driven by OSF work between March 2023 and July 2023, and the Tiger Team is now evaluating the further delays. ***MTS's current project schedule indicates 227 days of additional delay, which would result in an RSA date of December 23, 2027.***
- MTA's Equal Employment Opportunity Officer assigned to the project is Marcques Washington, and he is supporting MTS in its hiring program. The former contractor, PLTC, left the project with a shortfall in meeting the requirements of its DBE program, and MTS is required to address this shortfall of approximately $12 million in contract value. In March 2023, MTA reported that the design portion and the nationally targeted worker program of the P3 contract had exceeded the DBE program goal, but the percentage DBE participation for general construction is below the goal. In April 2023, Mr. Washington reported that the DBE participation statistics are improving as construction continues. The PMOC continues to recommend that

MTA report the projected values for these goals at the end of the project in addition to the current achieved values to allow for a better evaluation of progress toward meeting the goals. MTA has been performing audits each month to monitor the Davis Bacon prevailing wage requirements. To date, only very minor issues have been identified during these audits.

2.11. Vehicle Technology and Procurement

The LRVs are five-car vehicles consisting of 136-foot-long, articulated units. Twenty-five vehicles (22 in operation and 3 spares) will be provided under the FFGA for the opening year. PLTP executed the LRV contract with CAF on June 17, 2016, and issued NTP to CAF on July 5, 2016, for the 25 FFGA vehicles. NTP to CAF also included one LRV outside of the FFGA.

Later, MTA added two additional vehicles (outside of the FFGA) by change order to CAF's contract, for a total of 28 vehicles to be supplied by CAF. The two additional LRVs will support better operations. MTS has incorporated these two additional LRVs into its scope of work (in addition to the cost and terms of LRV storage in Elmira).

Vehicle carshell manufacturing activities, which are coordinated with design progress, occurred until the facility in Spain was shut down in late March 2020 due to supply chain issues and to limit the spread of COVID-19. The final assembly facility in Elmira, New York, was shut down in early April 2020 due to New York State restrictions related to COVID-19 and reopened on May 18, 2020, at 50 percent of its workforce capacity. As of early August 2020, both the Spain facility and the Elmira facility were back to 100 percent staffing levels.

The final assembly of vehicles is being performed in CAF's facility in Elmira. MTA, its PMC, and SNC-Lavalin are meeting weekly with CAF to resolve all open items for design, testing, and manufacturing activities. First Article Inspections (FAIs) for Interior and Cab were completed on March 18, 2021, and FAIs for Exterior, Roof, and Undercar were completed on April 2, 2021.

Shipment of the first vehicle to the project site was expected in late spring of 2021. The lack of available storage at the yet-to-be-completed Glenridge OMF requires use of an offsite storage facility where vehicles can be stored, occasionally powered, and occasionally "exercised" or moved on tracks. MTA and CAF negotiated an agreement for CAF to store the completed LRVs in Elmira. That storage agreement subsequently transferred to MTS, and its terms are part of MTS's agreement. Twenty-six LRVs have been designated as Ready for Shipment and have been placed into storage in Elmira. MTS's proposed construction schedule establishes when the test tracks will be available for acceptance of the railcars at the Glenridge OMF. Currently, the schedule indicates that initial deliveries of LRVs will occur in early 2024.

The status of the LRV manufacturing as of ***November 24, 2023,*** is:

- To date, 130 carshell segments have been assembled in Spain.
- All 130 carshells have been delivered to CAF's facility in Elmira, New York.

- All 25 full LRVs in the FFGA are designated as Ready for Shipment and are in storage at CAF's Elmira facility. One additional LRV (outside of the FFGA) is also Ready for Shipment and in storage.
- Two additional LRVs are under contract. These LRVs are not a part of the FFGA, but rather are an addition to the contract by MTA to support rail operations. Manufacture of the two additional vehicles (ten cars) in Spain is now complete. All ten of those cars have been delivered to Elmira for final assembly and static testing.

2.12. Project Cost

Table 5 summarizes the project's current actual expenditures and EAC, and compares them to the project budget as reported in MTA's SCC Workbook dated June 1, 2016, which is the basis of the project's FFGA. The project's documented expenditures total ***$3,150,396,595 through October 31, 2023.*** Refer also to **Table 4 – FFGA Core Accountability Items** in the **Executive Summary** section of this report for details on the project's planned and actual expenditures. The following table shows project budgets, actual expenditures, and forecast at completion amounts through ***October 31, 2023***, compared with the project budget as reported in MTA's SCC Workbook dated June 1, 2016, and MTA's current working budget.

Table 5 – Project Cost Versus Budget

SCC	Cost Category	Budget (June 1, 2016 Original FFGA)	Working Budget[1] (April 3, 2023 FRP)	Expenditures *(as of October 31, 2023)*[2]	Forecast at Completion[1]
10	Guideway and Track	$280,620,726	$371,508,682	***$205,172,887***	***$372,749,396***
20	Stations	$114,857,016	$161,159,923	***$30,787,569***	***$171,571,352***
30	Maintenance Facility	$94,155,591	$93,454,387	***$86,289,129***	$94,656,313
40	Sitework	$521,968,990	$796,081,289	***$547,145,425***	***$773,694,366***
50	Systems	$263,887,313	$517,256,196	***$157,812,260***	***$519,146,536***
	Subtotal 10–50	$1,275,489,636	$1,939,460,477	***$1,027,207,270***	***$1,931,817,964***
60	Right-of-Way	$229,600,000	$329,126,214	***$293,325,609***	$329,126,214
70	Vehicles	$212,940,927	$292,780,600	***$154,768,635***	$292,584,921
80	Professional Services (total)	$571,658,114	$2,247,359,915	***$1,675,095,080***	***$2,465,657,545***
80.01	Project Development	$87,149,878	$85,469,312	***$85,469,311***	$85,469,312
80.02	Engineering	$139,766,036	$196,722,013	***$217,819,963***	***$233,049,312***
80.03	Project Management for Design and Construction	$148,555,323	$655,185,988	***$406,365,391***	$641,685,062
80.04	Construction Administration and Management	$83,269,280	$734,209,735	***$496,136,563***	***$801,012,880***
80.05	Professional Liability; Other Non-construction Insurance	$34,534,796	$85,701,891	***$79,311,485***	***$79,461,485***
80.06	Legal; Permits; Review Fees by Other Agencies, Cities, etc.	$5,805,117	$341,013,320	***$328,030,190***	$476,160,224

SCC	Cost Category	**Budget** (June 1, 2016 Original FFGA)	**Working Budget**[1] (April 3, 2023 FRP)	**Expenditures** ***(as of October 31, 2023)***[2]	**Forecast at Completion**[1]
80.07	Surveys, Testing, Investigation, Inspection	$15,164,346	$92,504,023	***$57,180,642***	***$92,140,622***
80.08	Startup	$57,413,338	$56,553,635	$4,781,535	$56,678,235
	Subtotal 10–80	$2,289,688,678	$4,808,727,206	***$3,150,396,595***	***$5,019,186,644***
90	Unallocated Contingency[2]	$90,535,748	$307,293,174	**--**	***$96,833,735***
100	Finance Charges	$0	$0	$0	$0
	Total	$2,407,030,288	$5,116,020,381	***$3,150,396,595***	$5,116,020,380

[1]The Purple Line project Working Budget and Forecast at Completion are based on the accepted FRP, dated April 3, 2023, and subsequent change orders.

[2]The Unallocated Contingency expenditures will be reflected in SCC 10–SCC 80 expenditures as they occur. As of ***September 30, 2023,*** the committed unallocated contingency amount is ***$210,459,568.***

MTA developed the FRP unallocated contingency amount of $307,293,174 by utilizing a Quantitative Risk Analysis, and the RCMP dated April 21, 2023, recommended that amount for unallocated contingency.

On July 15, 2021, the PMOC requested that MTA provide revised budget tracking information that accurately reflected the combined IRP and OSF expenditures. MTA prepared a summary of actual versus planned expenditures for high-level OSF activities for review by the PMOC. MTA submitted the latest version of the summary that provides information through December 2022. MTA forecasted OSF expenditures of $556.15 million, which exceeded the original OSF budget by approximately $136 million. In May, June, July, and August 2023, the PMOC requested an OSF budget update. The extended OSF schedule and other changes have added cost since the December 2022 budget update. On September 28, 2023, MTA verbally reported (not in writing) to the PMOC an EAC for OSF of approximately $469 million. This EAC amount does not include the previously executed and potential future MTS change orders driven by OSF delays; those costs are transferred to the MTS tracking tables. The PMOC continues to request additional information to better understand the EAC.

In July 2023, the Maryland BPW approved a change order that had a total addition of $204,954,610 of cost and 207 additional days of contract time. The net budget impact to the capital construction portion of the project was $137,144,705, and the balance of the total amount was applied to the financing and lost return on investment for PLTP. The $137,144,705 will be expended over the course of construction; therefore, this amount does not immediately show up in the MTA budget reports. However, that amount, plus the amount of the earlier change order included in the FRP, represents significant utilization of the budget contingency. The PMOC recommends that MTA closely monitor these cost overruns and the potential need for additional contingency.

2.12.1. Project Funding

The funding for the project, as reflected in Attachment 3 of the FFGA, is shown in Table 6.

Table 6 – Baseline Cost Estimate by Source Funding

Initial New Starts Project Cost	Total FFGA Cost in Year of Expenditure (YOE) Dollars	Federal 5309 New Starts in YOE Dollars	Federal 5307 in YOE Dollars	Federal American Rescue Plan Act (ARPA) in YOE Dollars	Federal Surface Transportation Program (STP) in YOE Dollars	Local in YOE Dollars
10 Guideway & Track Elements	$280,620,726	$106,464,907	$0	$0	$0	$174,155,819
20 Stations, Stops, Terminals, Intermodal	$114,857,016	$43,747,594	$0	$0	$0	$71,109,422
30 Support Facilities, Yards, Shops, Admin. Bldgs.	$94,155,591	$35,721,760	$0	$0	$0	$58,433,831
40 Sitework & Special Conditions	$521,968,989	$197,858,301	$0	$0	$0	$324,110,688
50 Systems	$263,887,313	$100,116,405	$0	$0	$0	$163,770,908
60 ROW, Land, Existing Improvements	$229,600,000	$87,108,116	$0	$0	$0	$142,491,884
70 Vehicles	$212,940,927	$80,787,818	$0	$0	$0	$132,153,109
80 Professionals Services	$571,658,113	$216,881,800	$36,000,000	$0	$0	$318,776,313
90 Unallocated Contingency	$90,535,748	$31,313,299	$0	$0	$0	$59,222,449
100 Finance Charges	$26,805,863	$0	$0	$0	$0	$26,805,863
Total Project Cost (10-100)	**$2,407,030,286**	**$900,000,000**	**$36,000,000**	**$0**	**$0**	**$1,471,030,286**

Source: Maryland Purple Line Project Recovery Plan, dated April 3, 2023.

2.13. Project Schedule

The March 15, 2017 progress update of the master project schedule served as the only approved version of the schedule until September 2022. Numerous submissions of schedule updates from PLTC were not approved for various reasons, but the primary reason was the inability of MTA and the P3 concessionaire to agree on the schedule impacts of the approximately one-year delay in the execution of the FFGA. In response to a letter that FTA issued to MTA in early August 2018 expressing concerns about the amount of time that the project had advanced without an approved schedule, MTA prepared a working schedule update of the master project schedule. The working schedule update was based on the negotiations of the P3 contract schedule occurring at the time, but the update was not based on a mutually agreed-upon P3 contract schedule.

In late April 2020, PLTC notified PLTP that, based on its forecasting of schedule delays on the project (which were not mutually agreed upon), PLTC intended to exercise the clause in its P3 contract with PLTP that allows it to terminate the contract for design and construction services under the P3 contract if delays exceed 365 days. MTA sent a formal request to PLTP for a response that included a definitive path forward for PLTP's intended management of the P3 contract. On May 14, 2020 (the date the response to the formal request was due), PLTP submitted its response, which stated that PLTP intended to continue to negotiate with PLTC to retain PLTC as part of the P3 concessionaire team. On June 23, 2020, PLTP sent a formal Notice of Unconditional Election to Terminate the P3 Agreement, although PLTP indicated a willingness to negotiate a settlement. On June 24, 2020, MTA sent a Formal Notice of Concessionaire Default. This notice refuted the validity of the PLTP delay claims and stated that if PLTP failed to perform, MTA had a number of options related to the agreement. Through late July 2020, construction activities continued at the level previously planned, and construction progress was not affected.

In early August 2020, PLTC and subcontractors demobilized equipment, materials, and personnel. In response, the Maryland Attorney General filed a motion for a TRO that prevented PLTP from abandoning the work or demobilizing. Upon issuance of the TRO, the contractor and subcontractors remobilized some equipment and restarted many construction activities. A hearing to uphold or rescind the TRO was held on September 14, 2020. The court rescinded the TRO, allowing PLTP to leave the project. Through negotiation, it was determined that PLTP would remain on the project, although PLTC would not.

MTA contracted with numerous subcontractors to continue the project. MTA developed organizational options with respect to construction management, resident engineers, inspectors, and other staff needed to move forward select project activities.

It was certain that the project schedule as reflected in the FFGA would be negatively affected, and a Recovery Plan for the project, including a revised project schedule with adequate schedule contingency to address remaining project risks, would be required. MTA submitted its draft IRP to FTA in December 2020, and FTA approved the IRP on January 12, 2021. A schedule for the period during which the D-B contractor was to be replaced was developed, and MTA monitored project progress against the schedule.

PLTP and MTA continued to coordinate during the financial process and State of Maryland approvals for the replacement D-B contractor. In addition, MTA successfully coordinated other key issues that needed to be resolved before PLTP could execute the contract with MTS.

The following is a summary of IRP milestones:

- January 6, 2021 – PLTP issued a Request for Qualifications (RFQ) for replacement D-B contractors.
- March 8, 2021 – PLTP issued an RFP to the short list of replacement D-B contractors based on the RFQ.
- October 15, 2021 – PLTP received RFP responses.
- November 5, 2021 – PLTP and MDOT/MTA selected the replacement D-B contractor firm (MTS).
- January 26, 2022 – BPW approved the replacement D-B contractor, contract amendments, schedule, cost, and financing.
- April 11, 2022 – Private activity bonds went to market.
- September 12, 2022 – MTA approved the Initial Baseline Schedule (IBS).
- October 14, 2022 – MTS was required to have commenced action on the 11 critical elements that are specified in the D-B contract. At the December 2022 PMOC meeting, MTA confirmed that MTS missed the 180-day window to commence action on 3 of the 11 critical elements.

- October 28, 2022 – MTA was required to have submitted a draft FRP to FTA and the PMOC for review and comment. On October 4, 2022, MTA submitted the draft FRP to FTA and the PMOC for review.

A milestone not specifically mentioned in the IRP is the requirement to extend the current RSD. The PMOC therefore added the following milestone to this list:

- December 31, 2022 – The RSD in the original FFGA is December 31, 2022. MTA requested an extension to the current RSD identified in the original FFGA. FTA has now accepted the FRP, which indicates a revised RSD of February 28, 2028.

The schedule included in the FRP was considered to be the new baseline schedule. The MTS master schedule incorporated the schedule recovery of implementing Maintenance of Traffic and construction activity resequencing, at a cost of $21,343,588, which reduced schedule delays from 218 days to 81 days. These schedule delays are a result of OSF utility adjustments that fell behind schedule. MTS has indicated that delays continued to occur as a result of the MTA-managed OSF work. The second OSF-delay-driven change order, as approved by the BPW in July 2023, added 207 days to MTS's RSA date.

This addition to the RSA date represents a significant use of schedule contingency, which is a concern considering the remaining duration of the project. In an effort to mitigate continuing OSF delays**,** MTA resumed the Tiger Team process to develop schedule alternatives. OSF construction activities were expected to be completed before September 1, 2022, but schedules that MTA previously provided indicated completion of most OSF activities in mid-2023, with some activities continuing up to November 1, 2023. OSF utility relocations that are behind schedule continued to cause impacts to MTS's work, and as of July 2023, delays in OSF activities had driven two change orders. MTA and PLTP has used the Tiger Team process to develop schedule alternatives to mitigate delays driven by OSF work between March 2023 and ***November 2023***, which MTS currently forecasts are an ***additional 227 days*** of delay.

2.13.1 Key Milestones

Table 7 shows the current key milestone dates for the project for the prior approved (March 15, 2017) progress update of the current master project schedule. Issuance of NTP to PLTP on April 14, 2022, triggered the contract requirement that an MTA-approved MTS IBS for the full project be in place within 120 days of financial close (by August 14, 2022). In January 2022, MTA submitted a draft version of the master schedule for FTA and PMOC review, and FTA and the PMOC transmitted their review comments to MTA in April 2022. MTS submitted its IBS, and on September 12, 2022, MTA approved it. MTS submitted the 120-day mobilization schedule, which MTA also approved.

In August 2022, MTA and the PMOC discussed the current state of the baseline schedule, particularly the inclusion of adequate float to address schedule risk. The P65 date that MTA proposed before the risk workshop held in May 2022 included approximately seven months of float and an RSA date in October 2026. After MTA performed the Quantitative Risk Analysis for the updated RCMP, MTA added additional float to address known and unknown schedule risk.

The RSD proposed in the FRP is February 28, 2028, and the master schedule dated ***October 1, 2023,*** currently indicates that only six months of schedule float remain.

The PMOC recommends that MTA closely monitor schedule contingency and the corresponding budget contingency when evaluating the RSA date/RSD and the EAC that have been incorporated into the FRP. The information in Table 7 will be updated once the schedule reviews and approvals are complete.

Table 7 – Key Milestone Dates

Activity	Prior Approved Master Project Schedule (March 15, 2017)	MTA Master Schedule (*November 1, 2023*) (working schedule)
Locally Preferred Alternative Approval Date	08/04/2009 (A)[1]	---
FTA Approval to Enter Preliminary Engineering	10/07/2011 (A)	---
FTA ROD	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 through 03/02/2016 (A)	---
BPW Approval of P3	04/06/2016 (A)	---
P3 Commercial Close	04/07/2016 (A)	---
Limited NTP for P3 Engineering	04/07/2016 (A)	---
MTA Submit FFGA Application	05/24/2016 (A)	---
P3 Financial Close	06/17/2016 (A)	---
FFGA Signed	08/22/2017 (A)	---
Start of First Major Construction Activity	08/28/2017 (A)	---
All Significant ROW Acquisition and Relocation	As needed by construction	---
Commencement of Contract Work for Replacement D-B Contractor (MTS)	---	04/14/2022 (A)
Commencement of Integration Testing	---	07/28/2025
All Segments Complete Construction (with Contingency)	---	02/19/2027
RSA Date per P3 Amendment (with Contingency)	---	07/02/2027
FFGA RSD (Includes Contingency)	12/31/2022	02/28/2028

[1] A = Actual.

2.13.2 90-day Look-ahead

The critical 90-day (***December 2023 through February 2024***) look-ahead includes activities that MTA highlighted in the recent monthly meeting with the PMOC. MTA and MTS also are

preparing four-week look-ahead schedules to manage interim activities. Key activities that MTA has identified for the short term are:

- Retaining wall, OCS foundation, and bridge structure construction in multiple locations.
- Water, sanitary sewer, and storm sewer construction in multiple locations.
- Station construction at 12 locations.
- OCS installation.
- TPSS installation and commissioning, including installation of Q01 in Bethesda.
- MTA's closeout of Glenridge OMF punch lists and turnover of the facility to MTS.
- Track subgrade preparation and track construction.
- Preparations for LRV deliveries at the Glenridge OMF.
- Assembly of the two additional LRVs (127 and 128).

2.13.3 Critical Path Activities

In the MTA master schedule update dated November 1, 2023, the critical path runs through the activities in Segment 7 (utility relocations and Maintenance of Traffic), Segment 8 Glenridge area guideway, and then trial running and systems integration/testing.

2.14 Project Risk

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

During the approximately one-year period during 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 Quantitative Risk Analyses, or perform formal updates of the Risk Register. However, the Purple Line project management team did assess and respond to the risks associated with the unforeseen chain of events related to the lawsuit.

The project team resumed formal Risk Management Committee 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 in draft form in January 2018, and was updated further and reissued in March 2018. As an ongoing process, MTA currently is performing updates of the Risk Register periodically, though somewhat less frequently than bimonthly (the frequency established in its RCMP). The current status of the RCMP is discussed in the **Project Management Plan and Sub-plans** section of this report, above.

MTA provides copies of significant updates of the Risk Register to FTA and the 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; the project's top five project

risks are included as Attachment C of this report and are updated quarterly. A risk management workshop was held on January 26, 2021, at which the PMOC and FTA participated. The workshop focused on the resolicitation period for the replacement D-B contractor (January through October 2021).

Once the replacement D-B contractor was under contract, risk updates were prepared. The project held a risk workshop the week of May 2, 2022, at which the PMOC and FTA participated in an OP 40 risk and contingency review that evaluated cost, schedule, and project contingency. Confirmation and finalization of the Risk Register, the Quantitative Risk Analysis, and an update of the RCMP are components of the FRP. FTA provided a summary of the risk workshop to MTA on June 22, 2022, for MTA's consideration and incorporation into its management plans and contingency evaluation. MTA provided responses to FTA comments on the risk workshop summary on July 15, 2022, and clarification on August 25, 2022. In October 2022, MTA submitted RCMP Version 15 to FTA and the PMOC for review. In February 2023, FTA and the PMOC provided comments on RCMP Version 15 to support MTA's development of the project's budget contingency and schedule contingency. On April 21, 2023, MTA provided a revised RCMP to FTA and the PMOC for review, and on May 22, 2023, FTA accepted the revised RCMP with comment. In June 2023, MTA held its quarterly Risk Management Committee meeting, at which it updated the Risk Register to reflect retired and new risk items. Five of the seven new risk items are related to disputes with MTS. Two significant risks were added to the Risk Register—one related to numerous design changes that occurred during OSF but were not reflected in the amended P3 Agreement and one related to a very specific intelligent interface device.

On November 20, 2023, MTA held its quarterly Risk Management Committee meeting. During the meeting, MTA identified the top four project risks that have a risk rating of "Significant":

1. ***Construction – Exhibit 24 Utility Adjustments***
2. ***Design – TCE Extensions***
3. ***Design – Design Changes***
4. ***Design – Intelligent Interface Device***

As a follow-up to the Risk Management Committee meeting, MTA will complete a Quantitative Risk Analysis, re-baseline the project contingency drawdown curves, and update the RCMP.

2.15 Quality Assurance/Quality Control

The project's QA/QC is addressed in Section 10 of the PMP, the Quality Program Plan, and the updated MTA QAP Revision 8.0, which incorporates the quality plans prepared by PLTC. The **Project Management Plan and Sub-plans** section of this report, above, discusses the most current versions of the PMP and the QAP. MTA also submitted to FTA the package of inter-related quality plans prepared by the P3 concessionaire after the package was reviewed and approved by MTA.

MTA obtained and used PLTP's quality logs and other applicable documents and procedures during the transition to the replacement D-B contractor. Several former subcontractors were under

contract with MTA and conducted QA/QC activities during the replacement D-B contractor solicitation period. The budget to address nonconforming construction by PLTC remains a concern as of July 2023. MTA incorporated known defects into the MTS contract; however, MTA has not clarified the specific budget that will be used to rectify defects found since the contract with MTS was executed. MTA estimates that the potential magnitude of this budget impact will be no more than $10 million, and the current Risk Register carries this risk item.

In October 2022, MTA submitted QAP Version 10 to FTA and the PMOC for review, and on March 8, 2023, FTA provided review comments on the QAP to MTA. MTA provided a revised QAP to FTA and the PMOC in May 2023.

The project has continued to conduct its monthly meeting to review the QA/QC activities performed by the Purple Line project team, including those activities performed by the PMC and the GEC. Documentation from this meeting is distributed and maintained. The project's Monthly Progress Report to FTA also contains a summary of the significant current QA/QC activities and events, including quality audits and quality reviews.

In October 2023, quality management topics included quality process improvements, records storage, field inspections to close open issues, equipment testing inspections, design submittal reviews, records spot checks, approval of MTS's quality management plans, MTS offsite inspections at the fabrication location for OCS poles, and planning of the monthly QC meetings.

In November 2021, MTA's quality lead for the Purple Line project, Rene Schroeder, retired. Roland Carroll, the Purple Line systems and construction safety lead, added the quality lead role to his other Purple Line roles. In February 2022, MTA provided a white paper outlining Mr. Carroll's experience, his recent training, and the proposed supporting staff related to his new quality management role. The PMOC evaluated this change as a part of the PMP review and will continue to monitor MTA's management capacity for this function and all positions through ongoing oversight activities.

The PMOC has requested that MTA provide more complete documentation for quality-related activities. MTA modified the QAP to reflect many of the noted PMOC concerns. In addition, a technical work session with MTA and the PMOC to discuss outstanding issues related to the QAP was held September 20, 2023. The PMOC has since recommended acceptance of the QAP contingent upon MTA's incorporation of outstanding items into the next regularly scheduled annual update. On October 6, 2023, FTA accepted the QAP provided that MTA incorporate the PMOC recommendations. MTA has also developed a quality dashboard to improve its tracking of quality issues.

2.16 Safety and Security

PLTP has conducted 44 Preliminary Hazards Analysis (PHA) workshop sessions to date. These workshops were held to resolve MTA's comments on the PHAs completed to date.

To support the ultimate Safety and Security Certification of the Purple Line project, the PLTP System Safety team completed development of its first DCCC in May 2017 and submitted it to MTA for approval. MTA (assisted by the PMC) reviews the DCCCs as part of the Final Design

package, according to the established submittal review process. According to PLTP, the DCCCs were being verified before the issuance of RFC packages. To date, an estimated 98 percent of the DCCCs have been verified. All previous comments on PLTP's Certified Elements List (CEL), which includes operations and maintenance and system integration testing elements, have been resolved, and CEL Revision 2 was accepted in March 2020. The Certified Items List (CIL) Revision 1 has been accepted. The next revision of the CIL is expected after MTS completes the design. MTA will provide the revised CIL to FTA and the PMOC as soon as it is completed. Approximately 23 percent of the CSCCs have been verified to date.

MTA chairs a Safety and Security Certification Committee (SSCC) that reviews, comments on, and approves any PLTP hazard management and safety and security certification issues. The first meeting of the MTA SSCC was conducted on March 20, 2018. Since July 11, 2018, the SSCC meeting has been held regularly and will continue as a monthly meeting until the level of activity requires more frequent meetings. ***As of November 2023,*** monthly SSCC meetings continue.

PLTC submitted a Threat and Vulnerability Assessment, and on July 15, 2019, MTA accepted and verified the comment responses and approved PLTC's Threat and Vulnerability Assessment. PLTC then completed its Threat and Vulnerability Assessment process.

MTA continues to conduct bimonthly Fire/Life Safety meetings with Montgomery County and Prince George's County. The meetings provide a basis for the counties' emergency responders to understand the features of the Purple Line systems and to resolve any concerns. Topics of discussion include: Police Department MOUs; Fire Department connection and hydrant locations; access, signage, and station naming conventions; MOUs for training; the PHA at the Glenridge OMF maintenance gate; station names; and addresses/emergency phone numbers for locations along the corridor. Other topics of discussion have included closed circuit television cameras and Mobile Emergency Vehicle Response access. It is the opinion of the PMOC that MTA should emphasize resolving the project's outstanding Fire/Life Safety issues, because progress on the resolution of these issues is not apparent.

MTA police continue coordinating MOUs with local safety agencies and developing MOUs with police jurisdictions (such as the Maryland National Capital Park Police) along the Purple Line. These MOUs are related to training the existing police agencies on how to respond to transit situations. During August 2023, the PMOC reiterated that these processes have been ongoing for several years and that milestones for resolution of issues should be established.

During the September 2022 MTA/PMOC meeting, a larger related issue was discussed at length. The SSOA staff participated in this discussion as well. The crux of the issue is that MTA does not have a police force located in proximity to the Purple Line. MTA hired a consultant team to analyze alternatives for providing security and fare enforcement services for the Purple Line. Alternatives included: expanding MTA's enforcement services geographically, bringing on a third party to provide these services through a contract, or sharing police services with another party. On February 23, 2023, MTA submitted its prepared draft recommendation for providing security and fare enforcement to several State of Maryland departments. Representatives from MDOT, which is the SSOA, who are monitoring the Purple Line project development provided comments

on the draft recommendation before MTA submitted it to MTA's upper management and the several state departments. In late April 2023, MTA provided FTA with the alternatives study for review. The study indicates that the preferred alternative is the development of a new Southern District of the MTA Police Department and recommends several next steps toward implementation of the new district, including hiring a commander, developing operating procedures, working on MOUs with other local jurisdictions, and developing a facility to house the district. The PMOC continues to recommend that MTA develop a written implementation plan that includes schedule milestones and a budget for providing security and fare enforcement services.

As required by the P3 contract, PLTP was responsible for directly implementing many of the safety and security requirements for the project, including those for construction safety and the collection and maintenance of the Occupational Safety and Health Administration (OSHA) safety statistics for the project. PLTC performed this work until its departure from the project, at which time MTA assumed responsibility. Later, once the replacement D-B contractor was in place, MTS transitioned into the safety and security role that PLTC held. MTS and MTA are holding regular safety and security coordination meetings.

Safety is a PMOC concern. The rate of recordable incidents remains above project goals, and MTA appears to be having difficulties with incident documentation. For the period from January 1, 2022, through ***October 2023***, the OSHA statistics are:

- TCIR (Total Case Incident Rate) (Recordable Rate) – MTS and OSF activities:
  - Actual: ***3.84/3.74*** (MTS/OSF)
  - MTS goal: 1.68
  - National average: 2.8 (for heavy civil construction)
- LTIR (Lost Time Injury Rate) (Recordable Rate) – MTS and OSF activities:
  - Actual: ***3.84/3.74*** (MTS/OSF)
  - MTS goal: 0.64
  - National average: 0.9 (Construction – heavy civil)

MTA had assumed responsibility for safety oversight until MTS assumed control of the project. As of December 2022, MTA reported that MTS needs coaching on expectations for the required reporting of safety statistics. In April 2023, the PMOC noted to MTA that both the LTIR and the TCIR have significantly increased, particularly for the MTA-managed OSF activities. In addition to the increase in incident rates, there is an apparent lack of tracking and reporting of safety issues. ***The PMOC has also noted that there are inconsistencies in incident reporting between MTA and MTS.***

MTA states that it recognizes the issue and reports that it has scheduled additional safety coordination efforts. In May 2023, the PMOC requested documentation on these additional efforts, and in July 2023, the PMOC questioned the effectiveness of the efforts. MTA acknowledges the need for safety process improvement. ***In November 2023, MTA stated that MTS has replaced its safety director and has added safety staff, although MTA did not review***

the qualifications of the new director or staff. The PMOC recommends that MTA review the qualifications of MTS safety staff and the safety processes and procedures being followed on the project.

The PMOC recommends that MTA and MTS complete a safety process review as soon as practical and that MTA prepare a written summary. ***In November 2023, MTA's safety director, Roland Carroll, provided an email and attachment that briefly summarized the safety improvement actions. The document does not indicate target dates for implementation, nor the responsible party for these actions.*** In the opinion of the PMOC, the project may lack emphasis on safety or there may be a lack of safety-related MCC. It remains the opinion of the PMOC that MTA's processes related to construction safety need significant improvement.

In late October 2022, MTA submitted updated SSMP and SSCP documents in conjunction with the updated PMP. On February 13, 2023, and March 8, 2023, FTA provided review comments to MTA on the SSMP and SSCP, respectively. MTA submitted a revised SSMP to FTA on June 28, 2023, and submitted a revised SSCP on August 28, 2023. FTA approved the SSMP in August 2023, and the PMOC is nearing completion of its SSCP review.

See the **Project Management Plan and Sub-plans** section of this report, above, for the status of the sub-plans of the PMP related to safety and security. Attachment B of this report includes additional quarterly safety- and security-related information for the Purple Line project.

2.17 Americans with Disabilities Act

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

Accessibility and compliance with the ADA are required as part of the functional requirements for stations and guideway, and as part of the codes and standards for LRVs within the P3 contract (Book 2, Part 2) for the Purple Line project. Based on project reviews conducted by the PMOC, MTA has confirmed that it included ADA compliance in its QA oversight reviews of PLTC's design packages. A full-time Purple Line project Maintenance of Traffic construction representative also monitors whether temporary pedestrian accommodations during construction continue to comply with ADA requirements. ADA compliance is included in the PMOC's periodic project reviews, during which the PMOC discusses timely project ADA-related items with the project team. Such discussions during the PMOC's most recent reviews identified no current ADA-related issues.

MTA indicates that the project is maintaining ADA accessibility along the project corridor during construction. In addition to planning for ADA accessibility, MTA and MTS respond to public concerns due to construction activities and temporary accessibility features.

2.18 Buy America

MTA understands that Buy America compliance applies not only to the rail vehicles but also to the 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 regulations is contained in MTA's standard clauses for its procurements, and the P3 contract contains explicit Buy America language in its Appendix 16.

Virginkar and Associates, Inc. conducted the Buy America pre-award audit and concluded that there is reasonable certainty that CAF will satisfy the Buy America requirements as stated in 49 Code of Federal Regulations (CFR) 661. MTA's interpretation is that, because the vehicle RFP was advertised before December 4, 2015 (which is the date of passage of the Fixing America's Surface Transportation Act, also known as the FAST Act), the 49 CFR 661 Public Interest Waiver that limits domestic content to a minimum of 60 percent, as opposed to the escalating domestic content requirements of the FAST Act, applies in this case. During the week of October 2, 2017, an intermediate post-award Buy America audit was conducted of CAF's facility in Elmira, New York, for added confidence that the post-delivery audit would not identify issues. CAF targeted 65 percent domestic content in the completed LRVs.

The project's Buy America compliance audit for the LRVs was conducted on November 14, 2022. In January 2023, CAF provided additional documentation requested to assist with evaluation of Buy America compliance. On August 17, 2023, MTA provided the Post-delivery Buy America Audit, dated April 21, 2023, to FTA. On that same day, MDOT also provided the Certificate of Compliance to FTA for the Post-delivery Audit of Rolling Stock Purchases. The audit indicates that the percentage of U.S. domestic content of the LRVs is 66.74 percent, which meets FTA requirements.

2.19 Start-up, Commissioning, Testing

MTA ***has begun*** documentation for the "Roadmap to Revenue Operations" ***(see Attachment G),*** which includes both MTA and MTS information on integration, testing, and commissioning. MTS indicates that it is preparing a System Integration Test Plan. ***As of November 21, 2023***, MTA has developed a process for managing testing submittals and reviews, including detailed tracking of open items. MTS will deliver its full integration and testing plan in May 2024. MTA has not yet contracted with an Independent Integration Engineer to oversee the integration and testing process.

2.20 Before-and-After Study Reporting

To be determined.

2.21 Lessons Learned

The resolicitation of a D-B contractor gave MTA the opportunity to apply several lessons learned to the new D-B contract documents and to amend the P3 agreement. After the May 2022 risk workshop with MTA and the PMOC, MTA provided an update on opportunities for improvement that MTA had identified during the resolicitation and is incorporating into the project. MTA and the PMOC will include discussion of lessons learned at future monthly meetings. MTA indicates

that it has prepared an initial Lessons Learned summary but ***is currently revising the document to include information from the MTA-managed OSF activities. MTA will provide this summary when it is complete.***

2.22 Action Items

Action Items are identified at MTA/FTA Quarterly Progress Review Meetings, at MTA/PMOC Monthly Update Meetings, and at MTA/FTA Biweekly New Starts Progress Conference Calls. Action Items from the PMOC monthly call in ***November 2023*** are as follows:

1. MTA will provide updates to the OSF EAC. – OPEN
2. ***MTA will provide clarification of the difference in safety incident reporting between MTA and MTS. – OPEN***
3. MTA will provide initial Lessons Learned documentation. – OPEN
4. MTA will provide the expected date that the written plan, budget, and schedule for development of police and fare enforcement services will be ready. – OPEN
5. ***MTA will share the results of its internal Risk Review in January 2024. - OPEN***

ATTACHMENT A – LIST OF ACRONYMS

ADA	Americans with Disabilities Act
ARPA	American Rescue Plan Act
ATC	Alternate Technical Concept
BFMP	Bus Fleet Management Plan
BPW	Board of Public Works
CAF	Construcciones y Auxiliar de Ferrocarriles
CEL	Certified Elements List
CFR	Code of Federal Regulations
CIL	Certified Items List
CSCC	Construction Specification Conformance Checklist
CSX	CSX Corporation
D-B	Design-Build
DBE	Disadvantaged Business Enterprise
DCCC	Design Criteria Conformance Checklist
DNR	Maryland Department of Natural Resources
EAC	Estimate at Completion
FAI	First Article Inspection
FCP	Forest Conservation Plan
FFGA	Full Funding Grant Agreement
FRP	Final Recovery Plan
FTA	Federal Transit Administration
GEC	General Engineering Consultant
IBS	Initial Baseline Schedule
IRP	Interim Recovery Plan
LOD	Limits of Disturbance
LRT	Light Rail Transit
LRV	Light Rail Vehicle
LTIR	Lost Time Injury Rate
MCC	Management Capacity and Capability
MDE	Maryland Department of the Environment
MDOT	Maryland Department of Transportation
MOU	Memorandum of Understanding
MTA	Maryland Transit Administration
MTS	Maryland Transit Solutions
N/A	Not Applicable
NEPA	National Environmental Policy Act
NTP	Notice to Proceed
O&M	Operations and Maintenance
OCS	Overhead Contact System
OHA	Operational Hazard Analysis
OMF	Operation and Maintenance Facility
OP	Oversight Procedure
OSF	Operation Step Forward
OSHA	Occupational Safety and Health Administration
P3	Public-Private Partnership
PEPCO	Potomac Electric Power Company
PHA	Preliminary Hazards Analysis
PLTC	Purple Line Transit Constructors
PLTP	Purple Line Transit Partners
PMC	Project Management Consultant
PMOC	Project Management Oversight Contractor
PMP	Project Management Plan
QA/QC	Quality Assurance/Quality Control
QAP	Quality Assurance Plan
RAMP	Real Estate Acquisition Management Plan

RCMP	Risk and Contingency Management Plan
RFC	Released for Construction
RFP	Request for Proposals
RFQ	Request for Qualifications
ROD	Record of Decision
ROE	Right of Entry
ROW	Right-of-Way
RSA	Revenue Service Availability
RSD	Revenue Service Date
SCC	Standard Cost Category
SCIL	Safety Certifiable Item List
SEIS	Supplemental Environmental Impact Statement
SIT	Systems Integration Test
SOP	Standard Operating Procedure
SSCC	Safety and Security Certification Committee
SSCP	Safety and Security Certification Plan
SSCVR	Safety and Security Certification Verification Report
SSMP	Safety and Security Management Plan
SSOA	State Safety Oversight Agency
SSTC	Silver Spring Transit Center
STP	Surface Transportation Program
SWM	Stormwater Management
TBD	To Be Determined
TCE	Temporary Construction Easement
TCIR	Total Case Incident Rate
TDD	Transit Development and Delivery
TIFIA	Transportation Infrastructure Finance and Innovation Act
TPSS	Traction Power Substation
TRO	Temporary Restraining Order
TVA	Threat and Vulnerability Analysis
UMD	University of Maryland
USACE	U.S. Army Corps of Engineers
WMATA	Washington Metropolitan Area Transit Authority
WSSC	Washington Suburban Sanitary Commission
YOE	Year of Expenditure

ATTACHMENT B – TOP PROJECT RISKS

An internal risk workshop to support the Interim Recovery Plan (IRP) was held on January 26, 2021. Maryland Transit Administration (MTA) and Purple Line Transit Partners (PLTP) used information from the meeting as they solicited a replacement Design-Build (D-B) contractor.

A risk workshop was held May 3 through May 5, 2022. After the risk workshop, MTA prepared supplementary or updated documents for review, including an updated Risk Register. FTA provided a risk summary to MTA on June 22, 2022, for MTA's consideration when updating risk, contingency, and other project management plans. MTA incorporated the FTA comments in the revised Risk and Contingency Management Plan (RCMP) that is a part of the Final Recovery Plan. On May 22, 2023, FTA accepted the revised RCMP with conditions.

During the November 8, 2023 Quarterly Progress Review Meeting, MTA presented cost and schedule contingency drawdown curves that indicated significant commitment of contingency reserves. Due to this significant commitment of contingency and the recent completion of the MTA-managed OSF activities, MTA determined that an update to the Risk Register was warranted.

On November 20, 2023, MTA held its quarterly Risk Management Committee meeting. During the meeting, MTA identified the top four project risks that have a risk rating of "Significant":

5. ***Construction – Exhibit 24 Utility Adjustments***
6. ***Design – Temporary Construction Easement Extensions***
7. ***Design – Design Changes***
8. ***Design – Intelligent Interface Device***

As a follow-up to the Risk Management Committee meeting, MTA will complete a Quantitative Risk Analysis, re-baseline the project's contingency drawdown curves, and update the RCMP.

ATTACHMENT C – AWARDED CONTRACTS

Included below is information that MTA prepared for the November 8, 2023 Quarterly Progress Review Meeting packet. Please note that the total shown in this table for contracts awarded does not reflect the full project value.

Major Contracts:

Company	Vendor Type	Contract No.	Baseline Amount	Change Order Totals	Current Amount	Pending Change Orders
PB/RK&K	Engineers/ Architects	MTA-1054A	$ 12,000	$ 1,850	$ 13,850	
STV/Jacobs	Engineers/ Architects	MTA-1054B	$ 8,000	$ 1,300	$ 9,300	
AECOM/ RK&K/PB	Engineers/ Architects	MTA-1264A	$ 60,000	$ 338,500	$ 398,500	
Gannett Fleming/WRA	Engineers/ Architects	MTA-1265B	$ 80,000	$ 71,000	$ 151,000	
Purple Line Transit Partners	P3 Concession (design build portion only)	PUR16032PP	$ 1,988,816	$ 1,692,228	$ 3,681,044	
Total			**$ 2,148,816**	**$ 2,104,878**	**$ 4,253,694**	**0**

Reason for Change: *Amendment 6 to the Purple Line Transit Partners P3A was not been previously reflected. The amount shown as "Current Amount" represents that portion of the P3A Design-Build contract associated with the New Starts Program.*

ATTACHMENT D – ROLLING STOCK VEHICLE STATUS REPORT

Date: November, 27, 2023

Vendor: Construcciones y Auxiliar de Ferrocarriles (CAF)

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

Year: The first vehicle was completed in 2021, and currently 26 vehicles are designated as "Ready for Shipment." Completion of the storage and testing facilities at the Glenridge Operation and Maintenance Facility (OMF) has been delayed, so Maryland Transit Administration (MTA) and CAF negotiated terms for storage of vehicles at the CAF facility in Elmira, New York. The storage agreement has now transferred to the replacement Design-Build (D-B) contractor, Maryland Transit Solutions (MTS).

Quantity: 25 vehicles (125 cars) original contract (Full Funding Grant Agreement [FFGA]). One vehicle (5 cars) was added to the original CAF authorization by MTA, outside of the FFGA.

Two vehicles (ten cars) were added in July 2021 via change order, also outside of the FFGA.

Identification: The original light rail vehicles (LRVs) will be numbered from 101 through 126. The two additional LRVs will be numbered 127 and 128, respectively.

New Technologies: None planned (all major suppliers have service-proven equipment).

Status and Significant Activities:

- As a part of the original order, 130 cars were assembled in Spain, all of which were delivered to CAF's facility in Elmira, New York, for final assembly and static testing. Manufacture of the additional two vehicles (ten cars) in Spain is complete. All ten of those cars have been delivered to Elmira for final assembly and static testing.
- Delivery of finished vehicles was expected to begin in spring 2021; however, because the Glenridge OMF is not ready to accept railcars, MTA and CAF have negotiated an agreement for CAF to store the completed cars in Elmira.
- Cost risk for delivery of the finished vehicles has been transferred to MTS. If delays in construction cause a delay, then MTS is responsible to CAF for additional storage cost.
- Twenty-six LRVs have passed static testing, have been designated as Ready for Shipment, and have been placed into storage in Elmira. These include vehicle 110, which was returned to Ready for Shipment status after a second period in static testing.
- Delivery of the first of the original 26 vehicles is currently scheduled for early 2024. Approximately one vehicle per week will be delivered thereafter. The Glenridge OMF

will be able to store three or four vehicles on the yard and in the building, so track must be available for additional storage. The Overhead Contact System and Traction Power Substation (TPSS) Q7 and TPSS QYG must also be completed and installed before delivery of vehicles.

- SNC-Lavalin (now an MTS subcontractor) prepares a monthly quality report documenting safety, production, and quality items at both the Spain and New York production facilities.
- MTA, the Project Management Consultant, and CAF are holding weekly coordination meetings to review all outstanding testing and factory/shop activities, including onsite testing procedures for when the vehicles are delivered to Maryland.
- MTS, which has assumed the CAF contract, is preparing and submitting to MTA reports on LRV maintenance activities required during the storage period.
- The project's Buy America compliance audit for the LRVs was conducted on November 14, 2022. In January 2023, CAF provided additional documentation requested to assist with the evaluation of Buy America compliance. On August 17, 2023, MTA provided the Post-delivery Buy America Audit, dated April 21, 2023, to Federal Transit Administration (FTA). On that same day, Maryland Department of Transportation also provided the Certificate of Compliance to FTA for the Post-delivery Audit of Rolling Stock Purchases. The audit indicates that the percentage of U.S. domestic content of the LRVs is 66.74 percent, which meets FTA requirements.
- The resolution of the previously identified quality issue related to the M33 bolt on the LRVs and the associated final report was expected in May 2023, but submittal to FTA has been deferred until MTA coordinates confidentiality issues with CAF. MTA determined that the issue does not impact safety, and the solution is likely the use of a higher strength bolt. The effort to resolve the issue included a significant amount of effort to determine whether a bolt failure would cause debris to fall on the track. As of September 2023, CAF had identified additional occurrences of the M33 bolt issue. CAF does not believe the issue will impact delivery of the vehicles, which is scheduled for spring of 2024.

ATTACHMENT E – PROJECT MILESTONES/KEY EVENTS

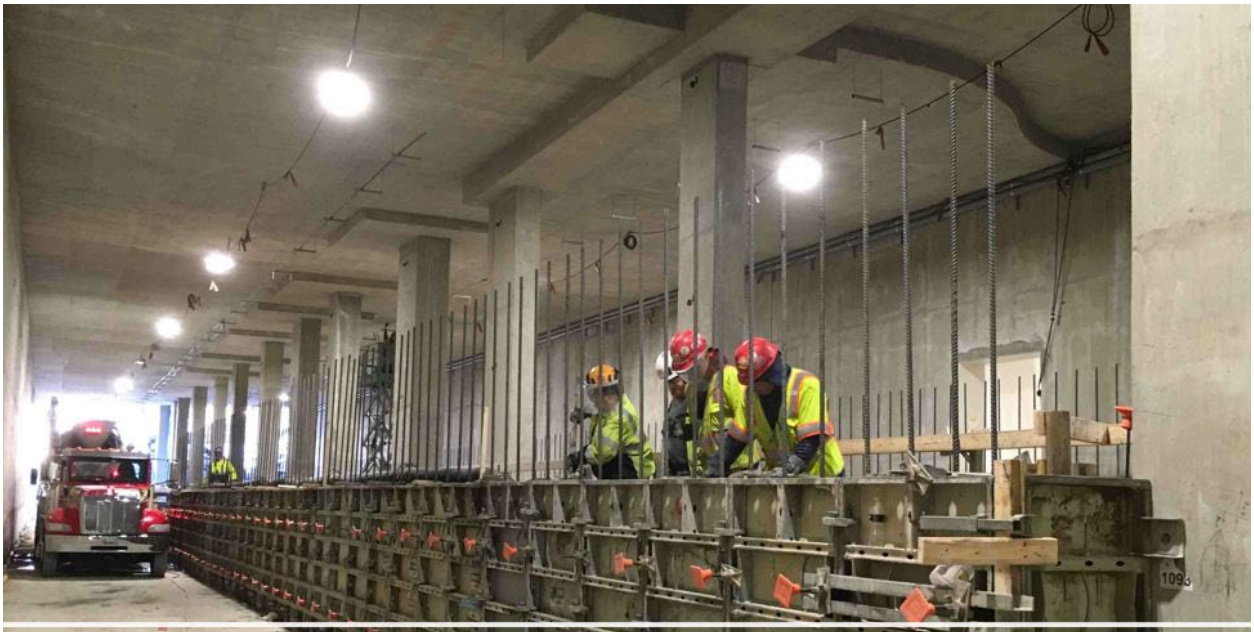
Photos courtesy of Maryland Transit Administration.



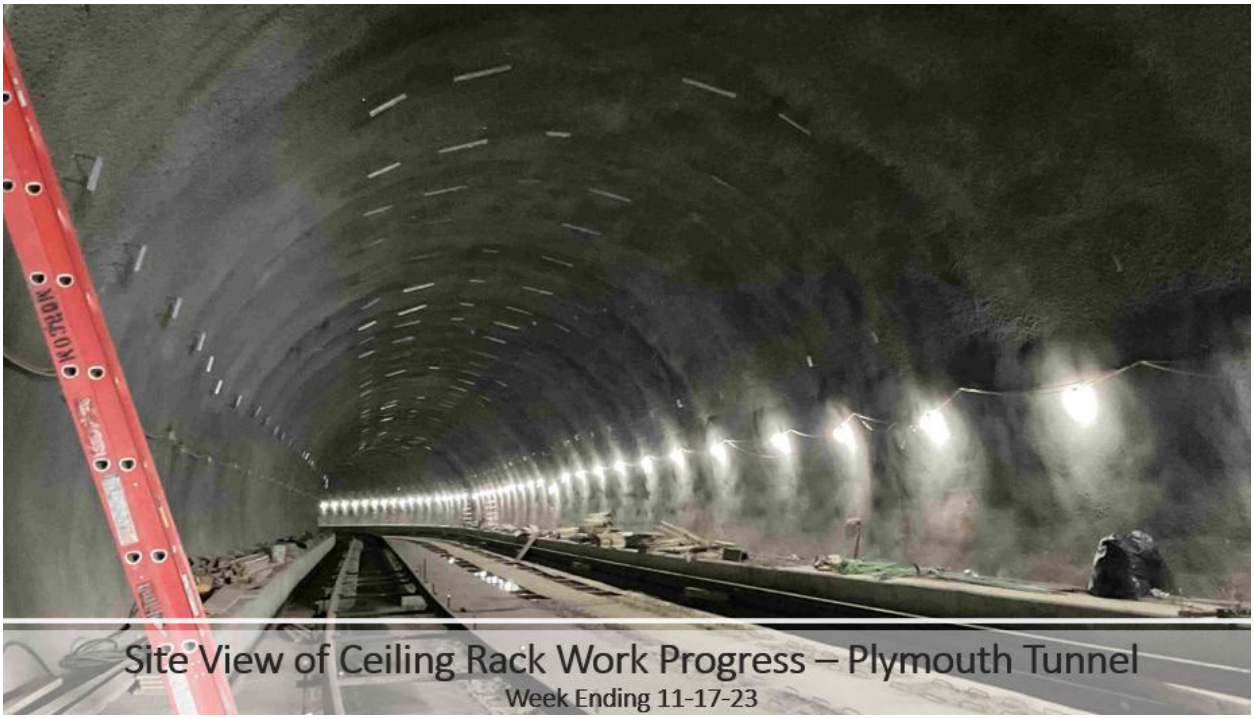



North Platform Ramp Concrete Placement – Connecticut Ave. Station
Week Ending 11-10-23


S18 Approach Slab Concrete Placement – Talbot Ave. Bridge
Week Ending 11-10-23



South Platform Foundation Wall Concrete Placement – Bethesda Station
Week Ending 11-17-23



Site View of Ceiling Rack Work Progress – Plymouth Tunnel
Week Ending 11-17-23



Site View of Soil Nail Installation Work Progress – Rock Creek LRT Bridge
Week Ending 11-24-23



Nosie / Vibration Mitigation Mat Concrete Placement – GBT at East-West Hwy Bridge
Week Ending 11-24-23

ATTACHMENT F – ROADMAP TO REVENUE OPERATIONS

In accordance with Oversight Procedure (OP) 25, the Project Sponsor will prepare the Roadmap to Revenue Operations template based on the current master project schedule, in the general format presented below. The PMOC provided this template to the Project Sponsor as a separate electronic file for its use. This quarterly update for the roadmap was provided by MTA on November 21, 2023. The Project Sponsor is requested to provide quarterly updates for review and discussion.

ROADMAP TO REVENUE OPERATIONS (MTA provided November 21, 2023)

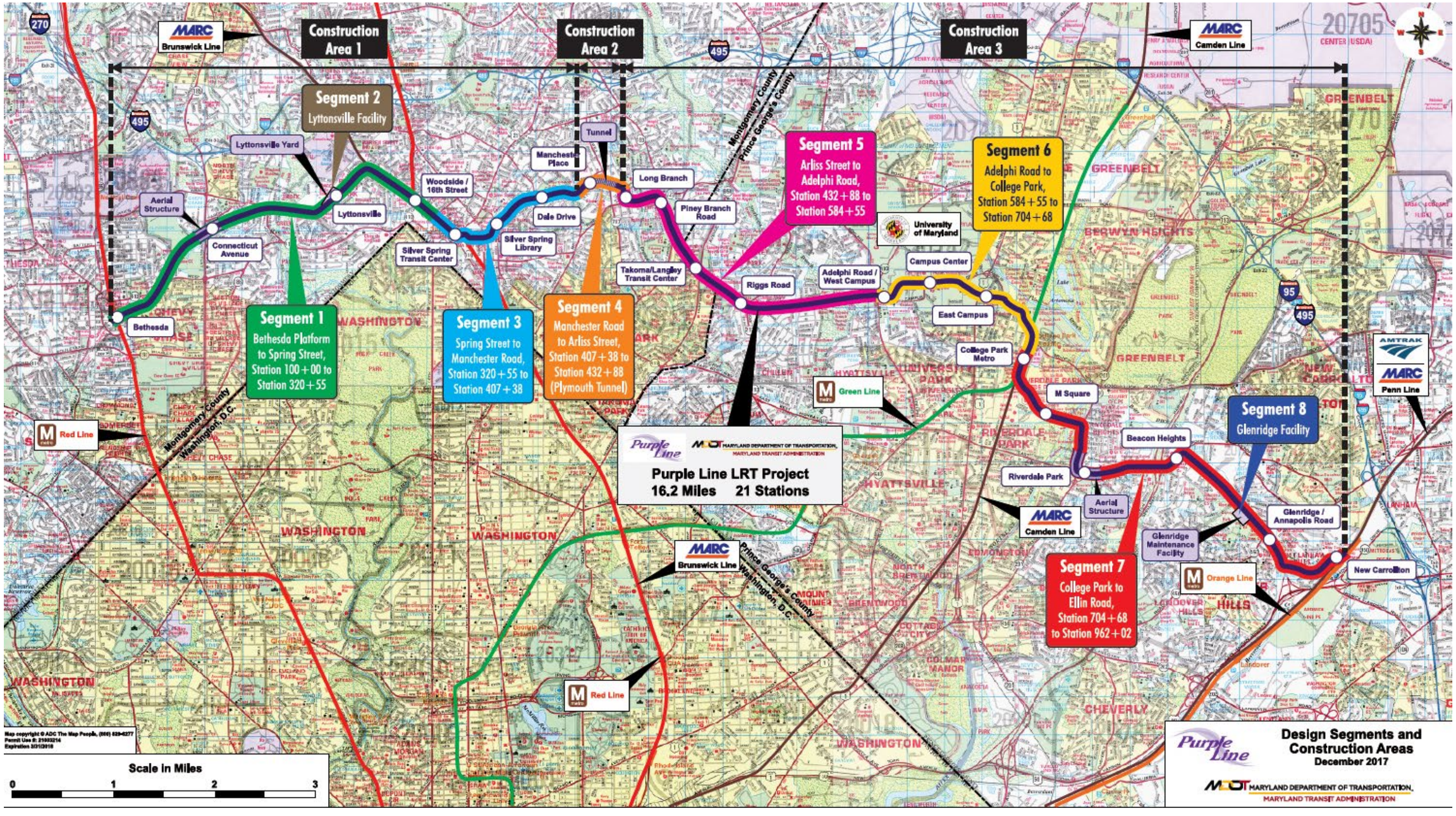
Description	Responsible Party	Status	Early Start Date	Estimated Completion Date	Actual Completion Date	Agency Notes	PMOC Notes	Additional Information Required
Testing								
Finalize Comprehensive Test Plan	PLTP/MTS/ Sener	See Notes	In Progress	3/31/24		**T & C Management Plan** – Comment Resolution **Project Test Program Plan** – Awaiting Responses **LRV Test Plan** – Accepted **TCS Test Plan** – Local – Comment Resolution **TCS Test Plan** – Integration – Awaiting Submittal **TCS/Traffic/CMS Test Plan** – Awaiting Submittal **TPSS Test Plan** – Accepted **OCS Test Plan** – Awaiting Submittal **Communications Test Plan** – Accepted **CMS Test Plan** – Accepted **Fire & Security Test Plan** – Accepted **Fare System Test Plan** – Awaiting Systems Design **Traffic** – QC with AHJs **EMI Test Plan** – Accepted **CCG Test Plan** – Accepted **Noise & Vibration** – MTS Reviewing **OMIS Test Plan** – TBD by PLTO **Ops Simulator Test Plan** – TBD by PLTO **Trackwork** – Under Study by MTS/Sener **OMFs Test Plan** – Pending Commercial Issues **Station Electrical** – Under Study by MTS/Sener **Fire Protection, Mechanical, Plumbing** – Under Study by MTS/Sener		
Finalize / Update Systems Integration Test (SIT) Plan	PLTP/MTS/ Sener	In Preparation	In Progress	2/29/24		Awaiting update of DRC# 3644, CW-164, Systems Integration Test Plan		
Develop Testing Schedule and Monitoring Tools	PLTP/MTS	In Progress	TBD	TBD				
Develop Operating Rules for Testing	PLTP/MTS	In Preparation	In Progress	2/29/24		MTA has only seen a high-level draft of the Test Operating Rules Table of Content		
Conduct System Integrated Testing - Prioritized Traffic Signal Systems	PLTP/MTS	In Progress	TBD	TBD				
Certificates of Occupancy / Substantial Completion	Maryland Office of the State Fire Marshal	Glenridge OMF – In progress.				As state-owned property, no certificates of occupancy are issued. The AHJ ensures building is safe through various system inspections to include fire protection systems, elevators, etc. AHJ will take no exception to occupancy if inspections pass.		

Description	Responsible Party	Status	Early Start Date	Estimated Completion Date	Actual Completion Date	Agency Notes	PMOC Notes	Additional Information Required
Finalize Operating Plan	PLTP/PLTO	Preliminary Op Plan submitted and approved	TBD	Feb. 2026		Projected start of Trial Running: July 2026 (based on May 2027 RSA date): Intermediate Operating Plan to be submitted for review and approval no less than 18 months prior to Trial Running. Final Operating Plan to be submitted for review and approval no less than 6 months prior to Trial Running		Intermediate Operating Plan to be submitted for review and approval no less than 18 months prior to Trial Running. Final Operating Plan to be submitted for review and approval no less than 6 months prior to Trial Running
Finalize / Revise Standard Operating Procedures (SOPs), manuals, and rulebook as applicable	PLTP/PLTO	See Note	TBD	Feb. 2026		Included as part of the Operating Plan. Projected start of Trial Running: July 2026 (based on May 2027 RSA date): : Intermediate Operating Plan to be submitted for review and approval no less than 18 months prior to Trial Running. Final Operating Plan to be submitted for review and approval no less than 6 months prior to Trial Running. Revisions to operating/maintenance/emergency rules/procedures may occur during the testing and commissioning period.		Rulebook, SOPs and EOPs to be submitted for review and approval no later than 6 months prior to Trial Running. Preliminary submittal of Operations manuals for review and comment due no later than 18 months prior to Trial Running. Final submittal of Ops manuals for review and approval due no later than 6 months prior to Trial Running
Complete Staffing Plan	PLTP/PLTO	On-going			May, 2023	PLTO has developed a staffing plan. Need to confirm if this reflects the final plan.		
Obtain Required Staff	PLTP/PLTO	See Note	Various	July 2026		Recruitment and staff hiring based on project schedule. PLTO staffing to support vehicle dynamic testing being coordinated with CAF. Onboarding of other PLTO support staff for vehicle maintenance (after acceptance) and test track maintenance tied to vehicle delivery dates and start of vehicle dynamic testing (Spring 2024)		
Training of Operations and Maintenance (O&M) personnel	PLTP/PLTO/ MTS	See Note	Various	July 2026		MTS will need to be fully staffed prior to the start of Trial Running in July 2026.		
Emergency response plan, training, and drills	PLTP/PLTO/ MTS	Various	Feb. 2024	Jan. 2027		Emergency response drills to be conducted during Trial Running. Initial emergency responder training for Glenridge OMF, vehicles and test track area to be conducted at some point prior to the start of vehicle dynamic testing.		
Finalize Revenue Operations Plan	PLTP/PLTO	Preliminary Op Plan submitted and approved	TBD	Feb. 2026		Projected start of Trial Running: July 2026 (based on May 2027 RSA date): Revenue Operations/Service Plan included as part of Operating Plan.		

Description	Responsible Party	Status	Early Start Date	Estimated Completion Date	Actual Completion Date	Agency Notes	PMOC Notes	Additional Information Required
						Intermediate Operating Plan to be submitted for review and approval no less than 18 months prior to Trial Running. Final Operating Plan to be submitted for review and approval no less than 6 months prior to Trial Running		
Develop / Revise Safety and Security Certification Plan (SSCP) & Safety and Security Management Plan (SSMP)	MTA	On-going	SSMP – 2/02/2011 SSCP – 8/31/2012	TBD		SSMP is currently on revision 14 and the SSCP is on revision 7. The SSMP is updated in conjunction with the PMP as it is considered a sub-plan.		
Federal Transit Administration (FTA) Office of Safety & Security Readiness Review	FTA	See Note	TBD	TBD		No updates at this time		
PMOC OP-54 Readiness for Revenue Operations Review Report	PMOC	See Note	TBD	TBD		No updates at this time		
Conduct Operational Hazard Analysis (OHA) and resolve other hazards / vulnerabilities	PLTP	See Note	TBD	TBD		No updates at this time		
Pre-Revenue Operations	PLTP/PLTO	See Note	July 2026	April 2027		Pre-revenue Operations broken down into: Trial Running and System Demonstration Testing. Projected start of Trial Running: July 2026		
Develop Safety Outreach Plan	MTA/PLTP	Not Started	TBD	Feb. 2025		Projected start of Trial Running: July 2026 (based on May 2027 RSA date): Outreach Plan to be developed 18 months before Trial Running. Additional information to be included in next quarterly update		
Provide Community Outreach	MTA/PLTP	Not Started	TBD	TBD		Additional information to be included in next quarterly update		
Public Timetables / Maps / Website Updates, etc.	MTA/PLTP/ MTS/ PLTO	Not started	TBD	TBD		Additional information to be included in next quarterly update		
Grand Opening Plan	MTA/PLTP/ MTS/ PLTO	Not started	TBD	TBD		Additional information to be included in next quarterly update		
Update / Finalize SSMP	MTA					See previous SSMP entry		

Description	Responsible Party	Status	Early Start Date	Estimated Completion Date	Actual Completion Date	Agency Notes	PMOC Notes	Additional Information Required
Finalize and/or update Safety Certifiable Item List (SCIL) and SSCP	MTA/PLTP	On-going	TBD	TBD		No updates at this time		
Implement Safety and Security Certification Committee	MTA	On-going	April 2018	TBD		The SSCC has been ongoing since 2018.		
Implement Fire Life Safety Committee	MTA	On-going	7/27/2012 – Montgomery County 9/26/2012 – Prince George's County	TBD	TBD	MTA has implemented two FLSSCs, one for each Maryland County that Purple Line traverses. Both committees were started in 2012.		
Verify design criteria, Preliminary Hazards Analysis (PHA), Threat and Vulnerability Analysis (TVA), change orders are implemented within the project	MTA/PLTP	On-going	PHAs - 6/26/2012 TVA – 12/10/2013 Change Orders	TBD	TBD	PLTP has verified over 98% of the design criteria. Initial PHAs on the 30 % Preliminary Design started in 2012 by MTA. PLTP continued PHAs in 2016. Initial TVA completed in 2015 by MTA. PLTP continued in 2017.		
Review status of quality non-conformances		See Note				No updates and this time		
Closeout of non-safety critical items/non-conformances		See Note				No updates at this time		
Closeout of safety critical items/nonconformances	MTA/PLTP	Not started	TBD	TBD		No updates at this time		
Complete Safety and Security Certification Verification Report (SSCVR)	PLTP	Not started	TBD	May 2027		This report will be due sometime in the May 2027 timeframe.		
Document Workarounds / Open Items List	PLTP	Not started	TBD	TBD				
Verify emergency drills, tabletops, training, etc. are completed	MTA/PLTP/ PLTO		TBD	TBD		Emergency drills to be conducted during the Trial Running period. Training verification will be completed prior to Trial Running		
SSO final certification / signature	SSO	See Note				No updates at this time		
Revenue Service								
Target Revenue Service Date (RSD)	PLTP		TBD	May 2027		Project schedule dependent		
Public RSD	MTA/PLTP		TBD	May 2027		Project schedule dependent		
Full Funding Grant Agreement (FFGA) RSD						No updates at this time		

ATTACHMENT G – PROJECT MAP



PMOC MONITORING REPORT
December 2023

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

Maryland Transit Administration
Baltimore, Maryland
Final

Draft Report Delivered to FTA on ***January 5, 2024***
Final Report Delivered to FTA on ***January 29, 2024***

PMOC Contract No.: 69319519D000016
Task Order No.: 69319520F300095
Project No.: 69319519D000016/69319520F300095
Requisition/Reference No.: FTA-TPM20-20-0106
OPs Referenced: 20, 22, 23, 24, 25, 26, 37, 40
CLINs 0001, 0002, and 0005

David Evans and Associates, Inc.
Pete Hankovszky, Task Order Manager
Voice –720.448.6730; Email – pzh@deainc.com
Time on Project: 05/18/2020 through 05/17/2025

REPORT FORMAT AND FOCUS

This report is submitted in compliance with the terms of the Federal Transit Administration (FTA) Contract #69319519D000016, Task Order #69319520F300095. Its purpose is to provide information and data to assist FTA as it continually monitors the management capacity and capability of the Maryland Transit Administration (MTA) (the Project Sponsor) to execute the project efficiently and effectively, and hence, whether the Project Sponsor continues to be ready to receive federal funds for further project development. This report covers the project management activities on the National Capital Purple Line Light Rail Transit Project managed by MTA as the Project Sponsor and financed by the FTA Full Funding Grant Agreement (FFGA). The cost and schedule information in this report was extracted from MTA's submitted information except where noted. The report is organized to comply with the requirements of updated Oversight Procedure 25 – Recurring Oversight and Related Reports, dated June 2020.

THIRD-PARTY DISCLAIMER

This report and all subsidiary reports are prepared solely for FTA. This report should not be relied upon by any party, except FTA or the Project Sponsor, in accordance with the purposes as described below.

For projects funded through the FTA FFGA program, FTA and its Project Management Oversight Contractor (PMOC) use a risk-based assessment process to review and validate a Project Sponsor's budget and schedule. This risk-based assessment process is a tool for analyzing project development and management. Moreover, the assessment process is iterative in nature; any results of an FTA or PMOC risk-based assessment represent a "snapshot in time" for a particular project under the conditions known at that same point in time. The status of any assessment may be altered at any time by new information, changes in circumstances, or further developments in the project, including any specific measures a Project Sponsor may take to mitigate the risks to project costs, budget, and schedule, or the strategy a Project Sponsor may develop for project execution. Therefore, the information in the monthly reports will change from month to month, based on relevant factors for the month and/or previous months.

TABLE OF CONTENTS

1. EXECUTIVE SUMMARY 1
1.1. Project Description 1
1.2. Project Status 1
1.3. Major Issues and/or Concerns 9
1.4. Status of Key Indicators Dashboard (Post-grant) 11
1.5. Core Accountability Items 13
2. OBSERVATIONS AND FINDINGS 14
2.1. Summary of Monitoring Activities 14
2.2. Oversight Triggers 14
2.3. Project Management Plan and Sub-plans 15
2.4. Management Capacity and Capability 18
2.5. NEPA Process and Environmental Mitigation 19
2.6. Project Delivery Method and Procurement 22
2.7. Design 23
2.8. Real Estate Acquisition and Relocation 26
2.9. Third-party Agreements and Utilities 27
2.10. Construction 28
2.11. Vehicle Technology and Procurement 31
2.12. Project Cost 32
2.13. Project Schedule 34
2.14 Project Risk 38
2.15 Quality Assurance/Quality Control 40
2.16 Safety and Security 41
2.17 Americans with Disabilities Act 43
2.18 Buy America 44
2.19 Start-up, Commissioning, Testing 44
2.20 Before-and-After Study Reporting 45
2.21 Lessons Learned 45
2.22 Action Items 45
ATTACHMENT A – LIST OF ACRONYMS 47
ATTACHMENT B – TOP PROJECT RISKS 49

ATTACHMENT C – AWARDED CONTRACTS 50
ATTACHMENT D – ROLLING STOCK VEHICLE STATUS REPORT 51
ATTACHMENT E – PROJECT MILESTONES/KEY EVENTS 53
ATTACHMENT F – ROADMAP TO REVENUE OPERATIONS 58
ATTACHMENT G – PROJECT MAP 62

LIST OF TABLES

Table 1 – MTA Master Project Schedule Dates 4
Table 2 – Current Major Issues and Concerns 10
Table 3 – Key Indicators Dashboard 11
Table 4 – Core Accountability Items 13
Table 5 – Project Cost Versus Budget 32
Table 6 – Baseline Cost Estimate by Source Funding 34
Table 7 – Key Milestone Dates 37

1. EXECUTIVE SUMMARY

1.1. 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, Maryland, to New Carrollton in Prince George's County, Maryland. The Purple Line will operate largely at street level in a combination of dedicated and semi-exclusive right-of-way (ROW) and 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) service at Bethesda, Silver Spring, College Park, and New Carrollton, Maryland. The project will also connect to all three Maryland Area Regional Commuter rail lines, Amtrak, and local bus routes. The project includes 21 stations, 2 operations control/vehicle storage and maintenance facilities, and 28 light rail vehicles (LRVs). Maryland Transit Administration (MTA) is executing the project using a Public-Private Partnership (P3) method of project delivery.

As documented in the Federal Transit Administration (FTA) Full Funding Grant Agreement (FFGA), the original estimated project cost was $2,407,030,289, and the scheduled Revenue Service date (RSD) was December 31, 2022. On January 26, 2022, the Maryland Board of Public Works (BPW) approved significant revisions to the project cost and the Revenue Service Availability (RSA) date. The Transportation Infrastructure Finance and Innovation Act (TIFIA) loan closed on April 14, 2022. Financing approvals and subsequent financial close allowed Purple Line Transit Partners (PLTP), the P3 concessionaire, to issue Notice to Proceed (NTP) to the replacement Design-Build (D-B) contractor, Maryland Transit Solutions (MTS). MTA prepared a Final Recovery Plan (FRP), which FTA accepted on April 17, 2023, and which had a revised project cost of $5,116,020,380 and a revised RSD of February 28, 2028. MTA submitted multiple management plan updates for FTA and Project Management Oversight Contractor (PMOC) review and acceptance.

1.2. Project Status

The FFGA was executed on August 22, 2017. The Purple Line project is currently in the construction phase. Due to a contractual dispute, PLTP demobilized the assets/staff and subcontractors of the original D-B contractor, Purple Line Transit Constructors (PLTC), from the project in September 2020.

On November 24, 2020, MTA and PLTP reached a settlement agreement to release PLTC from the P3 consortium and continue the project with the remaining parties. The BPW approved the agreement on December 17, 2020. PLTP agreed to procure a replacement D-B contractor to complete the project and to obtain project financing.

Despite changes within the P3 consortium, MTA intends to complete the full scope of the project as envisioned in the original contract documents, with some exceptions such as the addition of three more LRVs outside of the FFGA. After a procurement process for a replacement D-B contractor, PLTP selected MTS (a joint venture of Dragados USA and OHL USA) on November 5, 2021. The contract with MTS was executed on April 14, 2022.

MTA submitted a draft Interim Recovery Plan (IRP), dated December 15, 2020, to FTA, and subsequently prepared and submitted the FRP to FTA. FTA accepted the FRP on April 17, 2023.

MTA made deliberate choices about how to proceed with the major project elements once PLTC was released from the project. MTA's planning criteria included schedule, budget, and the reduction of risk for the replacement D-B contractor. To address budget constraints, some project activities that were identified for completion in the IRP were deferred. MTA and its Project Management Consultant (PMC) added staff to support subcontractor invoicing, payment processes, and other administrative tasks.

MTA was managing a significant number of construction activities during MTA's IRP period, called Operation Step Forward (OSF), and several activities fell behind schedule. Delays related to third-party utility relocations and other unforeseen issues caused MTA to miss milestone dates included in MTA's revised agreements with PLTP that were executed in April 2022. Through October 2023, MTA executed two change orders caused by delays in OSF activities, and there continued to be potential for additional cost and schedule claims from MTS related to OSF. In early November 2023, MTA completed the OSF activities. ***As of December 2023, MTA and MTS are*** evaluating potential ***budget and schedule*** impacts from additional MTS claims related to OSF delays. ***The results of these evaluations are expected in January 2024.***

Construction work continues under the management of MTS, including activities and elements such as erosion and sediment control maintenance, bridge structures, platform construction, retaining walls, the Glenridge Operation and Maintenance Facility (OMF), and utility installation. The Polk Street Maintenance Facility (for Prince George's County Parks) is complete, and the Paint Branch stream restoration and the Ken-Gar wetlands mitigation projects are complete with the exception of warranty periods.

Completion of the Glenridge OMF has been on or near the critical path and continues to be a focus. MTA completed the majority of the OMF building and utilities, but construction of track that accommodates LRV storage and testing was deferred for completion by MTS. MTS was scheduled to assume control of the facility in early 2023, but as ***of December 21, 2023,*** the date of the turnover of the facility from MTA to MTS is still undetermined due to disputes over completeness of the PLTC and OMF work**.** MTS is installing rail and other features both inside and outside of the building.

Delayed completion of the OMF construction upon PLTC's departure required finding an alternative location to store completed LRVs. MTA reached an agreement with Construcciones y Auxiliar de Ferrocarriles (CAF) to store the LRVs at CAF's Elmira, New York facility until track is ready for acceptance of the LRVs. MTS assumed the storage agreement with CAF upon finalization of the replacement D-B contract.

MTA has revised and submitted the Project Management Plan (PMP), Risk and Contingency Management Plan (RCMP), Quality Assurance Plan (QAP), project schedule, Safety and Security Management Plan (SSMP), and Safety and Security Certification Plan (SSCP). ***On December 28, 2023, FTA accepted SSCP Version 7, concluding FTA and PMOC review of the management plans that MTA revised in conjunction with the FRP.***

MTA provides FTA and the PMOC with updates on the progress of MTA and MTS construction activities and monthly updates that track project milestones.

- Scope: There have been no significant reductions or changes to project scope. Three LRVs were added to the project scope (non-FFGA) to support improved operations once service commences. Twenty-five LRVs were included in the FFGA.
- Schedule:
  - PLTC never developed an approved recovery schedule to address the delayed start of construction caused by the environmental lawsuit (please see the **NEPA Process and Environmental Mitigation** section, below, for a discussion of the environmental lawsuit). In fall 2019, the P3 concessionaire submitted a revised, fully cost-loaded schedule reflecting a phased project opening (with the first phase opening at the end of 2022 and the second phase opening in mid-2023). This schedule was never incorporated into the working master project schedule.
  - In accordance with the IRP, MTA developed a schedule for the period during which the D-B contractor was being replaced. PLTP and MTA identified several milestones and the requirement to establish a full project schedule before the end of the D-B contractor replacement period. The IRP included project milestones for PLTP to procure a replacement D-B contractor, obtain new financing, and execute contract amendments with MTA. The IRP period also included development of the FRP. In early 2023, MTA submitted an FRP and requested an extension to the RSD of December 31, 2022, that is in the original FFGA. FTA subsequently accepted the FRP that includes a revised RSD of February 28, 2028.
  - See also the **Significant Project Activities and/or Key Milestones** subsection of this Executive Summary, below.
  - Table 1 presents MTA's key milestone dates for the project. The schedule in the FRP is considered the baseline schedule for the project. Through the Quantitative Risk Analysis and processes described in MTA's RCMP, a schedule contingency of 16 months was deemed appropriate. However, the delays attributed to OSF activities have consumed significant contingency. The utilization of a large portion of the schedule contingency at the early stages of MTS's contract is a concern.
  - To clarify schedule terminology used by MTA: The RSA date is a contractual date critical to the agreement between MTA and PLTP. The RSD is the contractual date tied to FTA FFGA funding and other project approvals.
  - MTA and MTS have executed two change orders related to delays attributed to OSF activities. These change orders extended the project RSA date ***by 207 days*** to May 24, 2027. MTA and MTS are currently reviewing additional potential delays and opportunities for schedule recovery. ***The RSA date in MTA's December 2023 master project schedule is September 2, 2027, and the float for the RSD milestone is 127 days.*** However, MTS's October 31, 2023 project schedule indicated 227 days of

additional delay, which resulted in an RSA date of December 23, 2027. MTA and MTS are developing schedule mitigation options in an effort to reduce the total delay.

Table 1 – MTA Master Project Schedule Dates

Activity	Current MTA Master Project Schedule (Dated *December 1, 2023)* Milestone
Original FFGA	August 22, 2017
Financial Close / NTP / Amendment Agreement Effective Date for Revised PLTP Agreement	April 14, 2022
Commencement of Integration Testing	September 2, 2025
Commencement of Trial Running	May 27, 2026
Construction Complete All Segments	November 12, 2026
RSA	***September 2, 2027***
FFGA RSD (includes contingency)	February 28, 2028

- Cost:
  - The project's documented expenditures are ***$3,188,803,405 through November 30, 2023***. The current Estimate at Completion (EAC) for the project (construction, management, and LRVs) is $5,116,020,380.00. This budget has been accepted by FTA, and MTA has adopted it as the project cost.
  - The accepted project cost includes $307,293,174 of unallocated contingency, of which ***$220,991,524*** has been committed through change orders (although not yet fully expended), ***leaving $86,301,650 in unallocated contingency.***
  - Refer to **Table 4 – Core Accountability Items**, in Section 1.5 below, for additional project cost information.
  - MTA prepared a summary of actual versus planned expenditures for high-level OSF activities in Standard Cost Category (SCC) format and is updating this summary each month. Through December 31, 2022, MTA forecasted OSF expenditures of $556.15 million, which exceeds the original OSF budget by approximately $136 million. The PMOC has requested an update on the OSF expenditures, and MTA has indicated that it will prepare a revised EAC for OSF ***in January 2024. Significant OSF delays impacted MTS's activities, thus adding to the cost increase that can be attributed to OSF.***
  - The budget includes funds to address nonconforming construction by PLTC. MTA incorporated known defects into the contract with MTS. However, MTA must pay to address any defects unknown at the time of execution of the MTS contract. In February 2023, MTA estimated the total cost of these unknown defects to be approximately $10 million. As with the OSF overruns, the PMOC continues to recommend that MTA closely monitor utilization of contingency to cover these costs. Many instances of PLTC's nonconforming construction and/or defects have been

discovered. Nonconforming PLTC work and several other disputes are being evaluated by MTA and MTS, and each is included as an item in the Risk Register.

- Significant Project Activities and/or Key Milestones:

  The COVID-19 pandemic impacted the project in different ways and at different levels. These impacts were primarily related to availability of resources and labor. MTA, the PMC, and other project staff followed recommended COVID-19 protocols. On January 30, 2023, MTA stated that COVID-19 protocols for the project had been suspended.

  - The third lawsuit filed by the Friends of the Capital Crescent Trail in January 2019 against U.S. Army Corps of Engineers (USACE) was dismissed in April 2020. The plaintiff subsequently filed an appeal on May 11, 2020. The District Court denied the appeal on May 13, 2021. The decision resolved the last active lawsuit related to the project.
  - The original baseline schedule indicated design completion by late fall 2017. The progress through ***December 21, 2023***, is that 214 of the 218 total planned design packages have been issued as Released for Construction (RFC). The packages that remain in design or approval include fare collection, the fire management system at the WMATA/Silver Spring Transit Center (SSTC) combined station, guideway signage, and the train control system. ***The most significant remaining design package, train control, will not be 100 percent complete until July 2024.*** The PMOC observed that MTS indicates that the design portion of its contract is 99.9 percent invoiced and paid, and ***MTA has confirmed that this information is correct. The requirements of MTA's D-B contract with MTS include the payment of all design costs in 15 months, regardless of progress.***
  - There is a dispute pending related to the cost of design changes that were made after execution of the agreement with MTS. MTA's team estimates that the disputed amount is approximately $15 million.
  - WMATA's comments on design plans for the SSTC mezzanine connector pedestrian bridge (over CSX Corporation [CSX] ROW) will result in what MTA deems are betterments. Resolution of WMATA comments continued as of July 2023 for the SSTC and other locations where WMATA and Purple Line stations coincide. MTA reports that the slow resolution of these issues has not impacted critical path activities.
  - Storm sewer construction under the CSX railroad is required in several locations. Two jack-and-bore installations of culvert pipes were completed in November 2022. One jack-and-bore installation remains to be completed by MTS as of ***December 2023***.
  - Proposed construction near the SSTC will require significant coordination with both WMATA and CSX. Track protection (flagging) and planning of a shutdown of the

railroads to allow Purple Line activities near the SSTC in 2024 have been identified as schedule risk items. MTA is supporting coordination of construction activities that will occur during a planned WMATA shutdown in the summer of 2024.

- MTA and Washington Suburban Sanitary Commission (WSSC) reached agreement on the relocation of the 66-inch water main that was under the Glenridge OMF. The water main has been relocated, and this part of the project is now considered fully complete.
- PLTC reached resolution on the final remaining Alternate Technical Concept (ATC) identified during the proposal process, which is related to the use of jet fans at the Bethesda Station in lieu of vent shafts. In accordance with the established process, MTA reviewed PLTC's design package for National Environmental Policy Act (NEPA) compliance. Final documentation for the ATC is still pending as of ***December 2023.*** MTA will schedule a review of the documentation with FTA as soon as it is complete, ***which is expected to occur in April 2024.*** MTA and MTS optimistically predict that the ATC will have no Section 4(f) impacts or other impacts to the project's Record of Decision (ROD).
- MTA has completed its non-P3 construction contract activities, as follows:
  - Prince George's County Parks (Parks) Polk Street Maintenance Facility D-B – A substantial completion letter was issued to the contractor on March 30, 2021. Parks has taken possession of the facility, and the warranty period has expired. The only remaining action for this portion of the project is a real estate swap that will transfer the maintenance facility property to Parks in exchange for the property needed by MTA for the Purple Line project.
  - Offsite Wetlands Mitigation (Ken-Gar) – The Design-Bid-Build construction NTP was issued on September 5, 2019. The one-year warranty review occurred on January 9, 2022, and the project is now in quarterly monitoring and annual reporting by MTA that will continue through 2028.
  - Offsite Stream Mitigation (Paint Branch) – The Design-Bid-Build construction NTP was issued on September 5, 2019, and the contractor mobilized in late November 2019. Quarterly monitoring and annual reporting by MTA will continue through 2028.
- Building construction at the Glenridge OMF is essentially complete; however, construction of items outside of the building continues, as does final commissioning of systems inside the building. MTS was scheduled to take possession of the Glenridge OMF on December 31, 2022, but that did not occur because MTA had several remaining items to complete. Although transfer of the facility has not occurred, MTS is working in and around the OMF, installing track and conduit outside the building, and completing other interior features. The turnover letter to transfer possession of the facility from MTA to MTS is on hold as ***of December 2023,***

pending resolution of disputes and punch list items. It is uncertain when this issue will be resolved or if additional impacts will result.

- Preparation of Traction Power Substations (TPSSs) continues. As of October 2023, TPSSs Q1, Q8, Q7, and QYG had been placed on their foundations and were being commissioned.
- The following is the status of LRV manufacturing as of ***December 21, 2023:***
  - All 25 of the vehicles in the FFGA project scope description and one additional vehicle are designated as "Ready for Shipment" and are in storage at CAF's facility in Elmira, New York. These vehicles are under a schedule of inspection and maintenance until delivery can occur.
  - MTA has added three vehicles by change order to CAF's contract. The additional LRVs will support better operations at the RSA date. It is important to note that these three additional LRVs are not a part of the FFGA between MTA and FTA. One of the three additional vehicles is in storage in Elmira along with the 25 FFGA LRVs. All ten railcars that make up the two remaining vehicles are in final assembly.
  - The previously identified quality issue related to the M33 bolt on the LRV trucks ***is not resolved as of December 2023. Additional failures have occurred, and the truck manufacturer in Germany is performing additional tests. MTA previously indicated that a Root Cause Analysis (RCA) will be performed for this issue. In the PMOC's opinion, the RCA is prudent, in addition to development of corrective actions. The PMOC recommends that the quality process also be included in the RCA, along with design, fabrication, and assembly processes.*** CAF does not believe that this issue will impact delivery of the vehicles, which currently is scheduled for spring of 2024.
  - Delivery of vehicles was expected to begin in spring of 2021; however, the location for their delivery was uncertain because the Glenridge OMF was not ready to accept railcars. MTA and CAF negotiated an agreement for CAF to store the completed railcars in Elmira to await delivery. The terms of the agreement became a part of MTS's agreement. Deliveries of LRVs to the Glenridge OMF have been delayed until 2024.
  - The project's Buy America compliance audit for the LRVs was conducted on November 14, 2022. The audit indicates that the percentage of U.S. domestic content is 66.74 percent, which meets FTA requirements.
  - MTA staff visited the CAF facility in Elmira, New York, in October 2023 to observe the stored vehicles and the two vehicles currently being assembled.
- MTA is responsible for providing offsite stormwater mitigation in Montgomery County. To date, MTA has accumulated a credit for more than 10 acres of designed, Maryland Department of the Environment (MDE)-approved, offsite stormwater

management (SWM) capacity in its "bank." MTA has determined that there is a need for additional mitigation in Prince George's County, and a project to construct additional mitigation is included in the scope of work for MTS.

- ROW acquisition activities continue for the original required 464 private parcels and 137 public parcels (a total of 601 parcels). All of the private parcels related to the original P3 contract Exhibit 9 FFGA scope are in MTA's possession for construction. ***As of December 21, 2023***, ***428*** of the 464 private parcels have completed settlement, and an additional ***5*** parcels have settlements pending.
- MTA has identified 188 small property acquisitions that are required for utility relocations, of which 134 are private and 54 are public. As of April 25, 2023, all of the additional properties were in MTA's possession through Right of Entry (ROE), through options, and/or through agreements. As of ***December 21, 2023,*** MTA estimated that approximately ***$36.2 million*** of exposure remains in the acquisition process. This amount is included in the risk assessment and in the available project contingency.
- To date, all 177 required property relocation agreements are complete. Costs for the completed relocations continue to be processed in accordance with the applicable procedures. As of ***December 21, 2023***, there is only one relocation property that the former owner still occupies. Two additional relocations may be required.
- MTA estimates that necessary extensions of Temporary Construction Easements (TCEs) will cost approximately $13.2 million. ***As of December 2023,*** this amount has been included in the risk assessment and in the project contingency.
- Preparation for safety certification is an ongoing process for MTA, including the development of the appropriate checklists for both design and construction. Design Criteria Conformance Checklists (DCCCs) are more than ***99 percent*** validated. Construction Specification Conformance Checklists (CSCCs) are ***18 percent*** validated.
- MTA adjusted staffing of management personnel to address the varying activities that MTA was managing during the OSF period. On May 25, 2023, MTA communicated the departure of Executive Director Matthew Pollack, Deputy Project Director and Contracting Officer Anita Rodgers, and Director of Communications David Abrams, from the Purple Line project team. A new Deputy Project Director, Alexa Heidrich, started with the Purple Line project team on July 26, 2023. Kathryn (Kat) Lamb joined the team in August 2023 as the Communications Director, which completes the hiring for open senior staff positions for the Purple Line project. ***In December 2023, MTA replaced PMC Project Director Jim Mitchell with Brian Freerks. As of December 21, 2023,*** a search for a new MTA Transit Development and Delivery (TDD) Executive Director is still in progress. The TDD Executive Director will be responsible for the Purple Line project in addition to other State of Maryland transit

projects. The PMOC has expressed concern related to MTA staff continuity and will continue to monitor MTA's management capacity and capabilities.

- MTA carefully considered a request from Montgomery County to single-track the Purple Line through the Bethesda tunnel. Maryland Department of Transportation (MDOT)/MTA determined that it would not be able to accommodate the request.
- MTA and PLTP coordinated to obtain a modified version of the existing TIFIA loan for the project. On April 14, 2022, the TIFIA loan closed, and all bonds were marketed. MTA was required to update the Transportation Investment Program and State Transportation Investment Program plans to reflect changes in the project.
- MTA's Equal Employment Opportunity Officer assigned to the project is Marcques Washington. He is supporting MTS in its hiring program and monitoring project adherence to hiring of specific companies and personnel. As MTS ramps up construction, it is making significant progress toward achieving the project's hiring, wage, and Disadvantaged Business Enterprise (DBE) goals. ***As of December 2023***, the PMOC continues to recommend that MTA report the projected end-of-project values for these goals in addition to the current values to allow for a more comprehensive evaluation of progress toward meeting the goals. MTA states that due to the D-B contracting method being utilized to deliver the project, continuous diligence is required to monitor ***and promote*** contracted DBE work in the current and upcoming work packages, making it challenging to project future values of DBE participation.
- MTA hired a consultant team that is analyzing alternatives for providing security and fare enforcement services for the Purple Line. MTA does not currently have existing facilities or staff that can adequately provide these services because the distance from their location to the Purple Line light rail facilities is too far. In late April 2023, MTA provided FTA with the alternatives study for review. The study indicates that the preferred alternative is the development of a Southern District of the MTA Police Department and recommends several next steps toward implementation of the new district, including hiring a commander, developing operating procedures, working on Memorandums of Understanding (MOUs) with other local jurisdictions, and developing a facility to house the district. ***As of December 2023,*** the PMOC continues to recommend that MTA develop a written implementation plan that includes schedule milestones and a budget.
- MTA held several Community Advisory Team meetings in October 2023 and completed these meetings in November 2023. MTA will hold the next round of Community Advisory Team meetings in April 2024.

1.3. Major Issues and/or Concerns

Table 2 discusses any major issues or concerns impacting the project's scope, schedule, cost, risks, quality, safety, etc.

Table 2 – Current Major Issues and Concerns

Issue/Concern	Continuation of the project after PLTC's departure was a significant challenge for the project. The replacement D-B contractor, MTS, has now been under contract to PLTP for over 18 months.
Date Identified	September 2020.
Status	The IRP was approved in January 2021, and an update was approved in July 2021. MTA has completed the FRP, which FTA reviewed and accepted in April 2023.
Project Sponsor Action	Management of a transition plan and support of PLTP in the replacement of the D-B contractor was the focus of the Project Sponsor. Another focus was the management of MTA's contractors to continue key activities that maintained the integrity of the schedule under OSF.
PMOC Recommendation	Now that the construction directly managed by MTA is complete, the PMOC recommends that MTA focus on effective oversight of the D-B contractor, MTS. The PMOC recommends that MTA ensure that sufficient staff is dedicated to oversight, execution of the accepted management plans, and implementation of process improvements.
Issue/Concern	According to the PMP, the master project schedule should be updated monthly.
Date Identified	2022.
Status	Ongoing.
Project Sponsor Action	FTA accepted the FRP schedule in April 2023 as the new project baseline schedule. Two significant change orders, both of which are based on delays to OSF activities, have caused a substantial utilization of the schedule contingency outlined in the FRP. Additional delays have been identified, and MTA is coordinating potential schedule recovery with MTS. Compensation for the delays will be negotiated between PLTP/MTS and MTA, as appropriate.
PMOC Recommendation	The PMOC continues to recommend that MTA track all schedule elements according to the FRP and report status to FTA and the PMOC each month. MTA should employ additional methods of evaluating schedule progression and performance, including earned-value metrics, to identify issues as soon as possible. The PMOC recommends that MTA secure a mutually agreed-to (with MTS and PLTP) revised baseline schedule before executing any change order that commits compensation for delays.
Issue/Concern	Changes in the project have significantly impacted the project cost as reflected in the original FFGA. The April 2023 FRP includes a revised project cost estimate and a reasonable cost contingency to address remaining project risks.
Date Identified	September 2020.
Status	Ongoing.
Project Sponsor Action	MTA should continue to monitor project progress against the total project cost estimate. As of July 2023, two significant change orders, both of which were based on delays to OSF activities, caused substantial utilization of the cost contingency outlined in the FRP. Additional delays have been identified, and MTA is coordinating potential schedule mitigation (which would support cost mitigation) with MTS. Disputes between MTA and MTS are impacting project contingency.
PMOC Recommendation	The PMOC recommends that MTA consider the results of the pending Quantitative Risk Analysis and, if necessary, adjust the cost and schedule contingencies.
Issue/Concern	MTA does not have a police force located in proximity to the Purple Line.
Date Identified	September 2022.
Status	As of May 2023, MTA had determined a preferred alternative for providing security and fare enforcement, and had identified several next steps for implementation.
Project Sponsor Action	MTA's preferred security alternative includes the creation of a new Southern District of the MTA Police Department and will require associated staff, operating procedures, and a facility.

PMOC Recommendation	Although the currently forecasted RSA date is in 2027, the PMOC recommends that MTA promptly move toward implementation of the preferred security alternative. MTA should identify the parties responsible for implementing the preferred alternative and determine a detailed schedule and budget in a written plan. The PMOC also recommends that the State Safety Oversight Agency (SSOA) be included in the review and comment process for security and fare enforcement.
Issue/Concern	The Lost Time Injury Rate and Total Case Incident Rate have increased significantly since 2022. The current rates are significantly higher than the stated project goals. The PMOC notes that there are inconsistencies in incident reporting between MTA and MTS. ***The PMOC has observed that, although MTA has repeatedly stated that it recognizes the need for improvement in the safety process, no improvement or visible process changes have occurred.***
Date Identified	April 2023.
Project Sponsor Action	MTA states that it has increased coordination with MTS through additional biweekly coordination meetings. MTA has acknowledged the need for safety process improvements. In November 2023, MTA stated that MTS had replaced its safety director and added safety staff, although MTA did not review the qualifications of the new director or staff.
PMOC Recommendation	The PMOC recommends that MTA review MTS safety staff qualifications and that MTA and MTS review the safety procedures and the implementation of those procedures to identify opportunities for improvement. The PMOC also recommends that MTA and MTS complete the safety process review as soon as practical and that MTA prepare a written summary. The summary should include the action items and the responsible parties for each. ***In addition, the PMOC recommends that MTA dedicate additional resources to construction safety (i.e., resources dedicated to only the construction portion of the Purple Line project). MTA should prepare a comprehensive monthly safety report under the direct supervision of the Senior Project Director.***

1.4. Status of Key Indicators Dashboard (Post-grant)

Table 3 shows the project Key Indicators Dashboard after the FFGA was awarded.

Table 3 – Key Indicators Dashboard

Project Sponsor:				Maryland Transit Administration	
Project Name:				MTA National Capital Purple Line Light Rail Transit Project	
Date:				***December 29, 2023***	
Project Detail					
Oversight Frequency:				**Monthly**	
Element	**Status**			**Prior Status**	**Issue or Concern**
	●	●	●		
	G	**Y**	**R**		
Project Management Plan		●		●	MTA developed an updated PMP that reflects revised project conditions, and in October 2022, MTA submitted a revised PMP to the PMOC and FTA for review. On February 1, 2023, FTA provided its review comments on the PMP, and on April 28, 2023, MTA submitted the second revision of the PMP to FTA. In May 2023, MTA announced significant changes to the Purple Line leadership staff, including departure of the staff in the TDD Executive Director, Communications Director, and Deputy Project Director positions. As of September 2023, MTA has filled the vacant Purple Line Deputy Project Director position, but the TDD Executive Director position remains open. This concern also applies to the Management Capacity and Capability (MCC) element below.

Management Capacity and Capability			●	●	Management staff changes within MTA and within the supporting PMC have magnified the need for MTA to focus on MCC issues. ***Construction safety is a specific concern to the PMOC.***
Cost*		●		●	MTA has developed a revised cost estimate that reflects new project conditions. Based on PMOC and FTA review comments and a revised MTA Quantitative Risk Analysis, MTA established a budget contingency that appeared appropriate for the stage of the project at the time. However, large change orders and potential change orders have required commitment of a significant portion of the contingency budget. MTA should track project status according to the FRP and the updated PMP and management plans. The PMOC is concerned that significant additional change orders could further reduce the project cost contingency. MTA currently is preparing a Quantitative Risk Analysis, which will inform project cost and contingency decisions.
Schedule			●	●	MTA has a revised master project schedule that incorporates the current project status in place. Despite the execution of several change orders with significant contract extensions, there has not been a mutually agreed-to construction schedule since the Initial Baseline Schedule in September 2022. MTA has rejected MTS's schedule updates each month, citing technical issues. It is the PMOC's opinion that change orders that include adjustments to the RSA date should not be executed unless a mutually agreed-to revised baseline schedule is included with the change order.
Quality			●	●	There are a significant number of nonconforming items from the PLTC-constructed work and the work performed under MTA's management of OSF. The PMOC finds that the quality reporting related to OSF activities is inconsistent. Also, it appears that some key quality management staff have not participated in the project for some time due to contractual issues. The QAP has been modified to reflect many of the noted PMOC concerns, and MTA will incorporate the remaining concerns in the next annual QAP update. MTA has also developed a quality dashboard to improve the tracking of quality issues.
Safety			●	●	In April 2023, the PMOC noted to MTA that both the Lost Time Injury Rate and the Total Case Incident Rate had significantly increased, particularly for the MTA-managed OSF activities. In addition to the increase in the incident rates, there continues to be an apparent lack of tracking and reporting of safety issues. MTA recognizes the issue and reports that it has scheduled additional safety coordination efforts. In May 2023, the PMOC requested documentation on these additional efforts, and in July 2023, the PMOC questioned the effectiveness of the efforts. MTA acknowledges the need for safety process improvement. It is the opinion of the PMOC that there may be a lack of emphasis on safety or MCC issues that are affecting safety. On September 28, 2023, MTA provided to the PMOC a brief document that indicated it had performed an audit and proposed several safety process improvements. The PMOC needs additional detail in order to evaluate the proposed changes to the safety process. In the opinion of the PMOC, MTA's processes related to construction safety need significant improvement. ***MTA should prepare a comprehensive monthly safety report under the direct supervision of the Senior Project Director.***
Risk		●		●	MTA updated the RCMP and the Risk Register to reflect the changes driven by the FRP and updates to the project management plans. In May 2023, FTA accepted the RCMP but also noted additional comments that MTA should address in future updates to

					the plan. In November 2023, MTA held a risk workshop and began a Quantitative Risk Analysis. A risk review is scheduled to be completed in January 2024, and results will be shared with the FTA and PMOC at that time.

Legend	
Green	Satisfactory: No Corrective Action necessary.
Yellow	Caution: Risk/Issues exist. Corrective Action may be necessary.
Red	Elevated for immediate Corrective Action: Significant risk to the health of the project.

*Note: With regard to cost, the colors indicate the following status:
Yellow – Forecast cost exceeds the project budget by up to 3%.
Red – Forecast cost exceeds the project budget by more than 5%.

1.5. Core Accountability Items

Table 4 shows the core accountability items for the project, including the current status of the project and the major issues and how they are being addressed.

Table 4 – Core Accountability Items

		Original (Grant)	Current Forecast	PMOC Assessment of Current Forecast
Cost	Capital Cost Estimate	$2,407,030,289	$5,116,020,380	Acceptable
Contingency	Unallocated Contingency	$90,535,748	***$86,301,650***	Acceptable
	Allocated Contingency	$59,500,464	$0	Acceptable
	Total Contingency	$150,036,212	***$86,301,650***	Acceptable
Schedule	Revenue Service Date	12/31/2022	02/28/2028	Acceptable

Project Progress		**Amount ($)**	**Percent of Total**
Total Expenditures	Actual cost of all eligible expenditures completed to date	***$3,188,803,405***	***62.3%***
Planned Value to Date[1]	Estimated value of work planned to date	Not Applicable (N/A)	N/A
Actual Value to Date[1]	Actual value of work completed to date	N/A	N/A

Contract Status		**Amount ($)**	**Percent of Total**
Total Contracts Awarded	Value of all contracts (design, support, construction, equipment) awarded; % of total value to be awarded	To Be Determined (TBD)	TBD
Construction Contracts Awarded	Value of construction contracts awarded; % of total construction value to be awarded	TBD	TBD
Physical Construction Completed	Value of physical construction (SCC10-50) completed; % of total construction value completed	***$1,054,153,389***	***54.3%***

Rolling Stock Vehicle Status	**Date Awarded**	**No. Ordered**	**No. Delivered**
28 total car sets[2]	First 26 LRVs: 2016 Additional 2 LRVs: January 2022	28 car sets	0

Next Quarterly Progress Review Meeting Date:	***February 7, 2024***

[1]Earned value information is not available.
[2]The approved FFGA includes a total of 25 LRVs.

2. OBSERVATIONS AND FINDINGS

2.1. Summary of Monitoring Activities

The PMOC received an update from the Purple Line project team during ***the December 21, 2023,*** virtual monthly meeting with MTA, the PMC, and the PMOC. ***FTA, the PMOC, and MTA held a virtual meeting on December 12, 2023, to review project status.*** MTA provides supplementary information before the PMOC monthly meetings. PMOC monitoring activities include review of MTA-provided scope, schedule, risk, financial, construction, safety and security, and real estate information.

After the U.S. Court of Appeals reversed the vacation of the ROD in July 2017 (refer to the **NEPA Process and Environmental Mitigation** section, below, for details), the FFGA was executed on August 22, 2017. In September 2020, the construction (D-B) contractor, PLTC, left the project, and a new project delivery plan was developed, including replacement of the D-B contractor. During the period when the replacement D-B contractor was being solicited, MTA managed specific construction and design activities (OSF activities) in order to reduce uncertainty and support the project schedule. On November 5, 2021, MTS was selected as the replacement D-B contractor, and financial and commercial close occurred on April 14, 2022. MTA continues to manage OSF construction and design activities. MTS is performing construction activities across the entire project corridor.

MTA and MTS held initial partnering activities during which they developed relationships, general project priorities for teamwork, and an understanding of key issues for different stakeholders. MTA provided partnering process information to FTA and the PMOC on March 29, 2023. As of August 2023, MTA has replaced the consultant who was leading partnering activities and is developing new processes to facilitate the coordination and relationship between MTA and the MTS/PLTP team. MTA held an internal partnering meeting on October 27, 2023, to help align MTA and PMC staff. ***On December 11, 2023, a partnering session was held with MTA, MTS, PLTP, and Purple Line Transit Operators participating. One of the main points of discussion was the schedule mitigation efforts that are currently in progress. MTA will provide the agenda, meeting notes, and action items from the partnering session once it has compiled that information.***

2.2. Oversight Triggers

The oversight triggers most applicable to the project are the Oversight Procedure (OP) 25 cost and schedule triggers. The project did not have a mutually agreed-upon baseline schedule between March 2017 and September 2022. Significant schedule delays and a significant increase in project cost keep the project eligible for rigorous oversight. Project schedule delays typically impact project cost, another significant indicator of project health. MTA has developed a revised project EAC in conjunction with development of the project's schedule and FRP. Significant utilization of schedule and budget contingencies has occurred since development of the FRP. In the opinion of the PMOC, significant additional cost and schedule impacts are occurring.

2.3. Project Management Plan and Sub-plans

2.3.1. Project Management Plan

The PMOC reviewed the Purple Line PMP Version 10 in accordance with OP 20 for a PMP at the FFGA execution stage of a project. Subsequently, FTA and the PMOC reviewed Versions 11, 12, and 13. Due to significant project team changes since those versions, another update to the PMP was required. In October 2022, MTA provided an updated PMP (Version 14) to FTA and the PMOC for review, and FTA and the PMOC provided comments on PMP Version 14 to MTA. On April 27, 2023, MTA provided PMP Version 15, which FTA accepted, with comment, on June 21, 2023.

2.3.2. Safety and Security Management Plan

In February 2016, the PMOC reviewed the project's SSMP Version 6, dated October 22, 2014, in accordance with OP 22 for a project at the FFGA execution stage. The PMOC review found that the SSMP was compliant with FTA content requirements for execution of the FFGA, but the PMOC requested that MTA resubmit the SSMP after execution of the FFGA and address the comments in the PMOC report with updated information from the P3 concessionaire. Subsequently, FTA and the PMOC reviewed SSMP Versions 7 through 11 over the next four years. MDOT, which is the State Safety Oversight Agency (SSOA) for the project, also reviewed SSMP Versions 8 through 11. On January 13, 2022, FTA provided comments on SSMP Version 12 to MTA. MTA submitted SSMP Version 13 as well as Version 5 of the Purple Line SSCP to FTA and the PMOC for review in October 2022. FTA and the PMOC reviewed the SSCP and SSMP updates and provided their comments to MTA in February 2023. MTA submitted a revised SSMP to FTA on June 28, 2023, and submitted a revised SSCP on August 28, 2023. FTA approved the revised SSMP in August 2023, ***and the revised SSCP on December 28, 2023***.

2.3.3. Quality Assurance Plan

In October 2022, MTA submitted QAP Version 10 to FTA and the PMOC for review, and on March 8, 2023, FTA provided review comments on QAP Version 10 to MTA. MTA then submitted a revised QAP to FTA for review in May 2023, and FTA and the PMOC provided comments to MTA in June 2023. In July 2023, MTA provided a response to each specific comment and committed to submitting a revised QAP in August 2023. On August 11, 2023, MTA resubmitted the QAP as Version 12. A technical work session with MTA and the PMOC to discuss outstanding issues related to the QAP was held September 20, 2023, after which the PMOC recommended acceptance of the plan and that MTA should incorporate the outstanding items into the next regularly scheduled plan update. On October 6, 2023, FTA accepted the QAP contingent upon MTA's acceptance of the PMOC recommendations.

The PMOC requested that MTA provide more complete documentation for quality-related activities. In September 2023, MTA presented the PMOC with a quality process dashboard that MTA had developed to display monthly statistics on audits, Deficiency Notices, Nonconformance Reports, and quality oversight assessment reports.

MTA meets with PLTP, the PMC, and the General Engineering Consultant (GEC) monthly to review quality status. In ***December 2023,*** MTA reported the following quality management activities by MTA, PMC, or GEC staff that took place in ***November 2023***:

- Field inspections of OSF and MTS activities such as work on stormwater systems, retaining walls, concrete flatwork, bridge construction, roadways, and others.
- Reviews and processes to close out outstanding Nonconformance Reports and Deficiency Notices.
- The witnessing of subcontractors' testing procedures.
- Participation in MTA/MTS Quality Meetings.

MTS also performs significant Quality Assurance/Quality Control (QA/QC) activities and reports having more than 60 full-time quality staff assigned to the project. ***In November 2023***, those QA/QC activities by MTS included:

- Offsite inspections of structural steel girders and canopies, Overhead Contact System (OCS) poles and hardware, traffic signal poles, special trackwork, and other items.
- ***19*** Design Services During Construction reviews and ***2,624*** design submittal reviews.
- Completion of numerous quality audits of MTS and subcontractor work, testing, and quality plans.
- Approximately ***600*** materials tests.
- Approximately ***950*** materials samples.

In 2022, MTA frequently provided notes from monthly CAF and SNC-Lavalin LRV manufacturing quality meetings for PMOC review. The information provided a summary of issues and corrective actions, and upcoming quality audits. MTS is now responsible for preparing these notes.

One manufacturing quality issue, the recurring failure of a bolt in multiple vehicles, has not been resolved. MTA determined that the issue does not impact safety, and the solution is likely the use of a higher strength bolt. The final report on this issue was expected in May 2023, although as of ***December 2023,*** the PMOC has not yet received it. ***Additional failures have occurred, and the truck manufacturer in Germany is performing additional tests.*** MTA does not believe the issue will impact delivery of the vehicles, which is scheduled for spring of 2024.

2.3.4. Real Estate Acquisition Management Plan

The PMOC reviewed the project's Real Estate Acquisition Management Plan (RAMP) Versions 10, 11, and 12. The PMOC reviewed the plans with respect to the guidelines in OP 23 for a project in the construction phase. MTA submitted an updated RAMP Version 13 to FTA and the PMOC in October 2022. FTA provided review comments on RAMP Version 13 to MTA on February 27, 2023, and accepted RAMP Version 13 with comments.

2.3.5. Fleet Management Plans

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 on March 4, 2016, issued its final OP 37 BFMP review report, concluding that the BFMP met the requirements of OP 37 for the execution of an FFGA for the Purple Line project.

2.3.6. Risk and Contingency Management Plan

In early 2020, MTA commenced another update to the RCMP to incorporate the results of the latest Quantitative Risk Analysis that, in turn, incorporated the results of the replacement D-B contractor resolicitation and the revised project implementation details. MTA held a risk management workshop on January 26, 2021, that focused on the interim period.

MTA provided a comprehensive Risk Register and risk mitigation activities in conjunction with the draft FRP. In preparation for a risk analysis, MTA held risk assessment interviews with individual risk owners to review existing risk items and identify new risks. In December 2021, MTA prepared an updated Risk Register that includes over 100 risk items, including PLTP and MTS risks.

At a risk workshop held the week of May 2, 2022, the PMOC and FTA participated in an OP 40 risk and contingency review that evaluated cost, schedule, and project contingency. MTA confirmed and finalized the Risk Register and prepared the Quantitative Risk Analysis and an update of the RCMP. The PMOC developed a draft summary of the risk and contingency review results. FTA provided a risk summary to MTA on June 22, 2022, for MTA's consideration while it was updating the RCMP. MTA provided responses to FTA's comments on the risk summary on July 15, 2022, and provided further clarification on August 25, 2022. MTA submitted RCMP Version 15 to FTA and the PMOC for review in October 2022. In February 2023, FTA and the PMOC provided comments on the revised RCMP, which supported MTA's development of the project's budget and schedule contingency. MTA subsequently submitted the revised RCMP Version 16, dated April 21, 2023, and FTA accepted it on May 22, 2023.

In November 2023, MTA held a risk workshop and began a Quantitative Risk Analysis. Project risks were reassessed, and information needed to reevaluate cost and schedule contingencies was determined. MTA expects to complete the Quantitative Risk Analysis and contingency review in January 2024 and to share the results with FTA and the PMOC at that time.

2.3.7. Safety and Security Certification Plan

Version 3 of the Purple Line SSCP is dated November 4, 2014. The PMOC review found that the SSCP Version 3 met the FTA requirements in support of the FFGA application. MTA submitted SSCP Version 4 on February 3, 2020, in conjunction with the updated SSMP submittal (see the **Safety and Security Management Plan** subsection, above). The SSOA completed its review of SSCP Version 4 and discussed its comments with the PMOC. MTA decided that the new emergency management working group would be a subcommittee to the Fire Life Safety and Security Committee, and this decision would be reflected in the next revisions of the SSMP and the SSCP, which were planned for after the replacement D-B contractor was in place. MTA submitted SSMP Version 13 and SSCP Version 5 to FTA and the PMOC in October 2022. In February 2023, FTA and the PMOC completed their reviews and provided comments on these

plan documents to MTA. MTA provided a response to the SSCP review comments to FTA and the PMOC in May 2023. On July 12, 2023, the PMOC and MTA held a call to review and reconcile PMOC/FTA comments on the SSCP. MTA submitted a revised SSMP to FTA on June 28, 2023, and submitted a revised SSCP on August 28, 2023. FTA approved the SSMP in August 2023 ***and accepted the current SSCP (Version 7) on December 28, 2023.***

2.4. Management Capacity and Capability

MTA continues to identify and assign sufficient Management Capacity and Capability (MCC), as needed, to complete the project in compliance with applicable FTA requirements. These efforts have included bringing staff, either MTA or MDOT personnel or consultants, onto the project to manage the current needs, such as planning, P3 procurement and contracting, real estate acquisition, and construction.

In November 2021, MTA's quality lead for the Purple Line project, Rene Schroeder, retired. It was proposed that Roland Carroll, the Purple Line systems safety and construction safety lead, add the quality lead role to his other Purple Line roles. In February 2022, MTA provided a white paper outlining Mr. Carroll's experience, his recent training, and the proposed supporting staff related to the new quality management role. The PMOC has evaluated this change as a part of the PMP review and will continue to monitor management capacity for this function and all positions through ongoing oversight activities. Specific to safety, the PMOC is concerned that there may be a lack of emphasis on safety or on management capacity or capability. Injury rates, particularly for OSF activities, are higher than the MTA goals. Also, reporting of injury and incident statistics is inconsistent. ***As of December 2023, the PMOC continues to have concerns specifically related to construction safety.*** See Section 2.16, below, for more detail.

In March 2023, MTA hired John Donovan in the role of Construction Manager and also formed a commercial project controls team. These changes were in response to: (1) the near completion of OSF and (2) the need to support the management of MTS's increasing amount of work.

On May 25, 2023, MTA communicated the departure of Executive Director Matthew Pollack, Deputy Project Director and Contracting Officer Anita Rodgers, and Communications Director David Abrams from the Purple Line project team. Project Director Ray Biggs, Jim Mitchell of the PMC, and MDOT Chief Financial Officer Jaclyn Hartman were leading the project while those vacated positions were being filled. Ken Forsythe's role changed from his role as Deputy Director to the interim Director of Communications role. A new Deputy Project Director, Alexa Heidrich, started with the Purple Line project team on July 26, 2023. Kathryn (Kat) Lamb joined the team in August 2023 as the Communications Director, which completed the hiring for the open senior staff positions for the Purple Line project at that time. In August 2023, MTA provided an updated Purple Line organizational chart that included those newly hired staff. ***In December 2023, MTA replaced PMC Project Director Jim Mitchell with Brian Freerks***.

A search for a new MTA TDD Executive Director is in progress ***as of December 2023***. The TDD Executive Director will be responsible for the Purple Line project in addition to other State of Maryland transit projects.

2.5. NEPA Process and Environmental Mitigation

2.5.1. NEPA Process

FTA issued a ROD on March 19, 2014. The National Park Service issued its ROD on July 16, 2014.

MTA has continued to submit environmental re-evaluations as required based on design advancement and other causes. To date, PLTC (before it left the project) 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. The most recent status ***(as of November 2023)*** of NEPA items is:

- All formally submitted LOD cases have been approved. MTA currently expects one additional LOD case and is preparing a submittal for review by FTA. MTA intends to submit the new LOD to FTA after MTA has obtained all applicable information from MTS. This additional LOD case submittal has been delayed because MTA is awaiting necessary clarification from MTS.
- The ATC for the Bethesda Station jet fan has been vetted, and final documentation is being prepared for submittal to FTA for concurrence that the ATC meets project requirements. Final documentation for the ATC is still pending as of ***December 2023***. MTA will schedule a review of the documentation with FTA as soon as it is complete, ***which is expected to occur in April 2024***. MTA and MTS optimistically predict that the ATC will have no Section 4(f) impacts or other impacts to the project's ROD.

On August 3, 2016, in response to the lawsuit filed by the Friends of the Capital Crescent Trail against FTA, a federal judge filed his Order and accompanying Memorandum Opinion. In those documents, it was ordered that the ROD for the Purple Line project be 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 whether 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 in 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 U.S. Court of Appeals issued its ruling on December 19, 2017, in which the judges ruled in favor of FTA and the project, and ruled that the transit agencies would not have to conduct a new environmental study to examine other potential routes for the Purple Line.

The Friends of the Capital Crescent Trail filed a second lawsuit after the FFGA signing and after the groundbreaking ceremony was held on August 28, 2017. The September 19, 2017, Preliminary Hearing for this suit resulted in no temporary injunctions or restraining orders, and project

construction proceeded as the case progressed 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 FTA.

The Friends of the Capital Crescent Trail filed a third lawsuit in January 2019, this time against USACE. The USACE legal staff and the Office of the Attorney General provided the defense. 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 USACE. In October 2019, USACE filed for a Summary Judgment to Dismiss the case, and the plaintiffs filed their response; a hearing date was set for March 23, 2020. However, in late February 2020, the assigned judge recused himself from the case, and the scheduled hearing was canceled. In mid-April 2020, the District Court ruled in favor of the USACE/MTA motion for a Summary Judgement to Dismiss, and the case was dismissed. The plaintiff subsequently filed an appeal on May 11, 2020, and the case continued in the legal process. Oral arguments related to the appeal occurred on March 11, 2021. The District Court denied the appeal on May 13, 2021. The decision resolved the last remaining lawsuit related to the project.

2.5.2. Environmental Mitigation

The project achieved the required mitigation for reforestation through the purchase of 82.5 acres of offsite credits (combined, in both Montgomery County and Prince George's County). This amount of offsite credits is expected to be more than needed, and the P3 concessionaire will monitor that this remains the case. PLTP's Forest Conservation Plan (FCP), which documented a need of 75.73 acres, 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. In Maryland, need is based on land disturbance rather than only forest removal. MTA's tracking of additional disturbance due to the progress of design and construction indicated that the total need is still within the amount of available offsite credits.

The Joint Permit Application for Wetlands and Stream Mitigation was formally submitted to USACE and 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, because time had passed since the permit was drafted, MDE updated and issued the finalized permit the first week of April 2018. USACE completed its NEPA and conditions review as well as its 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 the longer construction periods resulting from construction moratoriums for forests and streams. The project received approval from MDE during the week of December 3, 2018, and received the USACE approval letter in mid-June 2019.

The project team has been addressing the environmental mitigation for wetlands through the development of the offsite Ken-Gar location, which is implemented through 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 the bids underwent MTA Procurement Department review. BPW approval of the award was received on September 4, 2019. As of June 2021, the Ken-Gar wetlands mitigation project was complete and had completed its one-year warranty period. See the **Construction** section of this report, below, for further discussion of the status of this Ken-Gar Wetlands Mitigation construction contract.

The project team has addressed the environmental mitigation for streams through the development of the offsite Paint Branch location, which is implemented through 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 the award was received on September 4, 2019. The Paint Branch stream restoration is complete, and warranty corrections (partial replanting) occurred in December 2022. See the **Construction** section of this report, below, for further discussion of the status of this contract.

The project has plans to address stormwater mitigation, beyond what can be mitigated on the project site, through retrofitting offsite locations in both Montgomery County and Prince George's County. On November 12, 2021, MTA determined that there is a need for additional stormwater mitigation in Prince George's County. A project to construct additional stormwater mitigation is included in the scope of work for MTS.

The joint MTA and University of Maryland (UMD) technical board resumed meetings in December 2021 to coordinate efforts related to the mitigation of noise, vibration, and electromagnetic interference at the UMD facilities. Following this meeting, the members of the joint technical board voted to approve the outstanding design packages. This action effectively ended the activities of the technical board until the LRT is in trial running.

The Purple Line project team submits quarterly Environmental Mitigation Monitoring Reports for the project. MTA managed the environmental mitigation and monitoring activities as the project transitioned to the replacement D-B contractor, MTS. Because MTS is now performing construction, MTA will monitor the environmental activities performed by MTS. On November 30, 2023, MTA provided the Third Quarter 2023 Environmental Commitment and Mitigation Monitoring Program Report. The report conveys the status of progress toward meeting commitments in the ROD that was issued in March 2014 and any pending actions required. In the report, MTA notes that "no problems, gaps, nonconformances, or NEPA issues of any sort were found during this quarterly assessment."

The MTA Purple Line team communicated that MDE has implemented a change to the state's construction dewatering monitoring and turbidity requirements. Pumped water discharge from construction sites will need to meet specific requirements—something that Maryland lacked but is common in many states. MTS has indicated that these requirements are a change to the project scope of work and is developing a change order request. In September 2023, MTA and MTS

participated in training for managers on the new requirements, and a future round of training for field staff is being planned. ***Activities on the project currently are functioning under the new MDE requirements.***

In December 2023, MTA indicated that it is coordinating with FTA on the NEPA Programmatic Agreement because the agreement expires in March 2024.

2.6. Project Delivery Method and Procurement

The majority of the capital cost of the Purple Line project has been packaged into a Design-Build-Finance-Operate-Maintain 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") in which appropriate risks and benefits are allocated in a cost-effective manner between the contractual partners. The P3 concessionaire is intended to perform some functions normally undertaken by the transit agency, but MTA remains ultimately accountable for the Purple Line project 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 PLTP had been selected as the P3 concessionaire. Commercial close of the P3 contract occurred on April 7, 2016, and financial close occurred on June 17, 2016.

In late April 2020, PLTC notified PLTP that due to PLTC's forecasted schedule delays on the project (which did not receive agreement from MTA), PLTC intended to exercise the clause that allowed it to terminate its contract with PLTP for the design and construction services under the P3 contract if delays exceed 365 days. MTA sent a formal request to PLTP for a response that would include a definitive path forward. On the response due date of May 14, 2020, PLTP submitted its response, which stated that PLTP intended to continue to negotiate with PLTC to retain PLTC as part of the P3 concessionaire team. On June 23, 2020, PLTP sent a formal Notice of Unconditional Election to Terminate the P3 Agreement to MTA, although PLTP indicated a willingness to negotiate a settlement. On June 24, 2020, MTA sent a Formal Notice of Concessionaire Default. This notice essentially refuted the validity of the PLTP delay claims and stated that if PLTP fails to perform, MTA has a number of options related to the P3 Agreement. Through July 2020, construction activities continued at the levels previously planned and were not affected by the dispute.

In early August 2020, PLTC and subcontractors demobilized equipment, materials, and personnel. In response, the Maryland Attorney General filed a motion for a Temporary Restraining Order (TRO) that prevented PLTP from abandoning the work or demobilizing. Upon issuance of the TRO, the contractor and subcontractors remobilized some equipment and restarted many construction activities. A hearing to uphold or rescind the TRO occurred before the expiration of the TRO on September 14, 2020, and the court rescinded the TRO, allowing PLTP to leave the project.

When an agreement was not reached, the bond holder firms had the first right to take over the project. However, MTA planned an alternate path forward based on its exercise of step-in rights.

To that end, MTA assumed the contracts of over 100 subcontractors, indicating MTA's intent to continue the project. MTA adjusted staffing for construction management, resident engineers, and inspectors to move forward with the project.

On November 24, 2020, MTA and the P3 concessionaire, PLTP, reached a settlement agreement to release the project's D-B contractor from the P3 consortium and continue the project with the remaining parties. The state's BPW approved the settlement agreement on December 17, 2020. Activities set out in the agreement and the IRP have proceeded with multiple modifications to milestone dates as needed.

The agreement included the following key aspects, as MTA has communicated to the PMOC:

- PLTP agreed to procure a replacement D-B contractor to complete the project and to obtain project financing. The selection of the preferred replacement D-B contractor, MTS, occurred on November 5, 2021. The TIFIA loan for the project closed on April 14, 2022, allowing financial close and commercial close on that same day. MTS is now the D-B contractor for the project.
- The settlement agreement provided a mutual release from all disputed and undisputed amounts (incurred before September 28, 2020) for PLTP, PLTC, and subcontractors. The agreement also released outstanding litigation among the parties.

2.7. Design

2.7.1. MTA Design

MTA's GEC completed the project design to approximately the 30 percent design level in fall of 2013 and provided incremental enhancements through late 2015. This design formed the basis of the Request for Proposals (RFP) for the P3 contract. See the **P3 Design** subsection, below, for a discussion of the advancement of this design by PLTC, the former PLTP partner that was responsible for the design and construction of the capital project, and continued design under MTA.

There is a dispute pending related to the cost of design changes that were made after execution of the agreement with MTS. MTA's team estimates that the disputed amount is approximately $15 million.

MTA was responsible for the design and construction contracts under a Design-Bid-Build delivery method (separate from the P3 scope) for the following projects:

- Stream mitigation – MTA completed the 100 percent design packages in June 2017 and received approval from MDE in May 2018. Construction of the stream mitigation is now complete. See the **Environmental Mitigation** subsection of this report, above, for additional details.
- Wetlands mitigation – MTA completed the 100 percent design packages in June 2017. Several design adjustments were subsequently made based on MDE and Montgomery County comments. The construction contract was advertised on May 3, 2019.

Construction of the original wetlands mitigation is now complete. See the **Environmental Mitigation** subsection of this report, above, for additional details.

- Offsite SWM sites – MTA completed design and obtained MDE approval of more than the P3 contract-required 5 acres of offsite mitigation in Montgomery County on May 29, 2018. In late October 2019, MTA received MDE approvals for the next 5 acres to be added to the mitigation credit "bank," thus satisfying the contract requirements for 2019. MTA has determined that there is a need for additional mitigation in Prince George's County, and a project to construct additional mitigation is included in the scope of work for MTS.
- See the **Environmental Mitigation** subsection of this report, above, for the current requirements.

MTA also completed the design to support a D-B contract for the replacement of the existing Parks Maintenance Facility with a facility on Polk Street. Construction of the facility is now complete. See the **Real Estate Acquisition and Relocation** and the **Construction** (MTA Scope) sections of this report, below, for further details.

2.7.2. P3 Design

PLTC's design progress was forecasted to achieve substantial design completion of Civil packages in August 2020, substantial design completion of Systems packages (except for Fare Collection) in September 2020, and completion of the Fare Collection design package in 2021. The original baseline schedule anticipated design completion by late fall 2017. As of August 2020, the number of planned Civil, Systems, and Utility design packages was 218.

Upon the departure of PLTC, MTA contracted with the project's engineer of record, Atkins, to continue to advance the design of limited aspects of the project.

The current progress through ***December 21, 2023,*** is that 214 of the 218 total planned design packages have been issued as RFC. The packages that remain in design or approval include fare collection, the fire management system at the WMATA/SSTC combined station, guideway signage, and the train control system. A 90 percent design submittal for train control ***was not completed in December 2023. The design package for train control will not be 100 percent complete until July 2024.*** The PMOC observed that MTS indicates that the design portion of its contract is billed out to 99.9 percent. ***MTA has confirmed that this information is correct. The requirements of MTA's D-B contract with MTA include the payment of all design costs in 15 months, regardless of progress.***

The State Highway Administration approved the last traffic signal package in October 2023.

A new item related to design has been added to the Risk Register regarding an intelligent interface device that could impact implementation and operational costs. MTA and MTS have agreed to put this design change item before the Dispute Resolution Board for feedback, because MTA believes that the change in question would be a betterment that PTLP selected.

PLTC reached resolution on the final remaining ATC identified during the proposal process. The ATC is related to the use of jet fans at the Bethesda Station in lieu of vent shafts. In accordance with the established process, MTA is reviewing the design package for NEPA compliance. Final documentation for the ATC is still pending as of ***December 2023***. MTA and MTS are coordinating to address the noise and aesthetic impacts of the fans, and they optimistically report that the ATC will have no Section 4(f) impacts or associated impacts to the ROD.

MTA and CSX worked to resolve issues related to the applicable design criteria and which project areas were affected until, in July 2019, a mutually agreeable path forward was defined for all areas. 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 SSTC 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 May 2020, CSX indicated that the final design is acceptable. Revised documents, providing some minor clarifications related to ROW, were submitted to CSX on September 8, 2020, and ultimately CSX approved the design. The revised documents were submitted to WMATA several times in early 2021.
- WMATA's comments on design plans for the SSTC mezzanine connector pedestrian bridge (over CSX ROW) will result in what MTA deems are betterments. Resolution of WMATA comments continues as of ***December 2023*** for the SSTC and for other locations where WMATA and Purple Line stations coincide. MTA reports that the slow resolution of these comments has not impacted critical path activities.
- An encroachment into the CSX vertical clearance was discovered upon installation of girders at the SSTC. Although the designer believed the loading of the bridge deck might alleviate the issue, shimming was discussed as a potential solution. Shimming was not MTA's preferred solution; therefore, an exception was requested from CSX to allow the ¾-inch encroachment to remain. CSX denied the exception. MTA and the designer prepared for a contractor to jack and shim the structure to create the required clearance. Construction of this work was completed in August 2021.
- Proposed construction near the SSTC will require significant coordination with both WMATA and CSX. Track protection (flagging) and planning of a shutdown of the railroads to allow Purple Line activities near the SSTC in 2024 have been identified as schedule risk items.
- CSX provided review comments disallowing revised drainage networks, related to the Capital Crescent Trail work, which would connect to CSX's existing drainage culverts. The work on the Capital Crescent Trail is not part of the FFGA and is separately funded by Montgomery County. As a result of work with Montgomery County, the connections were relocated from CSX property to Montgomery County property and therefore are no longer a CSX issue. To fully accomplish this approach, two connections required resolution. Montgomery County acquired two parcels of land from CSX (not FFGA-

funded) and then accepted responsibility for one connection currently under the responsibility of CSX. Storm sewer construction under the CSX railroad was required in several locations. Two jack-and-bore installations of culvert pipes were completed in November 2022. ***As of December 2023,*** completion of another 72-inch-diameter culvert is pending construction by MTS. The work plan for the culvert installation is in the approval process at CSX.

2.8. Real Estate Acquisition and Relocation

As of December 2023, the total number of planned property acquisitions is 601, including 464 privately owned properties and 137 public acquisitions. All of the original Exhibit 9 FFGA-scope private parcels in the P3 contract are in MTA's possession, some of which are properties that continue in condemnation under the State Highway Administration process. To date, ***428*** of the original 464 private properties have completed settlement, ***5*** additional properties (not part of the original 464 private properties) are pending settlement, and ***32*** condemnations remain to be settled.

All required public properties have been available for construction when needed. Several public property rights transfers are currently being coordinated to accommodate sidewalk changes, utility easements, and ROW exchanges.

As the project has progressed and new utility relocation needs have been identified, additional small parcel acquisitions have been added to the total as utility down-guys. In December 2017, PLTC initially submitted a list of approximately 280 such parcels related to utility relocations and subsequently added to that list. MTA resolved that it would acquire these properties, rather than execute amendments to the utility agreement that would 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 has been expediting the process somewhat. ***As of December 21, 2023,*** the list of additional acquisitions totals 188 parcels, and several more acquisitions potentially may be needed for stormwater facilities. Of these parcels, 54 are public property and will be acquired by agreement, and 134 are private acquisitions. Sixty-six of the 188 properties are filed for condemnation, excluding those that were subsequently optioned or settled, and 20 condemnations remain to be filed. MTA estimates that approximately ***$36.2 million*** of exposure remains in the acquisition process. This amount has been included in the Quantitative Risk Analysis.

The project required a total of 177 relocations, of which 57 were residential and 120 were businesses. To date, all 177 of those identified relocations have been completed in accordance with the applicable procedures, and no active claims remain to be settled. Also, MTA is monitoring terms of agreement of the property acquisitions discussed above that have not yet completed settlement, because some of them could potentially result in the need for additional relocations. As of October 2023, there were two new relocations related to commercial properties that potentially will be needed.

In August 2023, MTA indicated that the goal for completion of all real estate transactions is December 2024.

On April 25, 2023, MTA reported that BPW had approved the last of seven critical project acquisitions. These acquisitions were required to allow MTS access to construction areas that include activities on or near the critical path.

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 MTA shares this information with the PMOC. Based on actual settlement amounts and projected amounts for those not yet closed, settlement/condemnation values are ***56.3 percent higher*** than the original 2014 SCC budget for ROW. MTA included current ROW cost projections in its development of an FRP project cost estimate (see the **Project Cost** section of this report, below).

Due to the extended project duration, some agreements will expire before the expected RSA date. MTA and MTS have started the process of identifying the end dates now needed for the agreements and will begin the process of obtaining extensions. MTA has evaluated the risks, estimated the cost of the extensions, and included those costs in a budget contingency. ***As of December 2023,*** MTA estimates that approximately $13.2 million of risk exposure remains due to necessary TCE extensions.

2.9. Third-party Agreements and Utilities

All major third-party agreements (specifically, those agreements with Washington Gas, Verizon, Potomac Electric Power Company [PEPCO], CSX, UMD, Montgomery County Parks, Prince George's County Parks, WMATA, 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 lines that are currently overhead be placed underground when they cross the light rail alignment. To minimize the total cost impact of this change, MTA and Verizon reduced the number of locations where Verizon lines cross the alignment to 34. MTA is of the opinion that this reduction 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 for placing 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 upon in early March 2019. MTA had planned to negotiate the cost responsibility with PLTC and Verizon after all major Verizon relocations were completed. However, since the departure of PLTC, MTA carries this cost as a betterment outside of the FFGA scope.

In early June 2018, MTA and PLTP completed the negotiation of all remaining third-party agreements with the smaller utility and telecommunications (telecom) 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 to existing executed agreements continues to be evaluated. The significant items include:

- To date, the design differences with CSX, as discussed earlier in this report, have been adequately resolved through design review and concurrences, and have not resulted in the need to amend the CSX agreement.
- WSSC proposed that the project relocate a 66-inch underground water main that runs through the Glenridge OMF site. In March 2020, MTA and WSSC agreed on a water main alignment primarily in the median of Veterans Parkway, as well as a strategy for completing the relocation. The original Purple Line project GEC performed the design; WSSC provided the material; and MTA separately contracted for the construction, thus avoiding impact to the P3 concessionaire's scope of work. On May 21, 2021, WSSC authorized work, and mobilization began August 9, 2021. Energizing of the cathodic protection was the last remaining activity, and it was completed in November 2023.
- In late July 2022, MTA and MDOT held a summit with the many utility providers that experience relocations related to transportation projects to discuss best practices and improvements to the utility relocation process. As of May 2023, some of the utility providers are experiencing staff shortages that limit construction production rates. These staff shortages present an ongoing challenge to the project.

The project has been addressing its interface with 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 MOU with the Montgomery County Schools system, which was approved by the School Board and signed by the School Superintendent, Montgomery County, and MTA. A similar MOU was negotiated between MTA and the Rosemary Hills School and was approved at the School Board meeting on February 12, 2019. MTA submitted a draft second MOU to Montgomery County Schools on November 3, 2022. The Purple Line project team is developing information on the utility pole locations and retaining wall maintenance before going back to the school district for final property transfer negotiations. Work will continue under ROE agreements with these parties through 2024.

As MTS commenced construction work, coordination meetings were held to ensure that prior agreements with third parties (utility companies and others) are followed. It is MTA's position that the transfer of third-party agreements from PLTC to MTA and now to MTS should not allow for a change in the terms of the agreements.

2.10. Construction

2.10.1. 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 replacement Parks Maintenance Facility (which is part of the real estate effort and budget), wetlands mitigation, stream mitigation, and possibly some offsite SWM sites. MTA has accomplished forest mitigation without the need for additional construction. The following discussion presents the current status of the MTA construction contracts:

- **Prince George's County Parks Polk Street Replacement Maintenance Facility** – This D-B contract was awarded after the BPW approved the construction contract award on March 20, 2019. Forrester Construction Company completed construction, Parks has taken possession of the facility, and the warranty period has expired. The only remaining action for this portion of the project is a real estate swap that will transfer the maintenance facility property to Parks in exchange for the property needed by the Purple Line project to MTA.
- **Offsite Wetlands Mitigation (Ken-Gar)** – The Wetlands Mitigation construction contract was awarded after the BPW approved the award on September 4, 2019, and NTP was issued to Environmental Quality Resources, LLC on September 5, 2019. The contractor mobilized in December 2019 and completed site surveys and the installation of Erosion and Sedimentation controls. Clearing and grubbing began in February 2020. Prince George's County took partial acceptance of the entire project on March 3, 2021. Acceptable growth of vegetation has been achieved, allowing for closure of this project. The one-year warranty review occurred on January 9, 2022, and now the project requires MTA quarterly monitoring until closeout in 2028.
- **Offsite Stream Mitigation (Paint Branch)** – The Stream Mitigation construction contract was awarded after the BPW approved the award on September 4, 2019, 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. The one-year warranty inspection occurred on August 4, 2022, and 1,700 plants were replaced in November 2022.

2.10.2. P3 Scope

Highlights of construction activities ***through December 2023*** throughout the alignment include*:*

- General: As a result of the dispute with PLTC (see the **Project Delivery Method and Procurement** section, above), all project activities slowed in the fall of 2020. In early August 2020, contractor forces, equipment, and materials were demobilized, and work in some areas ceased. Upon legal action from MTA, partial remobilization occurred. Following the court's rescission of the TRO, demobilization and safe-up activities in the construction area began in earnest in mid-September 2020 and continued into October 2020. Following PLTC's exit, MTA engaged a number of former PLTC subcontractors to continue select project activities. This work was progressed under MTA management with a goal of advancing critical path activities and reducing risk for the replacement D-B contractor.
- Status of ongoing P3 construction items that MTA manages:
    - Utility installations of all types ***are complete***, including construction by the electric provider, PEPCO, and the communications company (Verizon). Water, storm sewer, sanitary sewer, and gas lines ***are also complete***.

- As a part of OSF, MTA ordered rail, ties, special trackwork, and turnouts to mitigate supply chain risks. MTA also secured materials previously procured by PLTC for use by the replacement D-B contractor (MTS). As of September 2023, a dispute between MTA and MTS over the availability of MTA-supplied materials has been resolved. The materials were located along the project corridor and available for use, resolving the dispute.
- Building construction at the Glenridge OMF is essentially complete; however, construction of civil items outside of the building continues, as does final commissioning of systems inside the building. MTS was scheduled to assume control of the facility in early 2023; however, as of July 2023, there was a dispute over the completeness of the OMF that was delaying turnover from MTA to MTS. The PMOC recommends that this issue be added to the Risk Register, and mitigation plans and an estimate of cost and schedule impacts be developed. The turnover letter to transfer possession of the facility from MTA to MTS is on hold as ***of December 2023,*** pending resolution of disputes and punch list items. MTA reports that the transfer of possession date has not been determined. MTS is currently installing rail and other features both inside and outside of the building. MTS will complete the tracks for storage and testing of LRVs.
- Based on the status of construction at the time of PLTC's departure, MTA determined which items would be completed before mobilization of the replacement D-B contractor. OSF construction activities were expected to be completed before September 1, 2022, but caused some activities to continue to November 2023. OSF utility relocations that fell behind schedule caused impacts to MTS's work, and delays in OSF activities have driven two MTS change orders ***as of December 2023.*** MTA and PLTP mobilized the Tiger Team to develop schedule alternatives to mitigate additional delays driven by OSF work between March 2023 and July 2023, and the Tiger Team is now evaluating the further delays. MTS's current project schedule indicates 227 days of additional delay, which would result in an RSA date of December 23, 2027.
- MTA's Equal Employment Opportunity Officer assigned to the project is Marcques Washington, and he is supporting MTS in its hiring program. The former contractor, PLTC, left the project with a shortfall in meeting the requirements of its DBE program, and MTS is required to address this shortfall of approximately $12 million in contract value. In March 2023, MTA reported that the design portion and the nationally targeted worker program of the P3 contract had exceeded the DBE program goal, but the percentage DBE participation for general construction is below the goal. In April 2023, Mr. Washington reported that the DBE participation statistics are improving as construction continues. The PMOC continues to recommend that MTA report the projected values for these goals at the end of the project in addition to the current achieved values to allow for a better evaluation of progress toward meeting the goals. MTA has been performing audits each month to monitor the

Davis Bacon prevailing wage requirements. To date, only very minor issues have been identified during these audits.

2.11. Vehicle Technology and Procurement

The LRVs are five-car vehicles consisting of 136-foot-long, articulated units. Twenty-five vehicles (22 in operation and 3 spares) will be provided under the FFGA for the opening year. PLTP executed the LRV contract with CAF on June 17, 2016, and issued NTP to CAF on July 5, 2016, for the 25 FFGA vehicles. NTP to CAF also included one LRV outside of the FFGA.

Later, MTA added two additional vehicles (outside of the FFGA) by change order to CAF's contract, for a total of 28 vehicles to be supplied by CAF. The two additional LRVs will support better operations. MTS has incorporated these two additional LRVs into its scope of work (in addition to the cost and terms of LRV storage in Elmira).

Vehicle carshell manufacturing activities, which are coordinated with design progress, occurred until the facility in Spain was shut down in late March 2020 due to supply chain issues and to limit the spread of COVID-19. The final assembly facility in Elmira, New York, was shut down in early April 2020 due to New York State restrictions related to COVID-19 and reopened on May 18, 2020, at 50 percent of its workforce capacity. As of early August 2020, both the Spain facility and the Elmira facility were back to 100 percent staffing levels.

The final assembly of vehicles is being performed in CAF's facility in Elmira. MTA, its PMC, and SNC-Lavalin are meeting weekly with CAF to resolve all open items for design, testing, and manufacturing activities. First Article Inspections (FAIs) for Interior and Cab were completed on March 18, 2021, and FAIs for Exterior, Roof, and Undercar were completed on April 2, 2021.

Shipment of the first vehicle to the project site was expected in late spring of 2021. The lack of available storage at the yet-to-be-completed Glenridge OMF requires use of an offsite storage facility where vehicles can be stored, occasionally powered, and occasionally "exercised" or moved on tracks. MTA and CAF negotiated an agreement for CAF to store the completed LRVs in Elmira. That storage agreement subsequently transferred to MTS, and its terms are part of MTS's agreement. Twenty-six LRVs have been designated as Ready for Shipment and have been placed into storage in Elmira. MTS's proposed construction schedule establishes when the test tracks will be available for acceptance of the railcars at the Glenridge OMF. Currently, the schedule indicates that initial deliveries of LRVs will occur in early 2024.

The status of the LRV manufacturing as of ***December 21, 2023,*** is:

- To date, 130 carshell segments have been assembled in Spain.
- All 130 carshells have been delivered to CAF's facility in Elmira, New York.
- All 25 full LRVs in the FFGA are designated as Ready for Shipment and are in storage at CAF's Elmira facility. One additional LRV (outside of the FFGA) is also Ready for Shipment and in storage.
- Two additional LRVs are under contract, bringing the total to 28. These LRVs are not a part of the FFGA, but rather are an addition to the contract by MTA to support rail

operations. Manufacture of the two additional vehicles (ten cars) in Spain is now complete. All ten of those cars have been delivered to Elmira for final assembly and static testing.

As mentioned in Section 2.3.3 Quality Assurance, one manufacturing quality issue, the recurring failure of a bolt in multiple vehicles, has not been resolved. MTA determined that the issue does not impact safety, and the solution is likely the use of a higher strength bolt. The final report on this issue was expected in May 2023, although as of ***December 2023***, the PMOC has not yet received it. ***Additional failures have occurred, and the truck manufacturer in Germany is performing additional tests MTA previously indicated that a Root Cause Analysis (RCA) will be performed for this issue. In the PMOC's opinion, the RCA is prudent, in addition to development of corrective actions. The PMOC recommends that the quality process also be included in the RCA, along with design, fabrication, and assembly processes.*** MTA does not believe the issue will impact delivery of the vehicles, which is scheduled for spring 2024.

2.12. Project Cost

Table 5 summarizes the project's current actual expenditures and EAC, and compares them to the project budget as reported in MTA's SCC Workbook dated June 1, 2016, which is the basis of the project's FFGA. The project's documented expenditures total ***$3,188,803,405 through November 30, 2023.*** Refer also to **Table 4 – FFGA Core Accountability Items** in the **Executive Summary** section of this report for details on the project's planned and actual expenditures. The following table shows project budgets, actual expenditures, and forecast at completion amounts through ***November 30, 2023***, compared with the project budget as reported in MTA's SCC Workbook dated June 1, 2016, and MTA's current working budget.

Table 5 – Project Cost Versus Budget

SCC	Cost Category	Budget (June 1, 2016 Original FFGA)	Working Budget[1] (April 3, 2023 FRP)	Expenditures *(as of November 30, 2023)*[2]	Forecast at Completion[1]
10	Guideway and Track	$280,620,726	$371,508,682	***$212,588,989***	***$374,972,928***
20	Stations	$114,857,016	$161,159,923	***$35,545,531***	$171,571,352
30	Maintenance Facility	$94,155,591	$93,454,387	***$86,649,792***	***$95,037,182***
40	Sitework	$521,968,990	$796,081,289	***$557,762,298***	***$782,534,696***
50	Systems	$263,887,313	$517,256,196	***$161,606,780***	***$516,936,766***
	Subtotal 10–50	$1,275,489,636	$1,939,460,477	***$1,054,153,389***	***$1,941,052,924***
60	Right-of-Way	$229,600,000	$329,126,214	***$293,471,316***	$329,126,214
70	Vehicles	$212,940,927	$292,780,600	***$155,828,735***	$292,584,921
80	Professional Services (total)	$571,658,114	$2,247,359,915	***$1,685,349,965***	***$2,466,954,671***
80.01	Project Development	$87,149,878	$85,469,312	$85,469,311	$85,469,312
80.02	Engineering	$139,766,036	$196,722,013	***$217,826,790***	***$234,354,725***
80.03	Project Management for Design and Construction	$148,555,323	$655,185,988	***$409,794,510***	$641,685,062

SCC	Cost Category	**Budget** (June 1, 2016 Original FFGA)	**Working Budget**[1] (April 3, 2023 FRP)	**Expenditures** ***(as of November 30, 2023)***[2]	**Forecast at Completion**[1]
80.04	Construction Administration and Management	$83,269,280	$734,209,735	***$499,895,001***	***$800,944,852***
80.05	Professional Liability; Other Non-construction Insurance	$34,534,796	$85,701,891	***$79,549,429***	***$79,599,426***
80.06	Legal; Permits; Review Fees by Other Agencies, Cities, etc.	$5,805,117	$341,013,320	***$329,008,552***	$476,160,224
80.07	Surveys, Testing, Investigation, Inspection	$15,164,346	$92,504,023	***$59,024,840***	***$92,062,835***
80.08	Startup	$57,413,338	$56,553,635	$4,781,535	$56,678,235
	Subtotal 10–80	$2,289,688,678	$4,808,727,206	***$3,188,803,405***	***$5,029,718,730***
90	Unallocated Contingency[2]	$90,535,748	$307,293,174	**--**	***$86,301,650***
100	Finance Charges	$0	$0	$0	$0
	Total	$2,407,030,288	$5,116,020,381	***$3,188,803,405***	$5,116,020,380

[1]The Purple Line project Working Budget and Forecast at Completion are based on the accepted FRP, dated April 3, 2023, and subsequent change orders.

[2]The Unallocated Contingency expenditures will be reflected in SCC 10–SCC 80 expenditures as they occur. As of ***September 30, 2023,*** the committed unallocated contingency amount is ***$220,991,524.***

MTA developed the FRP unallocated contingency amount of $307,293,174 by utilizing a Quantitative Risk Analysis, and the RCMP dated April 21, 2023, recommended that amount for unallocated contingency.

On July 15, 2021, the PMOC requested that MTA provide revised budget tracking information that accurately reflected the combined IRP and OSF expenditures. MTA prepared a summary of actual versus planned expenditures for high-level OSF activities for review by the PMOC. MTA submitted the latest version of the summary that provides information through December 2022. MTA forecasted OSF expenditures of $556.15 million, which exceeded the original OSF budget by approximately $136 million. In May, June, July, and August 2023, the PMOC requested an OSF budget update. The extended OSF schedule and other changes have added cost since the December 2022 budget update. On September 28, 2023, MTA verbally reported (not in writing) to the PMOC an EAC for OSF of approximately $469 million. This EAC amount does not include the previously executed and potential future MTS change orders driven by OSF delays; those costs are transferred to the MTS tracking tables. The PMOC continues to request additional information to better understand the EAC.

In July 2023, the Maryland BPW approved a change order that had a total addition of $204,954,610 of cost and 207 additional days of contract time. The net budget impact to the capital construction portion of the project was $137,144,705, and the balance of the total amount was applied to the financing and lost return on investment for PLTP. The $137,144,705 will be expended over the course of construction; therefore, this amount does not immediately show up in the MTA budget reports. However, that amount, plus the amount of the earlier change order included in the FRP,

represents significant utilization of the budget contingency. The PMOC recommends that MTA closely monitor these cost overruns and the potential need for additional contingency.

2.12.1. Project Funding

The funding for the project, as reflected in Attachment 3 of the FFGA, is shown in Table 6.

Table 6 – Baseline Cost Estimate by Source Funding

Initial New Starts Project Cost	Total FFGA Cost in Year of Expenditure (YOE) Dollars	Federal 5309 New Starts in YOE Dollars	Federal 5307 in YOE Dollars	Federal American Rescue Plan Act (ARPA) in YOE Dollars	Federal Surface Transportation Program (STP) in YOE Dollars	Local in YOE Dollars
10 Guideway & Track Elements	$280,620,726	$106,464,907	$0	$0	$0	$174,155,819
20 Stations, Stops, Terminals, Intermodal	$114,857,016	$43,747,594	$0	$0	$0	$71,109,422
30 Support Facilities, Yards, Shops, Admin. Bldgs.	$94,155,591	$35,721,760	$0	$0	$0	$58,433,831
40 Sitework & Special Conditions	$521,968,989	$197,858,301	$0	$0	$0	$324,110,688
50 Systems	$263,887,313	$100,116,405	$0	$0	$0	$163,770,908
60 ROW, Land, Existing Improvements	$229,600,000	$87,108,116	$0	$0	$0	$142,491,884
70 Vehicles	$212,940,927	$80,787,818	$0	$0	$0	$132,153,109
80 Professionals Services	$571,658,113	$216,881,800	$36,000,000	$0	$0	$318,776,313
90 Unallocated Contingency	$90,535,748	$31,313,299	$0	$0	$0	$59,222,449
100 Finance Charges	$26,805,863	$0	$0	$0	$0	$26,805,863
Total Project Cost (10-100)	**$2,407,030,286**	**$900,000,000**	**$36,000,000**	**$0**	**$0**	**$1,471,030,286**

Source: Maryland Purple Line Project Recovery Plan, dated April 3, 2023.

2.13. Project Schedule

The March 15, 2017 progress update of the master project schedule served as the only approved version of the schedule until September 2022. Numerous submissions of schedule updates from PLTC were not approved for various reasons, but the primary reason was the inability of MTA and the P3 concessionaire to agree on the schedule impacts of the approximately one-year delay in the execution of the FFGA. In response to a letter that FTA issued to MTA in early August 2018 expressing concerns about the amount of time that the project had advanced without an approved schedule, MTA prepared a working schedule update of the master project schedule. The working schedule update was based on the negotiations of the P3 contract schedule occurring at the time, but the update was not based on a mutually agreed-upon P3 contract schedule.

In late April 2020, PLTC notified PLTP that, based on its forecasting of schedule delays on the project (which were not mutually agreed upon), PLTC intended to exercise the clause in its P3 contract with PLTP that allows it to terminate the contract for design and construction services under the P3 contract if delays exceed 365 days. MTA sent a formal request to PLTP for a response that included a definitive path forward for PLTP's intended management of the P3 contract. On May 14, 2020 (the date the response to the formal request was due), PLTP submitted its response, which stated that PLTP intended to continue to negotiate with PLTC to retain PLTC as part of the

P3 concessionaire team. On June 23, 2020, PLTP sent a formal Notice of Unconditional Election to Terminate the P3 Agreement, although PLTP indicated a willingness to negotiate a settlement. On June 24, 2020, MTA sent a Formal Notice of Concessionaire Default. This notice refuted the validity of the PLTP delay claims and stated that if PLTP failed to perform, MTA had a number of options related to the agreement. Through late July 2020, construction activities continued at the level previously planned, and construction progress was not affected.

In early August 2020, PLTC and subcontractors demobilized equipment, materials, and personnel. In response, the Maryland Attorney General filed a motion for a TRO that prevented PLTP from abandoning the work or demobilizing. Upon issuance of the TRO, the contractor and subcontractors remobilized some equipment and restarted many construction activities. A hearing to uphold or rescind the TRO was held on September 14, 2020. The court rescinded the TRO, allowing PLTP to leave the project. Through negotiation, it was determined that PLTP would remain on the project, although PLTC would not.

MTA contracted with numerous subcontractors to continue the project. MTA developed organizational options with respect to construction management, resident engineers, inspectors, and other staff needed to move forward select project activities.

It was certain that the project schedule as reflected in the FFGA would be negatively affected, and a Recovery Plan for the project, including a revised project schedule with adequate schedule contingency to address remaining project risks, would be required. MTA submitted its draft IRP to FTA in December 2020, and FTA approved the IRP on January 12, 2021. A schedule for the period during which the D-B contractor was to be replaced was developed, and MTA monitored project progress against the schedule.

PLTP and MTA continued to coordinate during the financial process and State of Maryland approvals for the replacement D-B contractor. In addition, MTA successfully coordinated other key issues that needed to be resolved before PLTP could execute the contract with MTS.

The following is a summary of IRP milestones:

- January 6, 2021 – PLTP issued a Request for Qualifications (RFQ) for replacement D-B contractors.
- March 8, 2021 – PLTP issued an RFP to the short list of replacement D-B contractors based on the RFQ.
- October 15, 2021 – PLTP received RFP responses.
- November 5, 2021 – PLTP and MDOT/MTA selected the replacement D-B contractor firm (MTS).
- January 26, 2022 – BPW approved the replacement D-B contractor, contract amendments, schedule, cost, and financing.
- April 11, 2022 – Private activity bonds went to market.
- September 12, 2022 – MTA approved the Initial Baseline Schedule (IBS).

- October 14, 2022 – MTS was required to have commenced action on the 11 critical elements that are specified in the D-B contract. At the December 2022 PMOC meeting, MTA confirmed that MTS missed the 180-day window to commence action on 3 of the 11 critical elements.
- October 28, 2022 – MTA was required to have submitted a draft FRP to FTA and the PMOC for review and comment. On October 4, 2022, MTA submitted the draft FRP to FTA and the PMOC for review.

A milestone not specifically mentioned in the IRP is the requirement to extend the current RSD. The PMOC therefore added the following milestone to this list:

- December 31, 2022 – The RSD in the original FFGA is December 31, 2022. MTA requested an extension to the current RSD identified in the original FFGA. FTA has now accepted the FRP, which indicates a revised RSD of February 28, 2028.

The schedule included in the FRP was considered to be the new baseline schedule. The MTS master schedule incorporated the schedule recovery of implementing Maintenance of Traffic and construction activity resequencing, at a cost of $21,343,588, which reduced schedule delays from 218 days to 81 days. These schedule delays are a result of OSF utility adjustments that fell behind schedule. MTS has indicated that delays continued to occur as a result of the MTA-managed OSF work. The second OSF-delay-driven change order, as approved by the BPW in July 2023, added 207 days to MTS's RSA date.

This addition to the RSA date represents a significant use of schedule contingency, which is a concern considering the remaining duration of the project. In an effort to mitigate continuing OSF delays**,** MTA resumed the Tiger Team process (in this case referred to as "Tiger Team 2" to develop schedule alternatives. OSF construction activities were expected to be completed before September 1, 2022, but schedules that MTA previously provided indicated completion of most OSF activities in mid-2023, with some activities continuing up to November 1, 2023. OSF utility relocations that were behind schedule continued to cause impacts to MTS's work, and as of July 2023, delays in OSF activities had driven two change orders. MTA and PLTP have used the Tiger Team process to develop schedule alternatives to mitigate delays driven by OSF work between March 2023 and ***December 2023***. MTS currently forecasts that these OSF-driven delays have resulted in an ***additional 227 days*** of delay.

2.13.1 Key Milestones

Table 7 shows the current key milestone dates for the project for the prior approved (March 15, 2017) progress update of the current master project schedule. Issuance of NTP to PLTP on April 14, 2022, triggered the contract requirement that an MTA-approved MTS IBS for the full project be in place within 120 days of financial close (by August 14, 2022). In January 2022, MTA submitted a draft version of the master schedule for FTA and PMOC review, and FTA and the PMOC transmitted their review comments to MTA in April 2022. MTS submitted its IBS, and on September 12, 2022, MTA approved it. MTS submitted the 120-day mobilization schedule, which MTA also approved.

In August 2022, MTA and the PMOC discussed the current state of the baseline schedule, particularly the inclusion of adequate float to address schedule risk. The P65 date that MTA proposed before the risk workshop held in May 2022 included approximately seven months of float and an RSA date in October 2026. After MTA performed the Quantitative Risk Analysis for the updated RCMP, MTA added additional float to address known and unknown schedule risk. The RSD proposed in the FRP is February 28, 2028, and the master schedule dated ***December 1, 2023,*** indicates that only six months of schedule float remain.

The PMOC recommends that MTA closely monitor schedule contingency and the corresponding budget contingency when evaluating the RSA date/RSD and the EAC that have been incorporated into the FRP. The information in Table 7 will be updated once the schedule reviews and approvals are complete.

Table 7 – Key Milestone Dates

Activity	**Prior Approved Master Project Schedule (March 15, 2017)**	**MTA Master Schedule (*December 1, 2023*) (working schedule)**
Locally Preferred Alternative Approval Date	08/04/2009 (A)[1]	---
FTA Approval to Enter Preliminary Engineering	10/07/2011 (A)	---
FTA ROD	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 through 03/02/2016 (A)	---
BPW Approval of P3	04/06/2016 (A)	---
P3 Commercial Close	04/07/2016 (A)	---
Limited NTP for P3 Engineering	04/07/2016 (A)	---
MTA Submit FFGA Application	05/24/2016 (A)	---
P3 Financial Close	06/17/2016 (A)	---
FFGA Signed	08/22/2017 (A)	---
Start of First Major Construction Activity	08/28/2017 (A)	---
All Significant ROW Acquisition and Relocation	As needed by construction	---
Commencement of Contract Work for Replacement D-B Contractor (MTS)	---	04/14/2022 (A)
Commencement of Integration Testing	---	07/28/2025
All Segments Complete Construction (with Contingency)	---	02/19/2027
RSA Date per P3 Amendment (with Contingency)	---	***09/02/2027***

Activity	Prior Approved Master Project Schedule (March 15, 2017)	MTA Master Schedule (*December 1, 2023*) (working schedule)
FFGA RSD (Includes Contingency)	12/31/2022	02/28/2028

[1] A = Actual.

2.13.2 90-day Look-ahead

The critical 90-day (***January 2024 through March 2024***) look-ahead includes activities that MTA highlighted in the recent monthly meeting with the PMOC. MTA and MTS also are preparing four-week look-ahead schedules to manage interim activities. Key activities that MTA has identified for the short term are:

- ***Completion of Tiger Team 2 activities and settlement of disputes related to OSF delays and impacts on MTS's schedule/cost.***
- ***Completion of the bottom-up Quantitative Risk Analysis and revised recommendations for schedule and cost contingencies.***
- Retaining wall, OCS foundation, and bridge structure construction in multiple locations.
- Water, sanitary sewer, and storm sewer construction in multiple locations.
- Station construction at 12 locations.
- OCS installation.
- TPSS installation and commissioning, including installation of Q01 in Bethesda.
- MTA's closeout of Glenridge OMF punch lists and turnover of the facility to MTS.
- Track subgrade preparation and track construction.
- Preparations for LRV deliveries at the Glenridge OMF.
- Assembly of the two additional LRVs (127 and 128).

2.13.3 Critical Path Activities

In the MTA master schedule update dated ***December 1, 2023***, the critical path runs through the activities ***in Segment 3 utilities and track (see Attachment G, Project Map),*** and then trial running and systems integration/testing.

2.14 Project Risk

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

During the approximately one-year period during 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 Quantitative Risk Analyses, or perform formal updates of the Risk Register. However, the Purple Line project management team did assess and respond to the risks associated with the unforeseen chain of events related to the lawsuit.

The project team resumed formal Risk Management Committee 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 in draft form in January 2018, and was updated further and reissued in March 2018. As an ongoing process, MTA currently is performing updates of the Risk Register periodically, though somewhat less frequently than bimonthly (the frequency established in its RCMP). The current status of the RCMP is discussed in the **Project Management Plan and Sub-plans** section of this report, above.

MTA provides copies of significant updates of the Risk Register to FTA and the 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; the project's top five project risks are included as Attachment B of this report and are updated quarterly. A risk management workshop was held on January 26, 2021, at which the PMOC and FTA participated. The workshop focused on the resolicitation period for the replacement D-B contractor (January through October 2021).

Once the replacement D-B contractor was under contract, risk updates were prepared. The project held a risk workshop the week of May 2, 2022, at which the PMOC and FTA participated in an OP 40 risk and contingency review that evaluated cost, schedule, and project contingency. Confirmation and finalization of the Risk Register, the Quantitative Risk Analysis, and an update of the RCMP are components of the FRP. FTA provided a summary of the risk workshop to MTA on June 22, 2022, for MTA's consideration and incorporation into its management plans and contingency evaluation. MTA provided responses to FTA comments on the risk workshop summary on July 15, 2022, and clarification on August 25, 2022. In October 2022, MTA submitted RCMP Version 15 to FTA and the PMOC for review. In February 2023, FTA and the PMOC provided comments on RCMP Version 15 to support MTA's development of the project's budget contingency and schedule contingency. On April 21, 2023, MTA provided a revised RCMP to FTA and the PMOC for review, and on May 22, 2023, FTA accepted the revised RCMP with comment. In June 2023, MTA held its quarterly Risk Management Committee meeting, at which it updated the Risk Register to reflect retired and new risk items. Five of the seven new risk items are related to disputes with MTS. Two significant risks were added to the Risk Register—one related to numerous design changes that occurred during OSF but were not reflected in the amended P3 Agreement and one related to a very specific intelligent interface device.

On November 20, 2023, MTA held its quarterly Risk Management Committee meeting. During the meeting, MTA identified the top four project risks that have a risk rating of "Significant":

1. Construction – Exhibit 24 Utility Adjustments
2. Design – TCE Extensions
3. Design – Design Changes

4. Design – Intelligent Interface Device

As a follow-up to the Risk Management Committee meeting, MTA will complete a Quantitative Risk Analysis, re-baseline the project contingency drawdown curves, and update the RCMP.

2.15 Quality Assurance/Quality Control

The project's QA/QC is addressed in Section 10 of the PMP, the Quality Program Plan, and the updated MTA QAP Revision 8.0, which incorporates the quality plans prepared by PLTC. The **Project Management Plan and Sub-plans** section of this report, above, discusses the most current versions of the PMP and the QAP. MTA also submitted to FTA the package of inter-related quality plans prepared by the P3 concessionaire after the package was reviewed and approved by MTA.

MTA obtained and used PLTP's quality logs and other applicable documents and procedures during the transition to the replacement D-B contractor. Several former subcontractors were under contract with MTA and conducted QA/QC activities during the replacement D-B contractor solicitation period. The budget to address nonconforming construction by PLTC remains a concern as of July 2023. MTA incorporated known defects into the MTS contract; however, MTA has not clarified the specific budget that will be used to rectify defects found since the contract with MTS was executed. MTA estimates that the potential magnitude of this budget impact will be no more than $10 million, and the current Risk Register carries this risk item.

In October 2022, MTA submitted QAP Version 10 to FTA and the PMOC for review, and on March 8, 2023, FTA provided review comments on the QAP to MTA. MTA provided a revised QAP to FTA and the PMOC in May 2023.

The project has continued to conduct its monthly meeting to review the QA/QC activities performed by the Purple Line project team, including those activities performed by the PMC and the GEC. Documentation from this meeting is distributed and maintained. The project's Monthly Progress Report to FTA also contains a summary of the significant current QA/QC activities and events, including quality audits and quality reviews.

In November 2023, quality management topics included field inspections, equipment testing inspections, design submittal reviews, records spot checks, approval of MTS's quality management plans, MTS offsite inspections at fabrication locations, and planning of the monthly QC meetings. ***As of the completion of OSF activities in November 2023, MTA's role in the quality process is now fully that of oversight.***

In November 2021, MTA's quality lead for the Purple Line project, Rene Schroeder, retired. Roland Carroll, the Purple Line systems and construction safety lead, added the quality lead role to his other Purple Line roles. In February 2022, MTA provided a white paper outlining Mr. Carroll's experience, his recent training, and the proposed supporting staff related to his new quality management role. The PMOC evaluated this change as a part of the PMP review and will continue to monitor MTA's management capacity for this function and all positions through ongoing oversight activities.

The PMOC has requested that MTA provide more complete documentation for quality-related activities. MTA modified the QAP to reflect many of the noted PMOC concerns. In addition, a technical work session with MTA and the PMOC to discuss outstanding issues related to the QAP was held September 20, 2023. The PMOC has since recommended acceptance of the QAP contingent upon MTA's incorporation of outstanding items into the next regularly scheduled annual update. On October 6, 2023, FTA accepted the QAP provided that MTA incorporate the PMOC recommendations. MTA has also developed a quality dashboard to improve its tracking of quality issues.

2.16 Safety and Security

PLTP has conducted 44 Preliminary Hazards Analysis (PHA) workshop sessions to date. These workshops were held to resolve MTA's comments on the PHAs completed to date.

To support the ultimate Safety and Security Certification of the Purple Line project, the PLTP System Safety team completed development of its first DCCC in May 2017 and submitted it to MTA for approval. MTA (assisted by the PMC) reviews the DCCCs as part of the Final Design package, according to the established submittal review process. According to PLTP, the DCCCs were being verified before the issuance of RFC packages. To date, an estimated ***99 percent*** of the DCCCs have been verified. All previous comments on PLTP's Certified Elements List (CEL), which includes operations and maintenance and system integration testing elements, have been resolved, and CEL Revision 2 was accepted in March 2020. The Certified Items List (CIL) Revision 1 has been accepted. The next revision of the CIL is expected after MTS completes the design. MTA will provide the revised CIL to FTA and the PMOC as soon as it is completed. Approximately ***18 percent*** of the CSCCs have been verified to date.

MTA chairs a Safety and Security Certification Committee (SSCC) that reviews, comments on, and approves any PLTP hazard management and safety and security certification issues. The first meeting of the MTA SSCC was conducted on March 20, 2018. Since July 11, 2018, the SSCC meeting has been held regularly and will continue as a monthly meeting until the level of activity requires more frequent meetings. ***As of December 2023,*** monthly SSCC meetings continue.

PLTC submitted a Threat and Vulnerability Assessment, and on July 15, 2019, MTA accepted and verified the comment responses and approved PLTC's Threat and Vulnerability Assessment. PLTC then completed its Threat and Vulnerability Assessment process.

MTA continues to conduct bimonthly Fire/Life Safety meetings with Montgomery County and Prince George's County. The meetings provide a basis for the counties' emergency responders to understand the features of the Purple Line systems and to resolve any concerns. Topics of discussion include: Police Department MOUs; Fire Department connection and hydrant locations; access, signage, and station naming conventions; MOUs for training; the PHA at the Glenridge OMF maintenance gate; station names; and addresses/emergency phone numbers for locations along the corridor. Other topics of discussion have included closed circuit television cameras and Mobile Emergency Vehicle Response access. It is the opinion of the PMOC that MTA should emphasize resolving the project's outstanding Fire/Life Safety issues, because progress on the resolution of these issues is not apparent.

MTA police continue coordinating MOUs with local safety agencies and developing MOUs with police jurisdictions (such as the Maryland National Capital Park Police) along the Purple Line. These MOUs are related to training the existing police agencies on how to respond to transit situations. During August 2023, the PMOC reiterated that these processes have been ongoing for several years and that milestones for resolution of issues should be established.

During the September 2022 MTA/PMOC meeting, a larger related issue was discussed at length. The SSOA staff participated in this discussion as well. The crux of the issue is that MTA does not have a police force located in proximity to the Purple Line. MTA hired a consultant team to analyze alternatives for providing security and fare enforcement services for the Purple Line. Alternatives included: expanding MTA's enforcement services geographically, bringing on a third party to provide these services through a contract, or sharing police services with another party. On February 23, 2023, MTA submitted its prepared draft recommendation for providing security and fare enforcement to several State of Maryland departments. Representatives from MDOT, which is the SSOA, who are monitoring the Purple Line project development provided comments on the draft recommendation before MTA submitted it to MTA's upper management and the several state departments. In late April 2023, MTA provided FTA with the alternatives study for review. The study indicates that the preferred alternative is the development of a new Southern District of the MTA Police Department and recommends several next steps toward implementation of the new district, including hiring a commander, developing operating procedures, working on MOUs with other local jurisdictions, and developing a facility to house the district. The PMOC continues to recommend that MTA develop a written implementation plan that includes schedule milestones and a budget for providing security and fare enforcement services.

As required by the P3 contract, PLTP was responsible for directly implementing many of the safety and security requirements for the project, including those for construction safety and the collection and maintenance of the Occupational Safety and Health Administration (OSHA) safety statistics for the project. PLTC performed this work until its departure from the project, at which time MTA assumed responsibility. Later, once the replacement D-B contractor was in place, MTS transitioned into the safety and security role that PLTC held. MTS and MTA are holding regular safety and security coordination meetings.

Safety is a PMOC concern. The rate of recordable incidents remains above project goals, and MTA appears to be having difficulties with incident documentation. For the period from January 1, 2022, through ***November 2023***, the OSHA statistics are:

- TCIR (Total Case Incident Rate) (Recordable Rate) – MTS and OSF activities:
  - Actual: ***3.28/5.37*** (MTS/OSF)
  - MTS goal: 1.68
  - National average: 2.8 (for heavy civil construction)
- LTIR (Lost Time Injury Rate) (Recordable Rate) – MTS and OSF activities:
  - Actual: ***3.28/5.37*** (MTS/OSF)

- MTS goal: 0.64
- National average: 0.9 (Construction – heavy civil)

MTA had assumed responsibility for safety oversight until MTS assumed control of the project. As of December 2022, MTA reported that MTS needs coaching on expectations for the required reporting of safety statistics. In April 2023, the PMOC noted to MTA that both the LTIR and the TCIR have significantly increased, particularly for the MTA-managed OSF activities. In addition to the increase in incident rates, there is an apparent lack of tracking and reporting of safety issues. The PMOC has repeatedly noted that there are inconsistencies in incident reporting between MTA and MTS.

MTA states that it recognizes the issue and reports that it has scheduled additional safety coordination efforts. In May 2023, the PMOC requested documentation on these additional efforts, and in July 2023, the PMOC questioned the effectiveness of the efforts. MTA acknowledges the need for safety process improvement. In November 2023, MTA stated that MTS has replaced its safety director and has added safety staff, although MTA did not review the qualifications of the new director or staff. The PMOC recommended that MTA review the qualifications of MTS safety staff and the safety processes and procedures being followed on the project.

The PMOC recommends that MTA and MTS complete a safety process review as soon as practical and that MTA prepare a written summary. In November 2023, MTA's safety director, Roland Carroll, provided an email and attachment that briefly summarized the safety improvement actions. The document does not indicate target dates for implementation, nor the responsible party for these actions. In the opinion of the PMOC, the project may lack emphasis on safety or there may be a lack of safety-related MCC. It remains the opinion of the PMOC that MTA's processes related to construction safety need significant improvement. ***The PMOC recommends that MTA dedicate additional resources to construction safety (i.e., resources dedicated to only the construction portion of the Purple Line project). MTA should prepare a comprehensive monthly safety report under the direct supervision of the Senior Project Director.***

In late October 2022, MTA submitted updated SSMP and SSCP documents in conjunction with the updated PMP. On February 13, 2023, and March 8, 2023, FTA provided review comments to MTA on the SSMP and SSCP, respectively. MTA submitted a revised SSMP to FTA on June 28, 2023, and submitted a revised SSCP on August 28, 2023. FTA approved the SSMP in August 2023, ***and accepted the SSCP on December 28, 2023.***

See the **Project Management Plan and Sub-plans** section of this report, above, for the status of the sub-plans of the PMP related to safety and security.

2.17 Americans with Disabilities Act

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

Accessibility and compliance with the ADA are required as part of the functional requirements for stations and guideway, and as part of the codes and standards for LRVs within the P3 contract (Book 2, Part 2) for the Purple Line project. Based on project reviews conducted by the PMOC, MTA has confirmed that it included ADA compliance in its QA oversight reviews of PLTC's design packages. A full-time Purple Line project Maintenance of Traffic construction representative also monitors whether temporary pedestrian accommodations during construction continue to comply with ADA requirements. ADA compliance is included in the PMOC's periodic project reviews, during which the PMOC discusses timely project ADA-related items with the project team. Such discussions during the PMOC's most recent reviews identified no current ADA-related issues.

MTA indicates that the project is maintaining ADA accessibility along the project corridor during construction. In addition to planning for ADA accessibility, MTA and MTS respond to public concerns due to construction activities and temporary accessibility features**.**

2.18 Buy America

MTA understands that Buy America compliance applies not only to the rail vehicles but also to the 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 regulations is contained in MTA's standard clauses for its procurements, and the P3 contract contains explicit Buy America language in its Appendix 16.

Virginkar and Associates, Inc. conducted the Buy America pre-award audit and concluded that there is reasonable certainty that CAF will satisfy the Buy America requirements as stated in 49 Code of Federal Regulations (CFR) 661. MTA's interpretation is that, because the vehicle RFP was advertised before December 4, 2015 (which is the date of passage of the Fixing America's Surface Transportation Act, also known as the FAST Act), the 49 CFR 661 Public Interest Waiver that limits domestic content to a minimum of 60 percent, as opposed to the escalating domestic content requirements of the FAST Act, applies in this case. During the week of October 2, 2017, an intermediate post-award Buy America audit was conducted of CAF's facility in Elmira, New York, for added confidence that the post-delivery audit would not identify issues. CAF targeted 65 percent domestic content in the completed LRVs.

The project's Buy America compliance audit for the LRVs was conducted on November 14, 2022. In January 2023, CAF provided additional documentation requested to assist with evaluation of Buy America compliance. On August 17, 2023, MTA provided the Post-delivery Buy America Audit, dated April 21, 2023, to FTA. On that same day, MDOT also provided the Certificate of Compliance to FTA for the Post-delivery Audit of Rolling Stock Purchases. The audit indicates that the percentage of U.S. domestic content of the LRVs is 66.74 percent, which meets FTA requirements.

2.19 Start-up, Commissioning, Testing

MTA has begun documentation for the "Roadmap to Revenue Operations" ***(see Attachment F),*** which includes both MTA and MTS information on integration, testing, and commissioning. MTS

indicates that it is preparing a System Integration Test Plan. As of November 21, 2023, MTA has developed a process for managing testing submittals and reviews, including detailed tracking of open items. MTS will deliver its full integration and testing plan in May 2024. MTA has not yet contracted with an Independent Integration Engineer to oversee the integration and testing process.

As of December 2023, MTA indicates that MTS has prepared a preliminary certification schedule. The PMOC recommends that MTA incorporate activities and milestones for integration and testing into the master schedule.

2.20 Before-and-After Study Reporting

To be determined.

2.21 Lessons Learned

The resolicitation of a D-B contractor gave MTA the opportunity to apply several lessons learned to the new D-B contract documents and to amend the P3 agreement. After the May 2022 risk workshop with MTA and the PMOC, MTA provided an update on opportunities for improvement that MTA had identified during the resolicitation and is incorporating into the project. MTA and the PMOC will include discussion of lessons learned at future monthly meetings. MTA indicates that it has prepared an initial Lessons Learned summary but is currently revising the document to include information from the MTA-managed OSF activities. MTA will provide this summary when it is complete.

2.22 Action Items

Action Items are identified at MTA/FTA Quarterly Progress Review Meetings, at MTA/PMOC Monthly Update Meetings, and at MTA/FTA Biweekly New Starts Progress Conference Calls. Action Items in ***December 2023*** are as follows:

1. MTA will provide updates to the OSF EAC. – OPEN
2. MTA will provide clarification of the difference in safety incident reporting between MTA and MTS. – OPEN
3. MTA will provide initial Lessons Learned documentation. – OPEN
4. MTA will provide the expected date that the written plan, budget, and schedule for development of police and fare enforcement services will be ready. – OPEN
5. MTA will share the results of its internal Risk Review in January 2024. – OPEN
6. ***MTA will provide an update on the M33 bolt root cause analysis. – OPEN***
7. ***MTA will review the MTS expenditures for November 2023 to determine whether the month-to-month decrease from October was caused by anything other than the Thanksgiving holiday. – OPEN***
8. ***MTA will provide an organizational chart reflecting recent PMC staff changes. – OPEN***
9. ***MTA will provide information on the December 2023 partnering session. - OPEN***

10. MTA will provide the Tiger Team 2 results, the schedule and cost impacts related to OSF delays, and the Quantitative Risk Analysis, including revised cost and schedule contingencies.

11. MTA will provide the preliminary System Integration and Testing plan.

ATTACHMENT A – LIST OF ACRONYMS

ADA	Americans with Disabilities Act
ARPA	American Rescue Plan Act
ATC	Alternate Technical Concept
BFMP	Bus Fleet Management Plan
BPW	Board of Public Works
CAF	Construcciones y Auxiliar de Ferrocarriles
CEL	Certified Elements List
CFR	Code of Federal Regulations
CIL	Certified Items List
CSCC	Construction Specification Conformance Checklist
CSX	CSX Corporation
D-B	Design-Build
DBE	Disadvantaged Business Enterprise
DCCC	Design Criteria Conformance Checklist
DNR	Maryland Department of Natural Resources
EAC	Estimate at Completion
FAI	First Article Inspection
FCP	Forest Conservation Plan
FFGA	Full Funding Grant Agreement
FRP	Final Recovery Plan
FTA	Federal Transit Administration
GEC	General Engineering Consultant
IBS	Initial Baseline Schedule
IRP	Interim Recovery Plan
LOD	Limits of Disturbance
LRT	Light Rail Transit
LRV	Light Rail Vehicle
LTIR	Lost Time Injury Rate
MCC	Management Capacity and Capability
MDE	Maryland Department of the Environment
MDOT	Maryland Department of Transportation
MOU	Memorandum of Understanding
MTA	Maryland Transit Administration
MTS	Maryland Transit Solutions
N/A	Not Applicable
NEPA	National Environmental Policy Act
NTP	Notice to Proceed
O&M	Operations and Maintenance
OCS	Overhead Contact System
OHA	Operational Hazard Analysis
OMF	Operation and Maintenance Facility
OP	Oversight Procedure
OSF	Operation Step Forward
OSHA	Occupational Safety and Health Administration
P3	Public-Private Partnership
PEPCO	Potomac Electric Power Company
PHA	Preliminary Hazards Analysis
PLTC	Purple Line Transit Constructors
PLTP	Purple Line Transit Partners
PMC	Project Management Consultant
PMOC	Project Management Oversight Contractor
PMP	Project Management Plan
QA/QC	Quality Assurance/Quality Control
QAP	Quality Assurance Plan
RAMP	Real Estate Acquisition Management Plan

RCMP	Risk and Contingency Management Plan
RFC	Released for Construction
RFP	Request for Proposals
RFQ	Request for Qualifications
ROD	Record of Decision
ROE	Right of Entry
ROW	Right-of-Way
RSA	Revenue Service Availability
RSD	Revenue Service Date
SCC	Standard Cost Category
SCIL	Safety Certifiable Item List
SEIS	Supplemental Environmental Impact Statement
SIT	Systems Integration Test
SOP	Standard Operating Procedure
SSCC	Safety and Security Certification Committee
SSCP	Safety and Security Certification Plan
SSCVR	Safety and Security Certification Verification Report
SSMP	Safety and Security Management Plan
SSOA	State Safety Oversight Agency
SSTC	Silver Spring Transit Center
STP	Surface Transportation Program
SWM	Stormwater Management
TBD	To Be Determined
TCE	Temporary Construction Easement
TCIR	Total Case Incident Rate
TDD	Transit Development and Delivery
TIFIA	Transportation Infrastructure Finance and Innovation Act
TPSS	Traction Power Substation
TRO	Temporary Restraining Order
TVA	Threat and Vulnerability Analysis
UMD	University of Maryland
USACE	U.S. Army Corps of Engineers
WMATA	Washington Metropolitan Area Transit Authority
WSSC	Washington Suburban Sanitary Commission
YOE	Year of Expenditure

ATTACHMENT B – TOP PROJECT RISKS

An internal risk workshop to support the Interim Recovery Plan (IRP) was held on January 26, 2021. Maryland Transit Administration (MTA) and Purple Line Transit Partners (PLTP) used information from the meeting as they solicited a replacement Design-Build (D-B) contractor.

A risk workshop was held May 3 through May 5, 2022. After the risk workshop, MTA prepared supplementary or updated documents for review, including an updated Risk Register. FTA provided a risk summary to MTA on June 22, 2022, for MTA's consideration when updating risk, contingency, and other project management plans. MTA incorporated the FTA comments in the revised Risk and Contingency Management Plan (RCMP) that is a part of the Final Recovery Plan. On May 22, 2023, FTA accepted the revised RCMP with conditions.

During the November 8, 2023 Quarterly Progress Review Meeting, MTA presented cost and schedule contingency drawdown curves that indicated significant commitment of contingency reserves. Due to this significant commitment of contingency and the recent completion of the MTA-managed OSF activities, MTA determined that an update to the Risk Register was warranted.

On November 20, 2023, MTA held its quarterly Risk Management Committee meeting. During the meeting, MTA identified the top four project risks that have a risk rating of "Significant":

1. Construction – Exhibit 24 Utility Adjustments
2. Design – Temporary Construction Easement Extensions
3. Design – Design Changes
4. Design – Intelligent Interface Device

As a follow-up to the Risk Management Committee meeting, MTA will complete a Quantitative Risk Analysis, re-baseline the project's contingency drawdown curves, and update the RCMP.

ATTACHMENT C – AWARDED CONTRACTS

Included below is information that MTA prepared for the November 8, 2023 Quarterly Progress Review Meeting packet. Please note that the total shown in this table for contracts awarded does not reflect the full project value.

Major Contracts:

Company	Vendor Type	Contract No.	Baseline Amount	Change Order Totals	Current Amount	Pending Change Orders
PB/RK&K	Engineers/ Architects	MTA-1054A	$ 12,000	$ 1,850	$ 13,850	
STV/Jacobs	Engineers/ Architects	MTA-1054B	$ 8,000	$ 1,300	$ 9,300	
AECOM/ RK&K/PB	Engineers/ Architects	MTA-1264A	$ 60,000	$ 338,500	$ 398,500	
Gannett Fleming/WRA	Engineers/ Architects	MTA-1265B	$ 80,000	$ 71,000	$ 151,000	
Purple Line Transit Partners	P3 Concession (design build portion only)	PUR16032PP	$ 1,988,816	$ 1,692,228	$ 3,681,044	
Total			**$ 2,148,816**	**$ 2,104,878**	**$ 4,253,694**	**0**

Reason for Change: *Amendment 6 to the Purple Line Transit Partners P3A was not been previously reflected. The amount shown as "Current Amount" represents that portion of the P3A Design-Build contract associated with the New Starts Program.*

ATTACHMENT D – ROLLING STOCK VEHICLE STATUS REPORT

Date: December 30, 2023

Vendor: Construcciones y Auxiliar de Ferrocarriles (CAF)

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

Year: The first vehicle was completed in 2021, and currently 26 vehicles are designated as "Ready for Shipment." Completion of the storage and testing facilities at the Glenridge Operation and Maintenance Facility (OMF) has been delayed, so Maryland Transit Administration (MTA) and CAF negotiated terms for storage of vehicles at the CAF facility in Elmira, New York. The storage agreement has now transferred to the replacement Design-Build (D-B) contractor, Maryland Transit Solutions (MTS).

Quantity: 25 vehicles (125 cars) original contract (Full Funding Grant Agreement [FFGA]). One vehicle (5 cars) was added to the original CAF authorization by MTA, outside of the FFGA.

Two vehicles (ten cars) were added in July 2021 via change order, also outside of the FFGA.

Identification: The original light rail vehicles (LRVs) will be numbered from 101 through 126. The two additional LRVs will be numbered 127 and 128, respectively.

New Technologies: None planned (all major suppliers have service-proven equipment).

Status and Significant Activities:

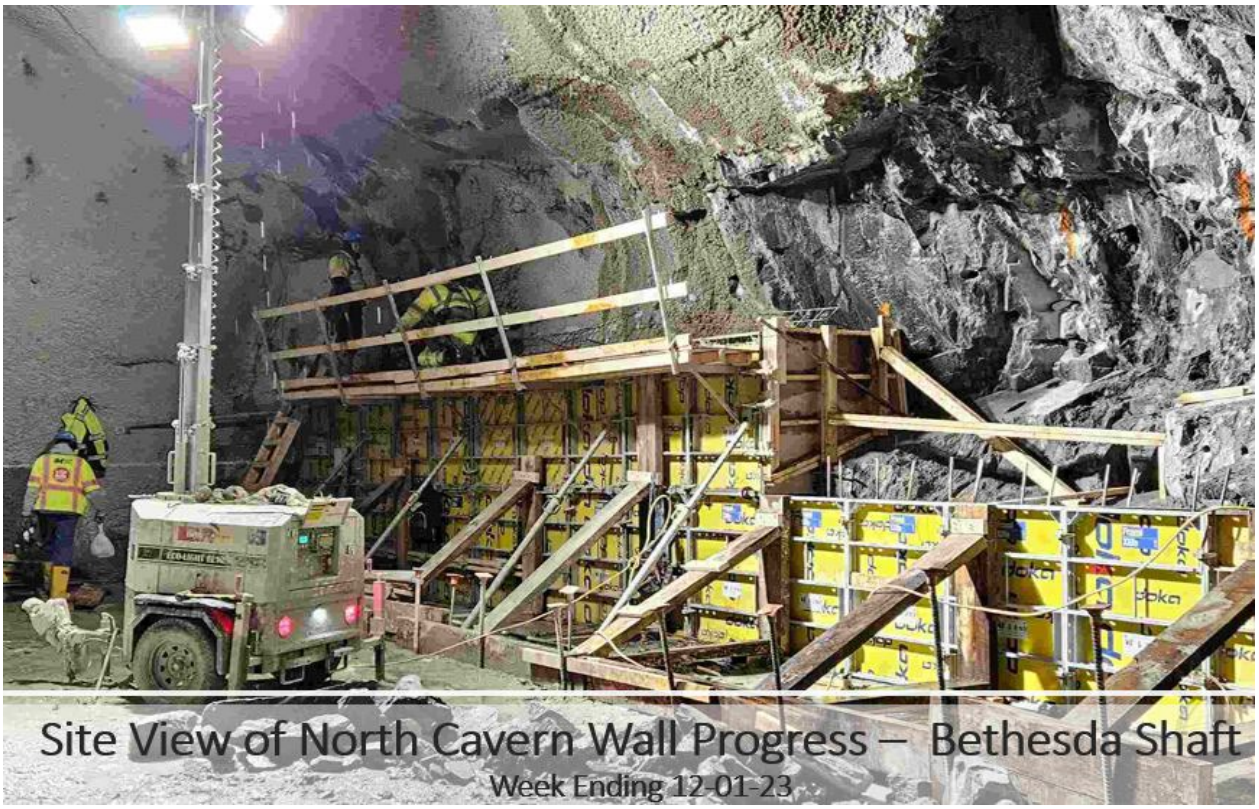
- As a part of the original order, 130 cars were assembled in Spain, all of which were delivered to CAF's facility in Elmira, New York, for final assembly and static testing. Manufacture of the additional two vehicles (ten cars) in Spain is complete. All ten of those cars have been delivered to Elmira for final assembly and static testing.
- Delivery of finished vehicles was expected to begin in spring 2021; however, because the Glenridge OMF is not ready to accept railcars, MTA and CAF have negotiated an agreement for CAF to store the completed cars in Elmira.
- Cost risk for delivery of the finished vehicles has been transferred to MTS. If delays in construction cause a delay, then MTS is responsible to CAF for additional storage cost.
- Twenty-six LRVs have passed static testing, have been designated as Ready for Shipment, and have been placed into storage in Elmira. These include vehicle 110, which was returned to Ready for Shipment status after a second period in static testing.
- Delivery of the first of the original 26 vehicles is currently scheduled for early 2024. Approximately one vehicle per week will be delivered thereafter. The Glenridge OMF

will be able to store three or four vehicles on the yard and in the building, so track must be available for additional storage. The Overhead Contact System and Traction Power Substation (TPSS) Q7 and TPSS QYG must also be completed and installed before delivery of vehicles.

- SNC-Lavalin (now an MTS subcontractor) prepares a monthly quality report documenting safety, production, and quality items at both the Spain and New York production facilities.
- MTA, the Project Management Consultant, and CAF are holding weekly coordination meetings to review all outstanding testing and factory/shop activities, including onsite testing procedures for when the vehicles are delivered to Maryland.
- MTS, which has assumed the CAF contract, is preparing and submitting to MTA reports on LRV maintenance activities required during the storage period.
- The project's Buy America compliance audit for the LRVs was conducted on November 14, 2022. In January 2023, CAF provided additional documentation requested to assist with the evaluation of Buy America compliance. On August 17, 2023, MTA provided the Post-delivery Buy America Audit, dated April 21, 2023, to Federal Transit Administration (FTA). On that same day, Maryland Department of Transportation also provided the Certificate of Compliance to FTA for the Post-delivery Audit of Rolling Stock Purchases. The audit indicates that the percentage of U.S. domestic content of the LRVs is 66.74 percent, which meets FTA requirements.
- The resolution of the previously identified quality issue related to the M33 bolt on the LRVs, and the associated final report, was expected in May 2023. MTA determined that the issue does not impact safety and the solution is likely the use of a higher strength bolt. The effort to resolve the issue included investigation to determine whether a bolt failure would cause debris to fall on the track. As of September 2023, CAF had identified additional occurrences of the M33 bolt issue. ***As of December 2023, the truck manufacturer in Germany is performing additional tests.*** related to the M33 bolt on the LRV trucks ***is not resolved as of December 2023. Additional failures have occurred, and the truck manufacturer in Germany is performing additional tests. MTA previously indicated that a Root Cause Analysis (RCA) will be performed for this issue. In the PMOC's opinion, the RCA is prudent, in addition to development of corrective actions. The PMOC recommends that the quality process also be included in the RCA, along with design, fabrication, and assembly processes.*** CAF does not believe the issue will impact delivery of the vehicles, which is scheduled for spring 2024.

ATTACHMENT E – PROJECT MILESTONES/KEY EVENTS

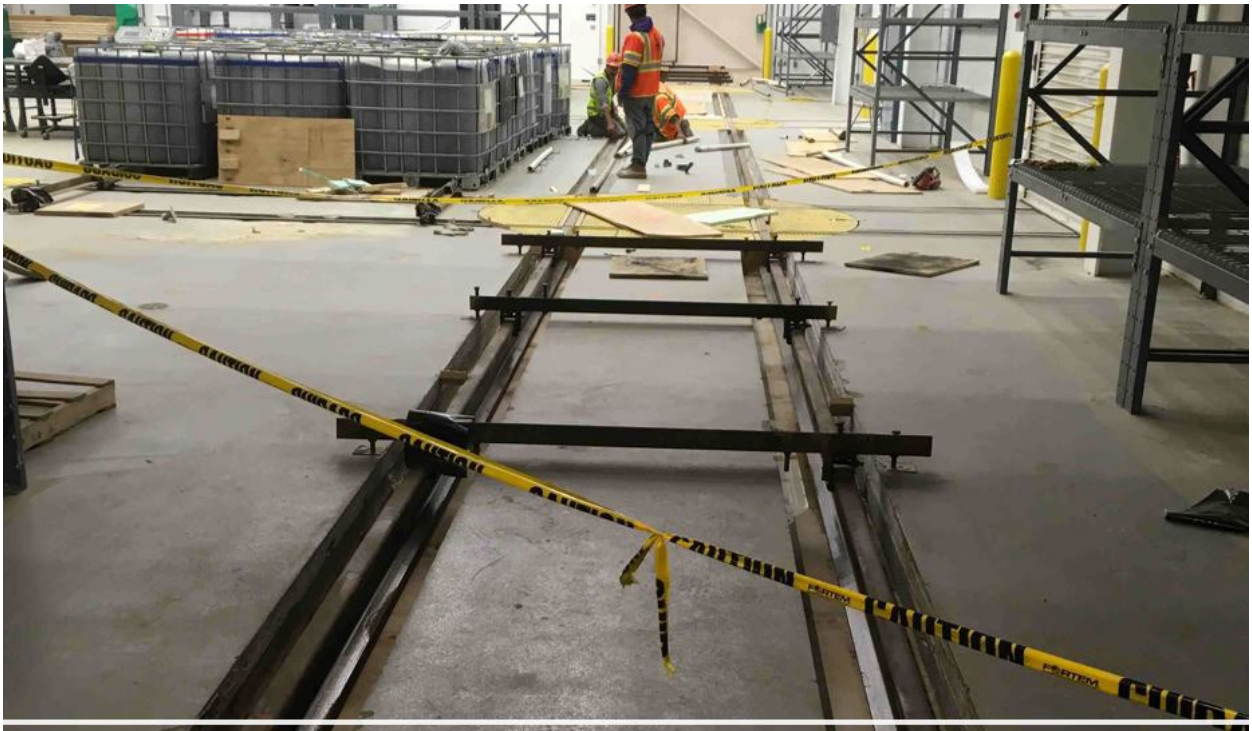
Photos courtesy of Maryland Transit Administration.



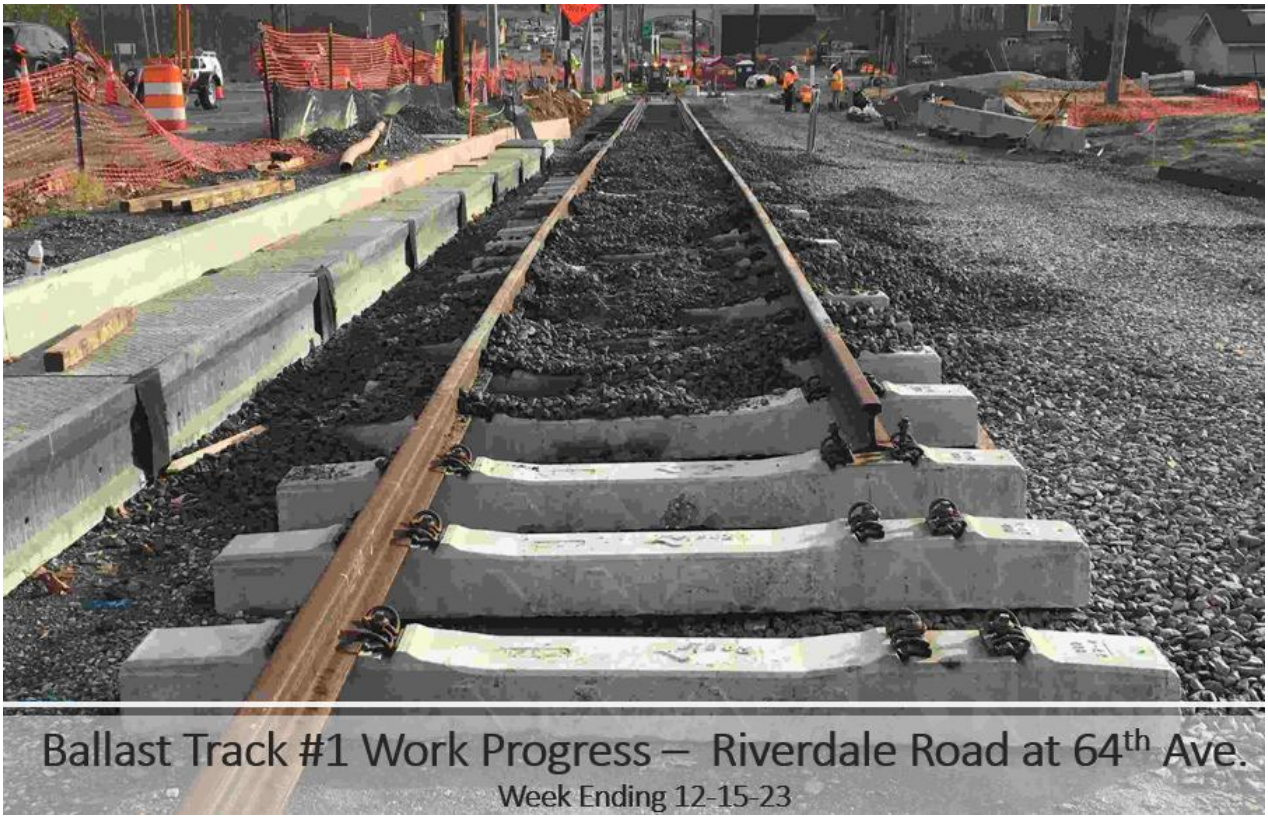




S01 CCT Pedestrian Bridge Deck Pan Installation Work – Bethesda
Week Ending 12-08-23



MOW Track Prep for Grout Installation Work – Glenridge OMF
Week Ending 12-08-23



Ballast Track #1 Work Progress – Riverdale Road at 64th Ave.
Week Ending 12-15-23



HMA Placement Work Progress – Arliss Street
Week Ending 12-15-23



Wall 1-045 Backfilling Work – GBT at Chevy Chase Lake Dr.
Week Ending 12-22-23



Site View of S20 LRT Aerial Bridge Progress – Silverspring Transit Center
Week Ending 12-22-23



Slope Stabilization Progress Work – GBT at Rock Creek
Week Ending 12-29-23



Site View of Looking West at Track Progress – Glenridge Yard
Week Ending 12-29-23

ATTACHMENT F – ROADMAP TO REVENUE OPERATIONS

In accordance with Oversight Procedure (OP) 25, the Project Sponsor will prepare the Roadmap to Revenue Operations template based on the current master project schedule, in the general format presented below. The PMOC provided this template to the Project Sponsor as a separate electronic file for its use. MTA provided this quarterly update for the roadmap on November 21, 2023. The Project Sponsor is requested to provide quarterly updates for review and discussion.

ROADMAP TO REVENUE OPERATIONS (MTA provided November 21, 2023)

Description	Responsible Party	Status	Early Start Date	Estimated Completion Date	Actual Completion Date	Agency Notes	PMOC Notes	Additional Information Required
Testing								
Finalize Comprehensive Test Plan	PLTP/MTS/ Sener	See Notes	In Progress	3/31/24		**T & C Management Plan** – Comment Resolution **Project Test Program Plan** – Awaiting Responses **LRV Test Plan** – Accepted **TCS Test Plan** – Local – Comment Resolution **TCS Test Plan** – Integration – Awaiting Submittal **TCS/Traffic/CMS Test Plan** – Awaiting Submittal **TPSS Test Plan** – Accepted **OCS Test Plan** – Awaiting Submittal **Communications Test Plan** – Accepted **CMS Test Plan** – Accepted **Fire & Security Test Plan** – Accepted **Fare System Test Plan** – Awaiting Systems Design **Traffic** – QC with AHJs **EMI Test Plan** – Accepted **CCG Test Plan** – Accepted **Noise & Vibration** – MTS Reviewing **OMIS Test Plan** – TBD by PLTO **Ops Simulator Test Plan** – TBD by PLTO **Trackwork** – Under Study by MTS/Sener **OMFs Test Plan** – Pending Commercial Issues **Station Electrical** – Under Study by MTS/Sener **Fire Protection, Mechanical, Plumbing** – Under Study by MTS/Sener		
Finalize / Update Systems Integration Test (SIT) Plan	PLTP/MTS/ Sener	In Preparation	In Progress	2/29/24		Awaiting update of DRC# 3644, CW-164, Systems Integration Test Plan		
Develop Testing Schedule and Monitoring Tools	PLTP/MTS	In Progress	TBD	TBD				
Develop Operating Rules for Testing	PLTP/MTS	In Preparation	In Progress	2/29/24		MTA has only seen a high-level draft of the Test Operating Rules Table of Content		
Conduct System Integrated Testing - Prioritized Traffic Signal Systems	PLTP/MTS	In Progress	TBD	TBD				
Certificates of Occupancy / Substantial Completion	Maryland Office of the State Fire Marshal	Glenridge OMF – In progress.				As state-owned property, no certificates of occupancy are issued. The AHJ ensures building is safe through various system inspections to include fire protection systems, elevators, etc. AHJ will take no exception to occupancy if inspections pass.		

Description	Responsible Party	Status	Early Start Date	Estimated Completion Date	Actual Completion Date	Agency Notes	PMOC Notes	Additional Information Required
Finalize Operating Plan	PLTP/PLTO	Preliminary Op Plan submitted and approved	TBD	Feb. 2026		Projected start of Trial Running: July 2026 (based on May 2027 RSA date): Intermediate Operating Plan to be submitted for review and approval no less than 18 months prior to Trial Running. Final Operating Plan to be submitted for review and approval no less than 6 months prior to Trial Running		Intermediate Operating Plan to be submitted for review and approval no less than 18 months prior to Trial Running. Final Operating Plan to be submitted for review and approval no less than 6 months prior to Trial Running
Finalize / Revise Standard Operating Procedures (SOPs), manuals, and rulebook as applicable	PLTP/PLTO	See Note	TBD	Feb. 2026		Included as part of the Operating Plan. Projected start of Trial Running: July 2026 (based on May 2027 RSA date): : Intermediate Operating Plan to be submitted for review and approval no less than 18 months prior to Trial Running. Final Operating Plan to be submitted for review and approval no less than 6 months prior to Trial Running. Revisions to operating/maintenance/emergency rules/procedures may occur during the testing and commissioning period.		Rulebook, SOPs and EOPs to be submitted for review and approval no later than 6 months prior to Trial Running. Preliminary submittal of Operations manuals for review and comment due no later than 18 months prior to Trial Running. Final submittal of Ops manuals for review and approval due no later than 6 months prior to Trial Running
Complete Staffing Plan	PLTP/PLTO	On-going			May, 2023	PLTO has developed a staffing plan. Need to confirm if this reflects the final plan.		
Obtain Required Staff	PLTP/PLTO	See Note	Various	July 2026		Recruitment and staff hiring based on project schedule. PLTO staffing to support vehicle dynamic testing being coordinated with CAF. Onboarding of other PLTO support staff for vehicle maintenance (after acceptance) and test track maintenance tied to vehicle delivery dates and start of vehicle dynamic testing (Spring 2024)		
Training of Operations and Maintenance (O&M) personnel	PLTP/PLTO/ MTS	See Note	Various	July 2026		MTS will need to be fully staffed prior to the start of Trial Running in July 2026.		
Emergency response plan, training, and drills	PLTP/PLTO/ MTS	Various	Feb. 2024	Jan. 2027		Emergency response drills to be conducted during Trial Running. Initial emergency responder training for Glenridge OMF, vehicles and test track area to be conducted at some point prior to the start of vehicle dynamic testing.		
Finalize Revenue Operations Plan	PLTP/PLTO	Preliminary Op Plan submitted and approved	TBD	Feb. 2026		Projected start of Trial Running: July 2026 (based on May 2027 RSA date): Revenue Operations/Service Plan included as part of Operating Plan.		

Description	Responsible Party	Status	Early Start Date	Estimated Completion Date	Actual Completion Date	Agency Notes	PMOC Notes	Additional Information Required
						Intermediate Operating Plan to be submitted for review and approval no less than 18 months prior to Trial Running. Final Operating Plan to be submitted for review and approval no less than 6 months prior to Trial Running		
Develop / Revise Safety and Security Certification Plan (SSCP) & Safety and Security Management Plan (SSMP)	MTA	On-going	SSMP – 2/02/2011 SSCP – 8/31/2012	TBD		SSMP is currently on revision 14 and the SSCP is on revision 7. The SSMP is updated in conjunction with the PMP as it is considered a sub-plan.		
Federal Transit Administration (FTA) Office of Safety & Security Readiness Review	FTA	See Note	TBD	TBD		No updates at this time		
PMOC OP-54 Readiness for Revenue Operations Review Report	PMOC	See Note	TBD	TBD		No updates at this time		
Conduct Operational Hazard Analysis (OHA) and resolve other hazards / vulnerabilities	PLTP	See Note	TBD	TBD		No updates at this time		
Pre-Revenue Operations	PLTP/PLTO	See Note	July 2026	April 2027		Pre-revenue Operations broken down into: Trial Running and System Demonstration Testing. Projected start of Trial Running: July 2026		
Develop Safety Outreach Plan	MTA/PLTP	Not Started	TBD	Feb. 2025		Projected start of Trial Running: July 2026 (based on May 2027 RSA date): Outreach Plan to be developed 18 months before Trial Running. Additional information to be included in next quarterly update		
Provide Community Outreach	MTA/PLTP	Not Started	TBD	TBD		Additional information to be included in next quarterly update		
Public Timetables / Maps / Website Updates, etc.	MTA/PLTP/ MTS/ PLTO	Not started	TBD	TBD		Additional information to be included in next quarterly update		
Grand Opening Plan	MTA/PLTP/ MTS/ PLTO	Not started	TBD	TBD		Additional information to be included in next quarterly update		
Update / Finalize SSMP	MTA					See previous SSMP entry		

Description	Responsible Party	Status	Early Start Date	Estimated Completion Date	Actual Completion Date	Agency Notes	PMOC Notes	Additional Information Required
Finalize and/or update Safety Certifiable Item List (SCIL) and SSCP	MTA/PLTP	On-going	TBD	TBD		No updates at this time		
Implement Safety and Security Certification Committee	MTA	On-going	April 2018	TBD		The SSCC has been ongoing since 2018.		
Implement Fire Life Safety Committee	MTA	On-going	7/27/2012 – Montgomery County 9/26/2012 – Prince George's County	TBD	TBD	MTA has implemented two FLSSCs, one for each Maryland County that Purple Line traverses. Both committees were started in 2012.		
Verify design criteria, Preliminary Hazards Analysis (PHA), Threat and Vulnerability Analysis (TVA), change orders are implemented within the project	MTA/PLTP	On-going	PHAs - 6/26/2012 TVA – 12/10/2013 Change Orders	TBD	TBD	PLTP has verified over 98% of the design criteria. Initial PHAs on the 30 % Preliminary Design started in 2012 by MTA. PLTP continued PHAs in 2016. Initial TVA completed in 2015 by MTA. PLTP continued in 2017.		
Review status of quality non-conformances		See Note				No updates and this time		
Closeout of non-safety critical items/non-conformances		See Note				No updates at this time		
Closeout of safety critical items/nonconformances	MTA/PLTP	Not started	TBD	TBD		No updates at this time		
Complete Safety and Security Certification Verification Report (SSCVR)	PLTP	Not started	TBD	May 2027		This report will be due sometime in the May 2027 timeframe.		
Document Workarounds / Open Items List	PLTP	Not started	TBD	TBD				
Verify emergency drills, tabletops, training, etc. are completed	MTA/PLTP/ PLTO		TBD	TBD		Emergency drills to be conducted during the Trial Running period. Training verification will be completed prior to Trial Running		
SSO final certification / signature	SSO	See Note				No updates at this time		
Revenue Service								
Target Revenue Service Date (RSD)	PLTP		TBD	May 2027		Project schedule dependent		
Public RSD	MTA/PLTP		TBD	May 2027		Project schedule dependent		
Full Funding Grant Agreement (FFGA) RSD						No updates at this time		

ATTACHMENT G – PROJECT MAP

