

READINESS TO EXECUTE SSGA REVIEW

Seattle Department of Transportation

Madison Street Bus Rapid Transit

Final Report – June 23, 2020

PMOC Contract Number: DTFT6014D00021

Task Order Number: 01 **Project Number:** DC-27-5304 **Work Order:** 29

Notice to Proceed: July 1, 2019

FTA Oversight Procedures (OPs) Referenced: 01, 20, 21, 32C, 33, 34, 40, 52

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Length of Time Firm Assigned to Project: 0 Years 11 Months

Length of Time Person Assigned to Project: 0 Years 11 Months

1. EXECUTIVE SUMMARY

1.1. Introduction

The Madison Street Bus Rapid Transit (MBRT) is a Federal Transit Administration (FTA) Small Starts project sponsored by the City of Seattle's Department of Transportation (SDOT) that will provide a vital east-west connection between Seattle's Central District and First Hill/Capitol Hill, with connections to other high-capacity transit corridors in downtown Seattle. Design is advanced beyond 90% with a construction Notice to Proceed (NTP) forecast in April 2021 and corridor work complete in approximately a 2-year timeframe

1.2. PMOC Review

The purpose of this report is to provide FTA with the Project Management Oversight Contractor's (PMOC) professional opinion regarding the Sponsor's readiness to execute a Small Starts Grant Agreement (SSGA). The PMOC's report follows the guidelines of Oversight Procedure (OP) 52 Readiness to Execute a SSGA and is based on a review of the documents listed in Appendix B.

1.3. Findings

The PMOC finds that while the Sponsor's required plans and analysis are substantially complete and its schedule and budget have been satisfactorily prepared as required by OP-52 Readiness to Execute SSGA, there are six items in Appendix C that the Sponsor has committed to resolving before the grant package is submitted. The PMOC concludes that the Sponsor will fully meet the readiness requirements of FTA OP 52 upon completion of the items in Appendix C Sponsor's Plan of Action.

1.3.1. Project Management Plan Review

The PMOC finds that the Project Management Plan (PMP) is compliant with OP 20 guidelines for award of an SSGA for construction. The PMOC concludes that there are no PMP-related items outstanding that impact SSGA Award.

1.3.2. Management Capacity and Capability Review

The PMOC finds that the Sponsor has addressed the PMOC's earlier findings of non-compliance that were raised in the PMOC's Management Capacity and Capability (MCC) Review Report dated February 17, 2020. The PMOC concludes that the Sponsor has the organizational capacity and qualified personnel to plan, develop, manage, and complete the MBRT project and has demonstrated the ability to recognize and mitigate risks. There are no MCC-related action plan items that impact SSGA Award.

1.3.3. Scope

The PMOC finds that scope is adequately defined by a design package that has advanced beyond 90% completion in compliance with OP-32C Scope Review. The PMOC concludes, however, that the Sponsor must obtain FTA concurrence on its National Environmental Policy Act (NEPA) reevaluation and get five critical third-party agreements signed to meet OP-52 Readiness for SSGA Award. The Sponsor has committed to resolving these issues by the dates in Appendix C.

1.3.4. Schedule

The Sponsor forecasted the Revenue Service Date (RSD) as March 2024 with contingency. The PMOC recommends a RSD of September 15, 2024, based on a risk evaluation of the probable completion date.

The PMOC finds that the Sponsor's current Project Schedule and Basis of Schedule (BoS) report are complete, accurate, and substantially compliant with OP-34 Schedule Management Review guidelines. The PMOC concludes from the risk process, however, that the RSD does not contain sufficient time contingency. The Sponsor has committed to increasing time contingency by submitting a revised Project Schedule with a RSD of September 15, 2024 by the date in Appendix C.

1.3.5. Cost Estimate

The Sponsor's estimates the project capital cost with contingency at \$127.5 million. The PMOC recommends \$133.4 million based on a risk evaluation of the probable final cost.

The PMOC finds that the Sponsor's cost estimate and Basis of Cost Report are complete, accurate, and substantially compliant with OP-33 Capital Cost Estimate Review guidelines. The PMOC concludes from the risk process, however, that the Sponsor's budget does not contain sufficient cost contingency. The Sponsor has committed to resolve this by submitting a new Standard Cost Categories (SCC) workbook with the recommended \$133.384 budget by the date in Appendix C Sponsor's Plan of Action.

1.3.6. Project Risk and Contingency Review

Cost Risk

The PMOC finds that the earlier findings in its Risk and Contingency Review Report dated November 15, 2019 are no longer valid because the Sponsor's revised SCC Workbook dated May 14, 2020 included changes to contingency and construction line item budgets. The PMOC therefore updated the beta range cost risk model and re-ran the probabilistic analysis. The PMOC finds that the Sponsor's Year of Expenditure (YOE) budget estimate in its recent SCC Workbook is below the sixty fifth percentile probability (P65) recommended budget by \$5.918 million. The PMOC's statement of potential range of cost is shown below:

- Lower range: 40th percentile – \$124.666 million
- Sponsor's Budget: 49th percentile – \$127.466 million
- **Most Likely: 65th percentile – \$133.384 million**
- Upper Bound: 80th percentile – \$140.745 million

The PMOC concludes that additional cost contingency is needed to account for the revised cost risk results. With this additional contingency, the project has a high likelihood of staying within the \$133.384 million budget through construction and into revenue operations.

Schedule Risk

The PMOC finds that its earlier schedule risk findings are also no longer valid because the Sponsor completely revised its project schedule and now shows a RSD of March 22, 2024, 18 months later than the date analyzed by the PMOC in the risk workshop.

The PMOC therefore developed a new schedule risk model based on the latest schedule submitted by the Sponsor. This probabilistic analysis determined the P65 date to be September 9, 2024. The PMOC finds that, based on this analysis, the Sponsor's revised schedule does not contain sufficient schedule contingency to meet FTA OP-40 requirements. These results were shared with the Sponsor, who asked that because King County Metro is only allowed to initiate a new service on the third Sunday of either March or September, they prefer a RSD of Sunday, September 15, 2024.

The PMOC concludes that the project has a high likelihood of achieving revenue service by September 15, 2024.

1.4. Overall Conclusion

It is the PMOC's opinion that the Sponsor has substantially met the technical requirements for award of a SSGA, but there are a few outstanding items that must be resolved before grant award. The Sponsor has committed to resolving these items by the dates in Appendix C Sponsor's Plan of Action. The PMOC concludes that if the Sponsor accepts the PMOC's recommendations for a revised project budget and schedule RSD and resolves the items in Appendix C Sponsor's Plan of Action it will meet the requirements for a SSGA award.

1.5. Recommendations

1.5.1. Recommendation required for SSGA Award

The PMOC recommends that the Sponsor address the recommendations in Appendix C Sponsor's Plan of Action before it submits its SSGA Package. These recommendations are summarized below:

Scope Recommendations

- Get FTA concurrence on the NEPA Reassessment for Documented Categorical Exclusions (DCE)

Third-Party Agreement /Real Estate Recommendations

- Finalize the five critical third-party agreements.
- Submit the two real estate acquisitions that are over \$50K to FTA for concurrence.
- Fully execute the two real estate permanent easement acquisitions.

Safety

- Outline the safety and security certification process in the Safety and Security Management Plan (SSMP) along with other PMOC comments by June 22, 2020.
- Provide an updated Safety and Security Certification Plan (SSCP) incorporating PMOC's comments.
- Provide a Project Preliminary Hazard Analysis (PHA).
- Provide a Threat and Vulnerability Analysis (TVA).

Risk & Contingency

- Increase the amount of cost contingency by an additional \$6 million, for a revised SCC budget of \$133.4 million.
- Increase the amount of time contingency by revising the RSD in the SSGA package to September 15, 2024.

Table of Contents

1. EXECUTIVE SUMMARY	2
1.1. Introduction	2
1.2. PMOC Review	2
1.3. Findings	2
1.4. Overall Conclusion.....	4
1.5. Recommendations	4
2. INTRODUCTION	7
2.1. Project Sponsor	7
2.2. Project Description.....	7
2.3. Project Status.....	8
2.4. Project Budget	8
2.5. Project Schedule.....	8
2.6. Project Management Oversight Consultant.....	9
2.7. Documents Reviewed.....	9
3. PROJECT MANAGEMENT PLAN REVIEW	10
3.1. Project Management Plan (PMP)	10
3.2. Quality Assurance Quality Control (QA/QC) Plan Review.....	11
3.3. Safety & Security Management Plan Review	11
3.4. Real Estate Acquisition & Management Plan Review.....	13
3.5. Bus Fleet Management Plan Review	14
4. MANAGEMENT CAPACITY & CAPABILITY REVIEW	16
4.1. PMOC Assessment.....	16
4.2. Conclusion.....	16
4.3. Recommendations	16
5. PROJECT SCOPE REVIEW	17
5.1. Introduction	17
5.2. Design Control	18
5.3. Coordination Review – Third-Party Agreements.....	18
5.4. Project Delivery.....	19
5.5. Conclusion.....	19
5.6. Recommendations	19

6.	PROJECT SCHEDULE REVIEW	19
6.1.	PMOC Assessment.....	19
6.2.	Conclusion.....	20
6.3.	Recommendations	20
7.	PROJECT COST REVIEW	21
7.1.	PMOC Assessment.....	21
7.2.	Conclusion.....	22
7.3.	Recommendations	22
8.	PROJECT RISK AND CONTINGENCY REVIEW	23
8.1.	PMOC Assessment.....	23
8.2.	Overall Conclusion.....	26
8.3.	Recommendations	26
9.	OVERALL CONCLUSIONS / RECOMMENDATIONS	26
9.1.	Conclusion.....	26
9.2.	Recommendations	26
	APPENDICES	27
	Appendix A: Acronyms and Abbreviations	28
	Appendix B: Documents Reviewed by PMOC.....	30
	Appendix C: Sponsor’s Plan of Action.....	33
	Appendix D: PMOC Team Qualifications.....	34

[Table of Tables](#)

Table 1:	SCC Workbook Summary	8
Table 2:	SCC Workbook Comparison	21
Table 3:	Risk Events used in the PMOC's Probabilistic Risk Analysis.....	24

[Table of Figures](#)

Figure 1:	Madison MBRT Project Map	7
Figure 2:	PMOC Madison Schedule Critical Path Summary	9
Figure 3:	PMOC Schedule Risk Results.....	25
Figure 4:	Schedule Contingency Comparison	25

2. INTRODUCTION

2.1. Project Sponsor

The City of SDOT is the Project Sponsor. King County Metro (Metro), in partnership with SDOT, will operate the Madison Street Bus Rapid Transit (BRT) as part of its RapidRide BRT system.

2.2. Project Description

The MBRT G Line will provide a vital east-west connection between Seattle's Central District and First Hill/Capitol Hill, with connections to other high-capacity transit corridors in downtown Seattle. Madison Street is the first of seven high capacity transit corridors that have been identified for the implementation of an improved MBRT service. RapidRide buses will operate on shared roadways but will use transit priority lanes and other roadway and intersection improvements along the corridors for faster service to provide 6-minute headway weekdays. Transit peak travel times are expected to be reduced by 7.6 minutes westbound, a 34% reduction, and reduced by 5.1 minutes eastbound, also a 34% reduction due to 60% dedicated lanes and traffic signal prioritization.

The route runs along Madison and Spring Streets for 2.3 miles, with 11 covered stations and 21 directional platforms. Amenities include bike racks, information kiosks, real-time transit arrival information, self-service ticketing, security camera equipment, a public announcement system, sidewalk improvements, Americans with Disabilities (ADA) ramp upgrades, and bike lanes. The service will be operated using a fleet of nine five-door diesel-electric hybrid buses with level-boarding.

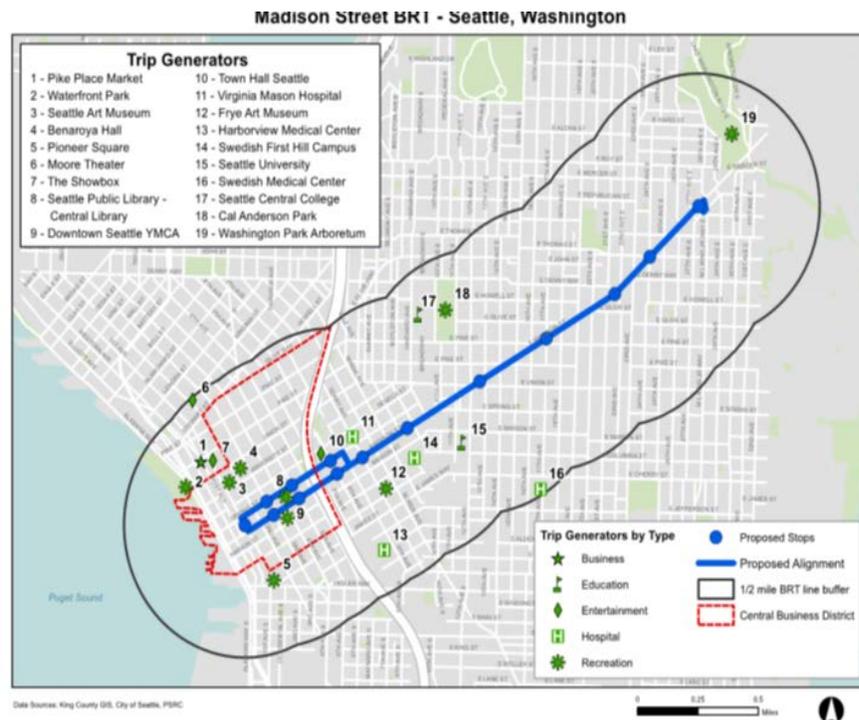


Figure 1: Madison MBRT Project Map

2.3 Project Status

The project started conceptual design on June 1, 2014. The Sponsor received approval by FTA to enter program development in April 2016. The Sponsor has advanced the MBRT design to 90% completion. The procurement of the nine vehicles is ongoing with a competitive bid advertised on March 27, 2020 with a projected NTP of November 5, 2020 and a vehicle delivery and acceptance projected for October 18, 2023.

2.4 Project Budget

The Sponsor’s revised project budget that was provided to FTA on May 14, 2020 is estimated at \$127.466 million in YOE dollars with contingency as shown in the table below. This budget includes total contingency of 14.4%, including 3% unallocated contingency This represents an increase from the Sponsor’s earlier \$121 million budget that the PMOC analyzed for the risk workshop held in September 2019.

Table 1: SCC Workbook Summary

Total Project Cost (10 - 100)	SCC sent 5/14/20
SCC Description	Total YOE
10 Guideway & Track Elements	\$ 23,220,706
20 Stations, Stops, Terminals, Intermodal	\$ 2,567,517
30 Support Facilities: Yards, Shops, Admin. Buildings	\$ 131,760
40 Sitework & Special Conditions	\$ 25,350,024
50 Systems	\$ 21,614,365
Construction Subtotal (10 - 50)	\$ 72,884,371
60 ROW, Land, Existing Improvements	\$ 1,506,715
70 Vehicles (Number)	\$ 13,503,286
80 Professional Services (Applies to Cats. 10-50)	\$ 35,996,062
Subtotal (10 - 80)	\$ 123,890,434
90 Unallocated Contingency	\$ 3,575,507
Subtotal (10 - 90)	\$ 127,465,941

2.5 Project Schedule

The Sponsor’s project schedule submitted to the PMOC on May 14, 2020 shows the RSD with contingency as March 22, 2024. The PMOC has summarized the Sponsor’s current schedule in Figure 2 below and compared it to the PMOC’s recommended RSD of September 15, 2024.

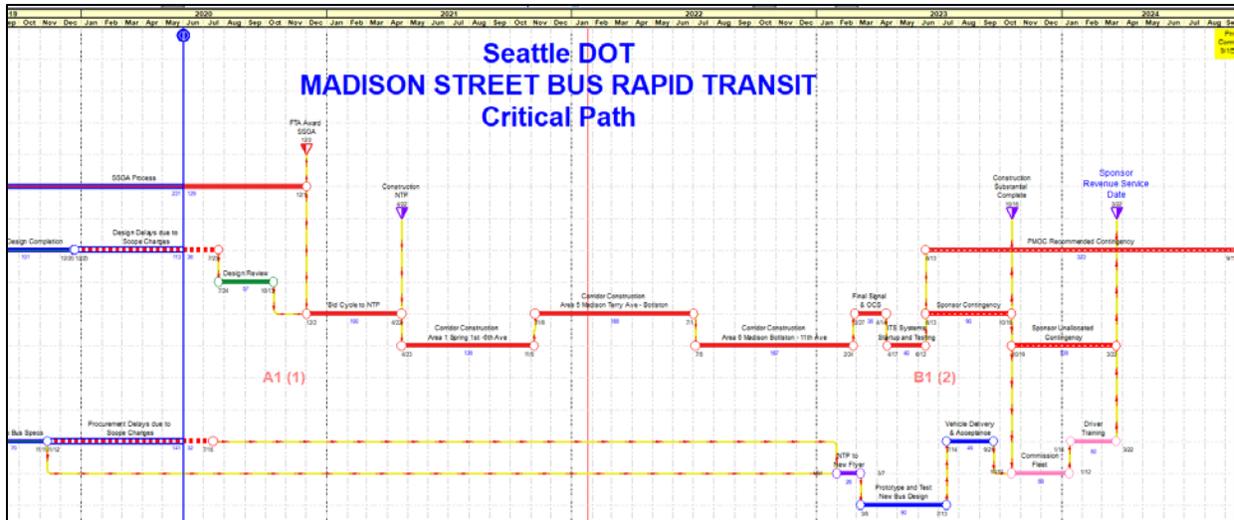


Figure 2: PMOC Madison Schedule Critical Path Summary

2.6 Project Management Oversight Consultant

PMA Consultants LLC was engaged by the FTA as the PMOC on this project in July 2019. The PMOC team is led by Bruce Stephan as the Program Manager and Sarah Rios as the Task Order Manager. The PMOC evaluation team and their qualifications are described in Appendix D.

2.7 Documents Reviewed

The PMOC's opinion is based on a review of the documents listed in Appendix B and interviews conducted with the Sponsor. In preparing this report the PMOC reviewed revised Risk and Contingency Management Plan (RCMP), SCC Workbook and Project Schedule documents submitted on May 14, 2020 a revised organization chart, staff utilization table and contingency drawdown table Sponsor submitted on May 29, 2020. The Sponsor has not yet submitted the grant paperwork, so the PMOC was not able to verify that the SSGA is consistent with the information used to develop our opinion in this report.

3. PROJECT MANAGEMENT PLAN REVIEW

3.1. Project Management Plan

3.1.1. PMOC Assessment

The PMOC reviewed the Sponsor's PMP submitted in July 2019 and provided comments to the Sponsor, which were partly incorporated in a PMP rev. 2, in September 2019. The PMOC found that that version of the PMP did not fully comply with FTA requirements in its PMP Review Report finalized in February 2020. The PMOC submitted a matrix of its comments to the Sponsor, submitted two revisions¹ to incorporate PMOC comments and changes to the MBRT. The PMOC finds that the latest update, submitted by the Sponsor on April 24, 2020, is substantially compliant with the guidelines of FTA OP-20 for award of a SSGA.

3.1.2. PMP Subplans

The Sponsor submitted all six subplans (MCC documents, SSMP, Quality Management Plan (QMP), Real Estate Acquisition and Management Plan (RAMP), Fleet Management Plan (FMP), and RCMP) required by FTA guidelines. Each has gone through several revisions to incorporate PMOC comments. Except for the SSMP, SSCP, PHA and TVA required by the OP-22, which the Sponsor has committed to providing before grant award, all other plans are compliant with FTA guidelines and support the award of a SSGA.

3.1.3. Conclusion

The PMOC concludes that the Sponsor's PMP and five of the required Subplans substantially meet FTA OP-52 requirements for award of a SSGA. The Safety subplan has been added to the monitoring report, as discussed in the Safety section below.

3.1.4. Recommendations

The PMOC recommends that the Sponsor update its PMP to incorporate the following best practice recommendations. These do not need to be done to achieve readiness for SSGA award:

- Revise Figure 4-3 BRT Baseline which is not consistent with the schedule issued May 14, 2020.
- Add the revised Organization Chart to the PMP and update the PMP to be consistent with the organization chart and staffing utilization chart that were both provided on April 29, 2020.
- Incorporate PMOC findings and comments in the safety plans and attach them to the PMP once fully signed off by Sponsor management.
- Attach the three remaining Third-Party Agreements to the PMP once fully executed.
- Update the PMP whenever there are significant changes, at major project Milestones or annually at a minimum.

¹ March and April 2020

3.2. Quality Management Plan Review

3.2.1. PMOC Assessment

The Sponsor originally submitted a memo with a series of hyperlinks to individual quality related documents and a Quality Chapter in the PMP to meet federal requirements. The PMOC explained to the Sponsor what was needed to comply with Federal requirements, specifically a project-specific quality management plan. On February 7, 2020, the Sponsor submitted separate Design and Construction Quality Management plans. The PMOC reviewed this submittal and provided comments. The Sponsor resubmitted its Quality documents on April 15, 2020.

The PMOC reviewed the resubmittal and finds both the design and construction quality plans to be substantially compliant with the FTA's fifteen elements as outlined in the OP-24 Quality Management System (QMS) guidelines.

3.2.2. Conclusion

The PMOC concludes that the Sponsor's QMP submitted on April 15, 2020 is compliant with OP-52 guidelines for Award of a SSGA. The Sponsor has committed to incorporating the PMOC's recommendations in the next section.

3.2.3. Recommendations

The PMOC recommends that the Sponsor update its quality practices to incorporate the following best practice recommendations. These do not need to be done to achieve readiness for SSGA award.

- Train all levels of the Project Team in the QMP requirements. The focus of the training would be to provide the Team with a thorough understanding of the QMP elements and Sponsor's MBRT quality program expectations.
- Train contractors' trade personnel and Project Team new hires in the QMP requirements through an on-boarding process once the contract is awarded.
- Provide QMS re-training as necessary when non-compliance is identified or should there be a revision to the QMP. This would ensure any modifications to the QMPs are communicated across all levels of the organization.
- Review the QMS periodically to assess whether any adjustments may be required.
- Conduct regularly scheduled Executive Management quality briefings since communication is key to a successful Quality Program. These meetings, proven to be successful on other projects, allows the Quality Manager to speak directly to Executive Management, providing a direct exchange between all parties on the status of the MBRT Quality Program.

These recommendations will help the Sponsor maintain a successful Quality Program throughout design, construction, start-up, testing and commissioning.

3.3. Safety & Security Management Plan Review

3.3.1. PMOC Assessment

The Sponsor originally submitted a document entitled City of Seattle 2015-2021 All-Hazards Mitigation Plan dated February 26, 2016, and a Safety chapter of the PMP to meet federal requirements. The PMOC explained to the Sponsor what was needed to comply with Federal requirements, requesting a project specific SSMP, SSCP, TVA and PHA. The Sponsor submitted

drafts of the MBRT SSMP, SSCP, and SSMP Risk Register on May 11, 2020. The PMOC has reviewed and commented on these drafts and is currently awaiting an updated SSCP and the initial PHA & TVA from the Sponsor.

The PMOC finds that the Sponsor's safety documentation is not yet federally compliant. The PMOC is concerned that the Sponsor has overlooked or not given proper emphasis to some important safety and security steps in the early project development phase of the project. We find that the Sponsor does not have a credible safety and security certification process or hazard management process established with design past 90% complete. This appears to have contributed to the late scope changes that delayed the 100% design and is likely to cause further delays as the Sponsor backfits other safety elements that were not considered earlier.

The PMOC reconfirmed to the Sponsor on Friday May 29, 2020, that the project TVA and PHA must be clearly described in the project SSCP. The Sponsor agreed on this call that its SSCP was not yet compliant but indicated it would take several weeks to resubmit a compliant draft. The Sponsor also confirmed that it was going to be incorporating the results of the PHA and TVA into the design documents. The PMOC emphasized the importance of the Sponsor documenting its processes it will follow to verify the safety and security certification of the project as soon as possible, with completed SSCP, PHA & TVA documents to follow, since these documents will have to be updated as the project progresses anyway.

Since this is happening concurrent with the preparation of this project readiness report, the PMOC has requested the Sponsor to develop "a plan of action satisfactory to FTA to address the issues," as required by OP-52. The Sponsor committed to the following schedule for resubmitting safety documents - SSMP (June 18, 2020), SSCP (June 18, 2020), PHA (June 25, 2020), and TVA (June 25, 2020).

3.3.2. Conclusion

The PMOC concludes that while the Sponsor has not yet demonstrated full compliance with the OP-22 safety and security guidelines for award of a SSGA. The Sponsor has committed to resolving these issues by the dates in Appendix C.

3.3.3. Recommendations

The PMOC recommends that the Sponsor take the actions in the first three bullets below before submitting its grant application. The last two bullets do not need to be done to achieve readiness for SSGA award.

- **Outline the safety and security certification process in the SSMP along with other PMOC comments before submitting its grant application.**
- **Provide an updated SSCP incorporating PMOC's comments before submitting its grant application.**
- **Provide a PHA and TVA that provide sufficient verification and structure for identifying hazards and analyzing, assessing, and mitigating safety risk before submitting its grant application.**
- Provide Safety Design Criteria currently being developed.
- Verify that 90% design complies with the newly developed Safety Design Criteria.

3.4. Real Estate Acquisition & Management Plan Review

3.4.1. PMOC Assessment

The PMOC initially reviewed the Sponsor's RAMP, dated February 27, 2017, which was attached to the PMP as Appendix H. The PMOC's findings in its final PMP Review Report dated February 12, 2020, were that the RAMP was outdated and was inconsistent with the third-party agreement log, which listed a different number of Temporary Construction Easements (TCEs).

The PMOC worked with the Sponsor to get a compliant plan, which resulted in three revisions to the RAMP². The current revision 4.2 dated April 23, 2020, includes a parcel map updated April 17, 2020, that shows six acquisitions remaining out of a total of 52 tracked in the log. The parcel tracking log lists expected cost of each easement. PMOC confirmed consistency in the dollar value estimated in the parcel tracking log and that shown in the latest SCC workbook.

Of the six acquisitions, the two acquisitions below are a mix of TCE and Easements valued as shown below:

- Seattle University 901 12th Ave estimated at \$104,963
- Casita Grande (Pony Bar) 1221 E Madison St estimated at \$279,003

The permanent easement sought from Seattle University at 901 12th Ave is needed to place two signal poles. It was not discussed in the environmental documents because the Sponsor thought there was an existing easement. This in part has triggered the NEPA reevaluation that is currently with FTA for review.

The permanent easement sought from the Pony Bar at 1221 E Madison is needed to reconstruct a permanent sidewalk after roadway widening for the central platform of the BRT station in the middle of E Madison Street between 12th & 13th Avenues. The private owner had asked for more than the budgeted value. This resulted in the Sponsor considering an in-kind exchange of granting development right to lower the price. However, after consulting with FTA, the Sponsor has decided to do a cash deal settlement now expected by July 31, 2020.

FTA concurrence is needed before the Sponsor can sign these two permanent easements since they are both valued at more than \$50,000.

The other four acquisitions listed below are minor TCEs valued at \$106 each:

- Seattle University 916 E. Marion St.
- Seattle University 901 12th Ave
- Seattle University 901 12th Ave
- Seattle University 1111 E. Madison

All the pending TCEs are anticipated to be signed by the end of July 2020.

3.4.2. Conclusion

The PMOC concludes that the Sponsor's RAMP substantially complies with OP-52 and is sufficient for award of a SSGA.

² The RAMP was revised on 2/24/20, 3/20/20 and 4/23/20

3.4.3. Recommendations

The PMOC recommends that the Sponsor take the actions in the first two bullets below before submitting its grant application. The last bullet does not need to be done to achieve readiness for SSGA award.

- **Submit the two easements valued at over \$50,000 to FTA for concurrence before submitting grant package.**
- **Fully execute the two permanent easements before submitting grant package.**
- Finalize the four remaining real estate acquisitions before construction NTP.
- Reconcile the number of parcels shown in the Parcel Tracking Log (52) with the number listed on page 12 of the RAMP (49).

3.5. Bus Fleet Management Plan Review

3.5.1. PMOC Assessment

The Sponsor first submitted a document called King County DOT Transit Division Vehicle Maintenance Plan dated June 2017. The PMOC explained to the Sponsor what was needed to comply with Federal requirements. The PMOC then submitted a memo dated November 15, 2019, that included sixteen attachments. The PMOC worked with the Sponsor to get the current FMP submitted on April 17, 2020.

The PMOC's FMP Review Report was finalized on May 19, 2020. Based on its review, the PMOC finds that the document contains a sufficient evaluation of the operation, maintenance, and appropriate technology of the 60-foot five-door diesel-hybrid bus sub-fleet, and sufficiently covers the requisite items for a bus procurement as outlined in FTA OP-37.

3.5.2. Conclusion

The PMOC concludes that the Sponsor's FMP substantially complies with OP-52 and is sufficient for award of a SSGA.

3.5.3. Recommendations

The PMOC recommends that the Sponsor update its FMP to incorporate the following best practice recommendations. These do not need to be done to achieve readiness for SSGA award.

- Provide justification for the use of left-side platforms on this route, which requires a unique sub-fleet of buses, beyond simply stating that "The left side doors will be used to serve island platforms located in the center of the Madison Street BRT running." References should be made to documents that describe other options that were considered, as well as the alternatives analysis evaluation process utilized.
- Reconsider the statement in the draft FMP that an unspecified number of the five-door buses may have their two left-side doors removed if their use on MBRT is not required, since it would seem to be an unnecessary expense that would preclude those buses from ever being used on MBRT if the future need should arise.
- Consider an extended scheduled dwell at the westernmost stop during the afternoon peak period to provide a moderate amount of schedule recovery time, since buses will operate on

a published timetable. The PMOC finds that one layover terminal, at the east end of the route provides no recovery time from inbound bus delays that could cause erratic schedule adherence on outbound buses during the evening peak period.

- Explain why the non-revenue mileage appears to be high. The draft FMP states that the MBRT bus sub-fleet will operate 1,725 deadhead and other non-revenue miles per week, which is 26% of the total of 6,625 weekly miles.
- Evaluate existing transit service, in terms of level of service, operating costs, reliability, quality, and support functions to confirm they will not be degraded because of either the design and manufacturing of the equipment or the design and construction of the project.

4. MANAGEMENT CAPACITY & CAPABILITY REVIEW

4.1. PMOC Assessment

The PMOC conducted a MCC review in 2019 and issued a final report on February 17, 2020. The PMA found that the MBRT core team members it interviewed had the requisite experience and are qualified for their roles. However, the PMOC concluded in this report that the Sponsor had not provided qualifications for certain key personnel like the QA Manager and Utility Manager and had not committed sufficient capacity to the construction phase of the project, particularly in the areas of quality and safety. Also, while SDOT's roles and responsibilities were very clearly defined, its partner Metro's were not. A key factor in the PMOC's negative findings in the earlier report were inconsistencies between the staff utilization table, the organization chart, and information gathered from 29 in-person interviews. The PMOC made twenty-eight recommendations in its report to help the Sponsor achieve compliance.

In the ensuing months since the report was issued the Sponsor addressed all the PMOC's recommendations. The Sponsor has increased its SCC 80 Professional Services budget by over \$2 million and engaged safety, quality and fleet specialists that have developed and submitted the missing plans to the level of completeness described elsewhere in this report. The Sponsor has prepared a force account plan, revised its staff utilization plan and organization charts, and made them all consistent. The PMOC finds that the Sponsor has sufficient capacity represented in its revised staff utilization plan, which now shows over 20 full time equivalent staff involved during construction with four full time quality inspectors. While the Sponsor still has not procured a construction management consultant that will fill the roles of the Resident Engineers for quality inspections and utilities, it has provided minimum qualifications for these and other positions which the PMOC has reviewed and concurred with.

The PMOC now finds that the Sponsor has the organizational capacity and qualified personnel to plan, develop, manage, and complete a major capital project, and has demonstrated the ability to recognize and mitigate risks. The Sponsor has addressed all the negative capacity and capability findings in the PMOC's earlier report.

The Sponsor has a short history of implementing major capital projects with federal funding. SDOT has partnered previously with Metro on several RapidRide BRTs, but this is the first time SDOT will be the Project Sponsor with Metro as a sub-recipient. Metro is familiar with FTA requirements from its previous FTA grants, but SDOT appears not to be.

The PMOC finds that the Sponsor has selected contract delivery methods it has used successfully in the past on projects of a similar magnitude.

4.2. Conclusion

The PMOC concluded that the Sponsor has the management capacity and qualified personnel to plan, develop, manage and complete a major Federally assisted capital project and successfully deliver the MBRT within its budget and schedule and in compliance with federal regulations.

4.3. Recommendations

The PMOC recommends that the Sponsor take the following actions to incorporate best practices. These do not need to be done to achieve readiness for SSGA award.

- Expedite the procurement process for the CM team so they are mobilized a few months before award and have sufficient time to become familiar with the design and contract requirements.
- Enhance the minimum qualifications for the Resident Engineer (RE) and Inspectors in the Construction Management (CM) Services Scope document to require a minimum of 8-10 years of directly relevant experience in the type of work they will manage. Minimum qualifications for the Inspectors should include relevant certifications.
- Require the submittal of the CM personnel’s qualifications as part of the procurement process and assign a heavy weight to individual experience.
- Expand the roles and responsibility chart in the PMP to include all the positions shown in the Construction management organization chart that was submitted on May 29, 2020.

5. PROJECT SCOPE REVIEW

5.1. Introduction

The PMOC finds that scope is adequately defined by a design package that has advanced beyond 90% completion in compliance with OP-32C Scope Review and OP-52 Readiness guidelines for SSGA Award. The Sponsor has addressed all the scope recommendations made in its earlier scope cost schedule report. Since that report was written, the Sponsor incorporated the four scope changes discussed below:

- Station Platform Height – The station platform height will be changed from 13” to 9” at all platforms designed for right-side of bus loading (sidewalks and the island platform on Madison at 8th Avenue). The purpose of this design change is to support interoperability with other King County Metro routes and fleet. The ADA ramp on existing King County Metro fleet will not work properly at platforms higher than 9 inches. The decision to make this change was made after King County Metro performed a field test of their existing fleet with prototype platforms.
- Additional ADA ramps – The Madison Street BRT Project description assumed that certain crosswalks would be permanently closed. SDOT’s Transportation Operations Division had given verbal concurrence on closing these crosswalks. Subsequently Transportation Operations did not provide approval of the closures. As a result, 26 ADA ramps will be added at these crosswalks. Given the late decision (or non-approval), SDOT’s ADA Program has agreed to fund the additional ADA ramps. They are included as concurrent non-project activities and will be constructed in the Madison Street BRT Construction Contract and tracked under a separate bid schedule with other SDOT Program-funded concurrent non-project activities.
- Pedestrian-scale lighting at island platforms. The PHA/TVA identified the potential need for pedestrian-scale lighting at island platforms. The pedestrian-scale lights will be added to the 100% plans.
- Interim Overhead Catenary System (OCS) Plan – SDOT and the Consultant Team are working with King County Metro to develop an interim OCS Plan to coordinate and minimize schedule/cost impacts related to operation of trolley buses and work near OCS lines. The plan may recommend addition of some temporary poles and will also identify opportunities to use planned (already in the design) OCS poles as much as possible to reduce the need for temporary poles.

The PMOC finds that the changes and an issue with an easement have resulted in a NEPA re-evaluation, which has been submitted by the Sponsor and is currently under review by FTA. FTA must approve this NEPA re-evaluation before the grant can be awarded.

5.2. Design Control

Design control is adequately defined in a revised Basis of Design (BoD) document that sets forth the design codes and standards the project follows. However, the PMOC finds that the Sponsor had not established safety design criteria before advancing its design to 90 percent. The Sponsor is currently compiling this design criteria and expects to have it complete by the end of June.

Value Engineering (VE)

The PMOC finds that the Sponsor has followed best practices for VE. The Sponsor provided a VE Report dated February 23, 2017. The VE team, led by a Certified Value Specialist (CVS), worked together for three days using the formal Value Methodology and VE job plan. The Sponsor has responded to the PMOC's request to clarify how the VE savings were incorporated in the design in a supplemental VE memo submitted on 1/31/2020.

5.3. Coordination Review – Third-Party Agreements

The PMOC finds that there are five critical third-party agreements that need to be signed before the SSGA can be awarded. Four of these agreements are currently circulating with King County Metro and Seattle City Light (SCL) for signature by the end of June 2020. The Sound Transit 3 (ST3) local funding agreement is awaiting confirmation from FTA that the project has achieved readiness before seeking the Sound Transit Board's approval. The list below summarizes the remaining third-party agreements needed for the MBRT. The dates in parenthesis are when the Sponsor forecasts having the agreement signed. There are 10 agreements that still need to be signed, of which five are critical and must be signed before grant award scheduled for December 2020.

Critical Agreements:

1. SDOT/King County for the Construction & Ownership of the MBRT (June 11, 2020)
2. SDOT/King County for Operations & Maintenance of MBRT and Corridor (June 11, 2020)
3. SCL Design of utility adjustments / relocations (June 30, 2020)
4. SCL Interdepartmental MOA Street Lights (June 30, 2020)
5. Sound Transit 3 (ST3) Regional Transit Agency Funding (August 31, 2020)

Not Critical:

6. Seattle Public Utilities (SPU) Fee in Lieu (Programmatic MOA with SPU for multiple projects). No project or federal funds. (June 30, 2020)
7. King County / City of Seattle Terminal Operations and Maintenance Agreement, including use, maintenance, and operations of driver comfort station. (August 31, 2020)
8. Puget Sound Regional Council Transit Improvement Program (TIP)/State TIP update and Request for Approval for construction. Required for Community Multiscale Air Quality Modeling (CMAQ) Construction Grant (#14) (July 31, 2020)

9. FTA CMAQ – Construction TIP amendment and Request for Approval (for construction) will be submitted to Puget Sound Regional Council in May for Executive Board approval in June 2020 (July 30, 2020)
10. SDOT/King County Metro Sole Sourced Justification Material(s) (April 30, 2020)

The Sponsor has self-designated which agreements are critical. The PMOC recommends that FTA continue to monitor the status of third-party agreements until signed copies of all critical agreement have been submitted to FTA.

5.4. Project Delivery

The Sponsor is using a traditional design-bid-build delivery method that is permissible under local public contracting laws and authorized by Agency policy. The construction contract will be managed by the City Purchasing and Contracting Services under the Department of Finance and Administrative Services. This group is familiar with managing federal procurement contracts. Regarding contract packaging and structuring, the construction contract appears reasonably sized for the Seattle Metropolitan Area.

5.5. Conclusion

It is the PMOC's conclusion that the scope of the project, while sufficiently advanced to the level required to award a SSGA, requires FTA concurrence with its NEPA Reassessment and all critical third-party agreements to be fully executed before it has achieved readiness to award a SSGA.

5.6. Recommendations

The PMOC recommends that the Sponsor take the actions in the first two bullets below before submitting its grant application. The last bullet does not need to be done to achieve readiness for SSGA award.

- **Obtain NEPA clearance resolution before submitting grant application.**
- **Expedite the execution of all critical third-party agreements before submitting grant application.**
- Expedite the execution of all non-critical third-party agreements before construction NTP

6. PROJECT SCHEDULE REVIEW

6.1. PMOC Assessment

The final Scope Cost Schedule report dated October 18, 2019 was based on the Sponsor's Project Schedule with a data date of June 28, 2019. At that time, the PMOC found that although this schedule was sufficient for modeling purposes, there were still technical scheduling issues that the Sponsor needed to resolve. The PMOC's schedule risk assessment recommended that the P65 confidence level RSD of April 17, 2023 be used in the SSGA date rather than the Sponsor's RSD of September 19, 2022 to absorb the modeled risks. The PMOC made several other schedule recommendations, including asking for an update of the Basis of Schedule report, which was provided on April 24, 2020.

The Sponsor resubmitted its Schedule on May 14, 2020. This schedule is completely revised from the previously reviewed version. It is more detailed and addresses the PMOC's earlier comments. The PMOC finds that this schedule is mechanically sound, technically correct and has been

constructed using appropriate professional practices. The critical path of the project is clearly defined and logically supportable. The current schedule is a useful management tool that fairly and reasonably reflects the project scope, management practices and method of project delivery. The recommendations below are best practice suggestions that do not affect the award of a SSGA.

The Sponsor's narrative Basis of Schedule Report dated April 24, 2020, adequately outlines the basis and assumptions used to develop the schedule. The contract durations are based on quantities and production rates determined by experienced construction specialists.

6.2. Conclusion

The Sponsor's current schedule and Basis of Schedule Report comply with OP-34 Schedule Management Review. If the Sponsor uses the recommended RSD in this report it will have sufficient time contingency to absorb impacts from the risks outlined in its risk register and comply with OP-53 Readiness to Award SSGA.

6.3. Recommendations

The PMOC recommends that the Sponsor take the actions in the first bullet below before submitting its grant application. The other bullets do not need to be done to achieve readiness for SSGA award.

- **Establish the RSD as September 15, 2024 in the Grant Application paperwork to account for the P65 level of risk.**
- Submit a revised Basis of Schedule that is consistent with the latest schedule submittal.
- Confirm that the work area restrictions in the contract allow the use of the seven crews assumed for the corridor construction.
- Require the contractor to assign a weather calendar for weather sensitive work.
- Submit a revised schedule after incorporating the following technical comments:
 - Revise the logic that delays ordering the buses so driver training can occur right after corridor completion.
 - Revise the durations of any activities that do not reflect the true time to perform the activity, such as driver training which the Sponsor manipulated to establish the allowable RSD start.
 - Establish a RSD Milestone with a special calendar that only allows it to occur on the 3rd Sunday of March and September dates allowed by Metro.
 - Correct activities with missing logic ties.
 - Remove unnecessary constraints and replace with an activity representing the predecessor to the activity start.

7. PROJECT COST REVIEW

7.1. PMOC Assessment

The PMOC initially reviewed the Sponsor’s SCC Workbook dated July 17, 2019 with a budget of \$121,184,310. The PMOC found that estimate met the basic federal requirements but there were concerns the Sponsor needed to address. The PMOC worked collaboratively with the Sponsor to get a revised SCC workbook dated August 20, 2019 that it used as the basis for the PMOC’s beta range cost risk model.

The Sponsor submitted a revised SCC dated October 14, 2019 that incorporated comments from the risk workshop but did not incorporate the additional contingency recommended. The Sponsor submitted the current SCC workbook on May 14, 2020 that increased the contingency by the amount recommended in the workshop. However, this revision also incorporated over \$5 million of scope changes and escalation to cover an 18-month extension of the schedule. A comparison of the last two versions is shown in the table below:

Table 2: SCC Workbook Comparison

Total Project Cost (10 - 100)	SCC sent 10/13/2019	SCC sent 5/14/20	Variance
SCC Description	Total YOE	Total YOE	Total YOE
10 Guideway & Track Elements	\$ 21,990,509	\$ 23,220,706	\$ 1,230,197
20 Stations, Stops, Terminals, Intermodal	\$ 1,920,319	\$ 2,567,517	\$ 647,197
30 Support Facilities: Yards, Shops, Admin. Buildings	\$ 126,118	\$ 131,760	\$ 5,642
40 Sitework & Special Conditions	\$ 24,763,357	\$ 25,350,024	\$ 586,666
50 Systems	\$ 21,244,747	\$ 21,614,365	\$ 369,618
Construction Subtotal (10 - 50)	\$ 70,045,050	\$ 72,884,371	\$ 2,839,321
60 ROW, Land, Existing Improvements	\$ 1,710,308	\$ 1,506,715	\$ (203,593)
70 Vehicles (Number)	\$ 13,124,365	\$ 13,503,286	\$ 378,921
80 Professional Services (Applies to Cats. 10-50)	\$ 33,870,272	\$ 35,996,062	\$ 2,125,790
Subtotal (10 - 80)	\$ 118,749,994	\$ 123,890,434	\$ 5,140,440
90 Unallocated Contingency	\$ 2,434,316	\$ 3,575,507	\$ 1,230,197
Subtotal (10 - 90)	\$ 121,184,310	\$ 127,465,941	\$ 6,281,631

The PMOC finds that the Sponsor’s current SCC workbook adequately reflects the overall project scope, the estimated quantities shown on the design documents, the anticipated market conditions, the risk elements associated with the project, and the project schedule as required by OP-34C. However, the PMOC finds that this SCC does not have currently have enough contingency to meet the P65 threshold, as noted in the risk section of this report.

The PMOC finds that the Sponsor has not provided an estimate for the following concurrent non-project activities (CNPA), which will be constructed within the Project limits and may be necessary to the project:

- Water main replacement and water service replacement in approximately 10 blocks of Madison Street; funded by SPU
- Sewer pipe replacement; funded by SPU
- Electrical vault upgrades; funded by SCL
- Street light maintenance repairs, funded by SCL

- New signals at two intersections on Madison St: 10th Ave and 18th Ave; funded by SDOT's Pedestrian and Neighborhood Greenways programs
- Signal pole and hardware upgrades at the intersection of Madison and 11th Ave funded by SDOT's Signal Program
- 6th Avenue Asphalt Overlay and Traffic Signal improvements between Spring and Madison Streets, funded by SDOT's Pavement Preservation Program
- 26 ADA ramps at crosswalks previously assumed to be closed with this Project; funded by SDOT's ADA Program. Will be added at 100%.

7.2. Conclusion

The PMOC concludes that the Sponsor's May 14, 2020 SCC workbook and June 2, 2020, Basis of Estimate report are compliant with OP-32C Cost Estimate Review requirements. If the Sponsor revises its SCC workbook to meet the recommended cost contingency in this report, it will meet OP-52 requirements for award of a SSGA.

7.3. Recommendations

The PMOC recommends that the Sponsor take the actions in the first bullet below before submitting its grant application. The other bullets do not need to be done to achieve readiness for SSGA award:

- **Submit a revised SCC budget of \$133.384 million to account for the P65 level of risk when submitting the SSGA package to FTA.**
- Submit a spreadsheet showing the full project cost including CNPAs like the new ADA ramps that are not being included in the grant budget. Include columns for the Capital Improvement Grant (CIG) and non-CIG components of the cost so the true federal share can be determined.
- Provide a monthly report to FTA showing actual expenditures to date compared to the SSGA budget at the SCC level.

8. PROJECT RISK AND CONTINGENCY REVIEW

8.1. PMOC Assessment

8.1.1. General

A Risk and Contingency Review Workshop was conducted at SDOT's consultant offices on September 24, and 25, 2019. This workshop analyzed an earlier version of the Sponsor's SCC Workbook with a total budget of \$121.184 million, and an earlier version of the Sponsor's schedule with a September 19, 2022 RSD, which included 2.8 months of time contingency. The PMOC's final Risk and Contingency Review Report dated November 15, 2019 concluded that the Sponsor's project budget was below the P65 recommendation by \$6.282 million and the RSD needed another 7 months of contingency.

8.1.2. Cost Risk

The Sponsor submitted a revised SCC Workbook and RCMP to the FTA on May 14, 2020 that increased the project budget by the recommended \$6.3 million to \$127.466 million, per the risk workshop results. However, this revised SCC also included a \$5.1 million increase to the Sponsor's SCC 10-80 to account for escalation.

The PMOC reviewed the new SCC and RCMP and then conducted a risk review call with the Sponsor on May 19, 2020. The new SCC workbook was input into a revised beta range cost risk model that used factors based on "Pre-Bid" for everything but the buses, and "40% Bid" for the buses. Adjustments were made to the factors to account for 11 of the 44 active moderate and high risks and 4 risks the Sponsor had retired prematurely.

The PMOC finds because of this cost risk reassessment that the Sponsor's budget of \$127.466 million in the latest SCC Workbook is at 49% probability. The Sponsor needs an additional \$5.92 million in contingency to achieve the P65 probability required by FTA. FTA's risk model recommends \$22.150 million cost contingency, as compared to the Sponsor's contingency of \$16.230 million. The risk model probability ranges from the PMOC's analysis compared to the Sponsor's budget are shown below:

- 40th percentile – \$124.666 million
- **49th percentile – Sponsor's \$127.466 million**
- 65th percentile – \$133.384 million
- 80th percentile – \$140.745 million

The PMOC also performed forward and backward pass analyses in accordance with OP-40c and found the Sponsor's cost contingency drawdown curve acceptable. The cost contingency levels at the established project milestones and at high risk points in the project schedule were assessed and found to be adequate. Also, the Sponsor's process and calculations for establishing the curve was also acceptable.

8.1.3. Schedule Risk

The Sponsor also submitted a revised project schedule on May 14, 2020, which forecasts a March 22, 2024 RSD, 18 months later than the schedule which the Sponsor provided for the risk workshop last

September. This schedule addressed most of the PMOC’s technical comments from its earlier schedule review. However, it is a different schedule from the one used in the risk workshop.

FTA asked the PMOC to run another probabilistic analysis to determine the new P65 date. This required the development of a new schedule risk model using PMA Netpoint and NetRisk software. The PMOC met twice with the Sponsor to confirm the model and appropriately risk the schedule. The PMOC stripped out the revealed schedule contingency from the Sponsor’s new schedule in developing its model. The PMOC also modified a logic tie that created additional hidden contingency by delaying bus commissioning until after In the corridor construction was complete. In the PMOC’s model the 60-day driver training activity starts as soon as the corridor work is complete. These two minor changes resulted in a stripped (without contingency) RSD of August 24, 2023.

The PMOC’s risk model ranged the activity durations as 5% shorter and 10% longer to account for inherent uncertainty. In addition, the following risk events were modeled:

Table 3: Risk Events used in the PMOC's Probabilistic Risk Analysis

Description	Probability (Quantitative)	Unit	Distribution Type	Min	Most Likely	Max	Activity Assignments
Contractor Productivity Impacts	30%	Days	Triangular	40	65	80	CONS-15, CONS-319, CONS-327, CONS-38, CONS-14, CONS-385, CONS-301, CONS-306, CONS-311, CONS-31, CONS-47
Design Delays	45%	Days	Triangular	30	60	90	A1140
OCS Wire Shifts cause delays WA 7, 6, 1, 3	60%	Days	Triangular	10	20	30	A1140
Scope Change due to 3rd Party Inspectors	50%	Days	Triangular	10	20	30	A1305
Need to Re-bid contract	10%	Days	Triangular	0	90	90	781
Utility Relocation	60%	Days	Triangular	10	20	30	CONS-354, CONS-359, CONS-366, CONS-377, CONS-384

The risk model probability ranges from the PMOC’s analysis compared to the Sponsor’s RSD are shown below

- **~10th percentile – Sponsor’s March 22, 2024**
- 40th percentile – July 4, 2024
- 65th percentile – September 9, 2024
- 80th percentile – November 04, 2024

The PMOC finds that based on this analysis the Sponsor’s March 22, 2024 RSD in its revised schedule does not contain sufficient schedule contingency to meet FTA OP-40 requirements. The results from the PMOC’s probabilistic risk analysis software are shown in the figure below.

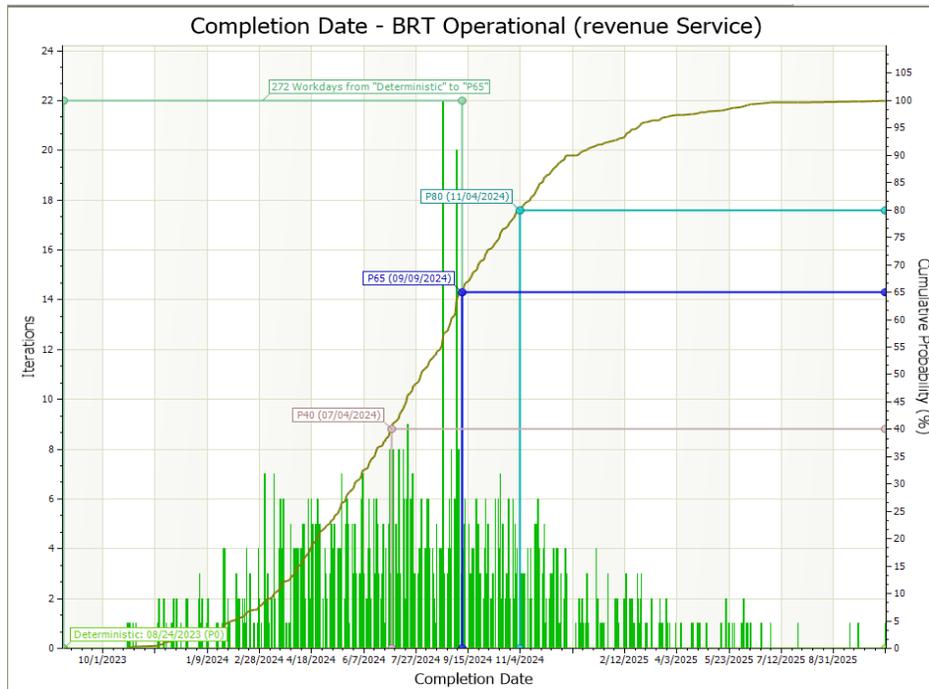


Figure 3: PMOC Schedule Risk Results

To summarize, the Sponsor’s schedule submitted on May 14, 2020 showed completion in August 2023 when contingency was stripped out and the bus logic adjusted. The Sponsor’s date with contingency was in March 2024. OP-40C recommends a minimum contingency of 25% of remaining duration, which puts the RSD in April 2024. The P65 RSD resulting from the PMOC’s schedule risk model is September 9, 2024. However, because King County Metro is only allowed to initiate a new service on the third Sunday of either March or September, The PMOC recommends Sunday September 15, 2024 as the RSD.

The recommended RSD is 32% of the remaining project duration and provides for 12.5 months of contingency. A comparison of these various contingency recommendations and the resultant dates are graphically displayed in the figure below:

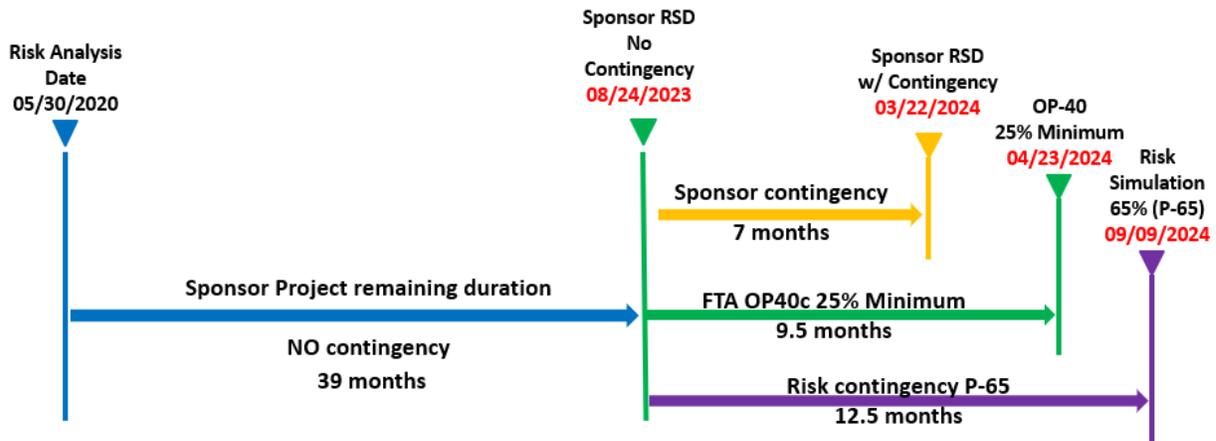


Figure 4: Schedule Contingency Comparison

8.2. Overall Conclusion

The PMOC concludes that the Sponsor's \$127.5 million YOE budget and March 22, 2024 RSD do not meet the OP-40 Risk and Contingency Management Review minimum contingency requirements.

8.3. Recommendations

The PMOC recommends that the Sponsor take the actions in the first two bullets below before submitting its grant application. The other bullets do not need to be done to achieve readiness for SSGA award:

- **Increase the amount of cost contingency by an additional \$6 million, for a revised SCC budget of \$133.4 million.**
- **Increase the amount of time contingency by 5.5 months, for a revised RSD of September 15, 2024.**
- Resubmit the RCMP to addresses the PMOC additional recommendations herein.
- Reactivate the following retired risks and continue to monitor and control these risks throughout the project lifecycle:
 - ID2 – Readiness package delay
 - ID58 – Project change requires additional TCEs
 - ID69 – First Hill Streetcar impact
 - ID72 – Contractor unable to procure Buy America compliant materials
 - ID78 – Available traffic operations conduit damaged
 - ID79 – Available utility aerial attachments change
 - ID81 – Signal operations impacted by interruption to interconnect
 - ID101 – King County Metro crews not available
 - ID103 – KC Metro inspectors not available
 - ID107 – KC metro does not have furnished items available
 - ID123 – SDOT does not have adequate resources during construction
- Include a new risk for delay in NEPA reevaluation.
- Increase project cost and time contingency as noted herein.
- Continue to assess staffing and force account plan through the project lifecycle

9. OVERALL CONCLUSIONS / RECOMMENDATIONS

9.1. Conclusion

The PMOC concludes that the Sponsor's recent report submittals and organizational changes reflected in the staffing plans will meet the OP-52 requirements for award of a SSGA after the Sponsor addresses the Appendix C Sponsor's Plan of Action items. The SCC Workbook and Project Schedule submitted with the SSGA package must meet the P65 level of contingency identified herein.

The PMOC was unable to confirm that the SSGA attachments are consistent with the Madison Street BRT scope, cost, and schedule in this report because the grant package has not been submitted yet.

9.2. Recommendations

The PMOC's recommendations are summarized in the Appendix C Sponsor's Plan of Action.

APPENDICES

Appendix A: Acronyms and Abbreviations

ADA	Americans with Disability Act
BoD	Basis of Design
BoS	Basis of Schedule
BRT	Bus Rapid Transit
CIG	Capital Investment Grants
CMAQ	Community Multiscale Air Quality Modeling
CNPA	Concurrent Non-Project Activity
CM	Construction Management
CVS	Certified Value Specialist
DCE	Documented Categorical Exclusion
FTA	Federal Transit Administration
MBRT	Madison Bus Rapid Transit
MCC	Management Capacity and Capability
Metro	King County Metro
NTP	Notice to Proceed
NEPA	National Environmental Policy Act
O&M	Operations and Maintenance
OP	FTA Oversight Procedures
OCS	Overhead Catenary System
P65	65 th Percentile Probability
PHA	Preliminary Hazard Analysis
PM	Project Manager
PMA	PMA Consultants LLC, the PMOC
PMOC	Project Management Oversight Contractor or PMA
PMP	Project Management Plan
QMP	Quality Management Plan
QMS	Quality Management System
RAMP	Real Estate Acquisition and Management Plan
RCMP	Risk and Contingency Management Plan
RE	Resident Engineer

RSD	Revenue Service Date
SCC	FTA Standard Cost Categories
SCL	Seattle City Light
SDOT	Seattle Department of Transportation
SPU	Seattle Public Utilities
SSCP	Safety and Security Certification Plan
SSGA	Small Starts Grant Agreement
SSMP	Safety and Security Management Plan
ST3	Sound Transit 3 local funding agreement
STIP	State Transportation Improvement Program
TCE	Temporary Construction Easements
TIP	Puget Sound Regional Council Transportation Improvement Program
TVA	Threat and Vulnerability Analysis
VE	Value Engineering
YOE	Year of Expenditure

Appendix B: Documents Reviewed by PMOC

Report Title	Date on Document	Date Received
Scope Documents		
Madison BRT Project Description_2019_07_16	7/1/19	07/16/19
NEPA Documented Cat Ex w all attachments NEPADCE.PDF	Dec 2017	07/12/19
Mitigation Measure Commitment are in PMP	July 2019	07/19/19
MBRT Per 90 Percent Basis of Design	8/24/19	08/24/19
Madison Street Bus Rapid Transit 90% Basis of Design, Revision No. 2	4/29/20	04/30/20
<i>Design Criteria Reports - see Basis of Design which includes design criteria</i>	7-19-2019	
Madison BRT 90 % Special Provisions	07/19/19	
MBRT Special Provisions Draft FTA Review	2/7/20	02/21/20
Madison BRT - 90% Plans	4/1/19	07/19/19
Seattle Standard Specifications for Road, Bridge and Municipal Construction	1/30/17	11/04/19
Project Manual developed by the Madison project team		
90% Design Audit	3/6/20	03/06/20
MadBRT_LPA_SummaryDoc_FINAL.PDF	Dec 2015	7/12/19
15-123 Madison Street Bus Rapid Transit - Community Outreach.PDF	4/22/16	7-16-2019
15-088 Madison Street Bus Rapid Transit Design Contract (early task for \$40K)	1/22/16	07/16/19
MBRT Design Contract & Amendment- DSDC Contract	9-16-19	09/16/19
Please see PMP Section 5	7/19/19	07/21/19
Seattle CPCS Consultant Contract Guidelines	12/24/19	02/21/20
Construction Management RFP Term & Conditions	2-21-20	02/21/20
Madison Street BRT Geotechnical Report	7/31/19	08/15/19
See SDOT design documents	10/22/19	10/22/20
Constructability Review Comments Madison Street BRT_90.pdf	Apr 2018	07/31/19
Value Engineering Report	1/31/20	01/31/20
2017 Standard Specifications Both PDFs Recd.	6/4/2019	11/04/19
https://www.psrc.org/sites/default/files/rtp-appendixg-regionalcapacityprojectlist.pdf	7-21-19	07/21/19
STIP (STIP ID SEA-200) is published at the following link https://www.wsdot.wa.gov/LocalPrograms/Projects/Reports/ProjectSearch.aspx . search for "Madison Corridor":	7-21-19	07/21/19
Third-Party Agreements		
Madison BRT Other Agreements.pdf	8/9/19	08/09/19
Madison BRT_3rd Party_2019_06_18.pdf	7/12/19	07/12/19
Interdepartmental Letter of Agreement SDOT-SPUC- WATER SDOT-SPU MOA – Madison BRT SIGNED 2017-03-23.PDF	1/31/17	7-12-2019
Fleet Procurement Agreement w/ King County (Funding)	5/21/19	11/04/19
Design of utility adjustments/relocations w/Seattle City Light	7-12-19	07/12/19
Interagency project agreement w/Seattle City Light (SCL)	4/26/2018	02/07/20

Report Title	Date on Document	Date Received
Interagency project agreement w/ Seattle Public Utilities (SPU) SDOT-SPU MOA – Madison BRT SIGNED 2017-03-23.PDF	3/20/17	07/12/19
SDOT / State of WA - Connecting Washington funding obligation		
SDOT / FTA - CMAQ (design funding)		
SDOT / Stakeholder-I-5 bridge pedestrian betterments	5/8/17	02/07/20
SDOT / Seattle Univ Permanent Easements		
Project Cost Documents		
MadisonBRT_ForceAccount_20200514.docx	5/14/20	05/14/20
MadisonBRT_ForceAccount_20200514.pdf	5/14/20	05/14/20
MBRT_SDOTtoSCC_202020513.xlsx	5/13/20	05/14/20
SCC-Workbook-Rev-21-small-starts-Madison BRT - 2019-07-17.xls	7/19/19	07/19/19
SCC-Workbook-Rev-21-small-starts-Madison BRT - 2019-08-20.xls	8/20/19	08/20/19
SCC-Workbook-Rev-21-small-starts-Madison BRT - 2019-10-14.xls	10/14/19	10/16/19
MBRT_SCC_Workbook_20200513.xls	5/13/20	05/14/20
Madison BRT - Basis of Estimate 2019-07-09.pdf	7/9/19	07/19/19
MBRT-BID ITEM LIST Estimate 5-8-2019.xlsm	8-19-19	08/09/19
MBRT-Owner Items 5-8-2019.xlsm	8-19-19	08/09/19
SDOT to SCC Assignments_20190819.pdf	8/19/19	08/23/19
Vehicle Cost Backup_20191011.xls	10/11/19	10/16/19
Right of Way Cost Backup_20191011.xls	10/11/19	10/16/19
Construction Admin Cost Backup_20191011.xls	10/11/19	10/16/19
22a - SDOT Madison BRT - SS - O&M Cost_2022 Updated - 9-18-2018.xlsx	9/18/18	07/31/19
Madison BRT Change Control Board Scope Change	7/16/19	08/09/19
Schedule Documents		
Madison BRT Detail Progress Schedule DD 6/28/19	6/28/19	07/16/19
Madison BRT Detail Progress Schedule DD 8/1/19	8/1/19	07/16/19
Milestone Schedule-03252020-15.1v(2).pdf	3/25/20	05/14/20
Critical Path Schedule-03252020-15.1v(2).pdf	3/25/20	05/14/20
Balance Activity Schedule-03252020-15.1v(2).pdf	3/25/20	05/14/20
Madison BRT-28062019-clientcomments-v15.1.xer	7/16/19	07/16/19
Madison BRT-010819-R2.xer	8/15/19	08/15/19
Madison BRT-010819-R5-15.1v.xer	8/30/19	08/30/19
Madison BRT-03252020-15.1v(2).xer	3/25/20	05/14/20
SCC-Workbook-Rev-21-small-starts-Madison BRT - 2019-08-20.xls	8/20/19	07/16/19
Madison BRT Basis of Schedule Report v 0.2	Jun 2019	07/16/19
in PMP	3-9-20	03/09/20
PMP-related Documents		
Madison BRT Project Management Plan Rev 1	July 2019	07/21/19
Madison BRT - PMP 2019-12 Rev 3+	3/1/20	03/09/20
Safety & Security Management Plan (SSMP)	5/11/20	05/14/20
Safety & Security Management Plan (SSMP)	5/11/20	05/14/20
MadisonBRT_RiskRegister_SSMP_20200420_v1.0-2.xlsx	4/20/20	05/14/20

Report Title	Date on Document	Date Received
MadisonBRT_SSCP_20200513.pdf	5/13/20	05/14/20
MadisonBRT_SSCP_20200513.docx	5/13/20	05/14/20
City of Seattle 2015-2021 All-Hazards Mitigation Plan (Seattle 2015 -2021 HMP Final(0).pdf)	2/16/16	07/31/19
Design Phase Quality Plan (QMP-Const) 12-16-2019 to 2-4-2020	2/4/20	02/07/20
MBRT 90 Percent QA-QC Memo.pdf	7/31/19	07/31/19
Construction Phase Quality Plan (QMP Const)	2/1/20	02/07/20
Madison BRT - Real Estate Acquisition Management Plan.pdf	3/17/17	07/19/19
Madison BRT - Real Estate Acquisition Management Plan_20200224	2/24/20	03/09/20
King County DOT Transit Div. Vehicle Maintenance Plan 7a.VM Plan 2017.PDF	June 2017	08/15/19
G Line Bus Fleet Management Plan	11/15/19	11/15/20
Included in PMP		
Madison BRT PUBLIC INVOLVEMENT PLAN	6/28/16	07/31/19
Risk Documents		
Madison BRT_RCMP 20190821.pdf	Aug 2019	08/21/19
Madison BRT Risk Register.pdf	7/19/19	07/19/19
Madison BRT Risk Register_2019-0809 edits.pdf 1 &3	8/9/19	08/21/19
Madison BRT Risk Register_2019-0830.xlsx	8/30/19	08/30/19
Madison BRT Risk Register_2019-0918.xlsx	9/18/19	09/19/19
Madison BRT Risk Register_2019-1007.pdf	10/7/19	10/07/19
MadisonBRT_ContingencyDrawDown_calc_20200527.xlsx	5-13-20	5-30-20
MadisonBRT_ContingencyDrawDown_Enclosures_20200527.pdf	5-13-20	5-30-20
MadisonBRT_ContingencyDrawDown_Summary_20200527.docx	5-27-20	5-30-20
Readiness Review		
Madison BRT Section 5309 Small Starts Grant Agreement	Sep 2018	N/A
Grantee Capacity & Capability Documents		
2019-07-12 Madison BRT Org Chart.pdf	7/12/19	07/12/19
Madison Street BRT - Org Chart (Multiple versions since July 2019)	5/29/20	02/07/20
MBRT Staff Utilization.PDF	7-19-19	07/19/19
MadisonBRT_StaffUtilization202020513.xlsx	5/13/20	05/14/20
MadisonBRT_StaffUtilizationPlan_20200528.pdf	5-28-20	5-30-20
MadisonBRT_StaffUtilizationPlan_202020528.xlsx	5-28-20	5-30-20
Seattle CPCS_FTA Construction Procurement Guide	10/1/16	02/21/20
See Madison BRT PUBLIC INVOLVEMENT PLAN for design phaseNeed new plan for construction	7-16-19	07/16/19
See Madison BRT PUBLIC INVOLVEMENT PLAN	8-15-19	08/15/19

Appendix C: Sponsor's Plan of Action

Deficiency Impacting SSGA	Specific Action Required	When
Re-evaluation of NEPA Clearance for Documented Categorical Exclusion is under review by FTA	FTA to complete its review of re-eval document	6/10/2020
	SDOT to submit final re-evaluation documents with FTA comments addressed	6/16/2020
	FTA to provide concurrence on Re-eval (needed for construction) - No Actions expected	6/30/2020
SDOT does not have signed agreements for the two permanent easements shown below: 1) Casita Grande (Pony Bar) 1221 E Madison St \$279,003 2) Seattle University 901 12 th Ave \$104,963	SDOT to submit request for approval of Administrative Settlement	6/11/2020
	FTA to provide approval of Administrative Settlement	6/26/2020
	SDOT to execute and provide signed Permanent Easement agreement	7/31/2020
	SDOT to provide signed permanent easement agreement	7/31/2020
SDOTs Safety Documents are not yet federally compliant	Sponsor to submit or resubmit:	
	Safety and Security Management Plan	6/18/2020
	Safety and Security Certification Plan	6/18/2020
	Threat & Vulnerability Analysis	6/18/2020
	Potential Hazard Analysis	6/18/2020
The amount of cost contingency in SDOT's budget does not account for the P65 risk probability	Safety Design Criteria	6/30/2020
	SDOT to find \$6 million in additional local funding	6/24/2020
The amount of time contingency in SDOT's schedule does not account for the P65 risk probability	SDOT to submit SCC Workbook with \$133 million budget	6/24/2020
	SDOT to submit revised schedule and a SSGA package that shows a September 15, 2024 Revenue Service date	6/24/2020
There are five critical Third-Party Agreements that are not yet fully executed	SDOT to submit revised schedule and a SSGA package that shows a September 15, 2024 Revenue Service date	6/24/2020
	Sound Transit 3 (ST3) Regional funding (\$35.8M)	8/31/2020
	SDOT/King County for Construction & Ownership of the Madison BRT	6/18/2020
	SDOT/King County for Operations & Maintenance of MBRT & Corridor	6/18/2020
	Seattle City Light (SCL) Design of utility adjustments / relocations	6/30/2020
Seattle City Light (SCL) Interdepartmental MOA Street Lights	6/30/2020	

Appendix D: PMOC Team Qualifications

Bruce Stephan, PMA, Program Manager is a licensed Professional Civil Engineer, Project Management Professional (PMP) and Attorney with over 35 years of experience on complex transportation projects delivered by design-bid-build, design-build, CM/GC and CM at Risk delivery methods. He has served as the contractor's Resident Engineer for NJ Transit's Meadows Maintenance facility, NYC Transit's Assistant Project Manager for three repair shop rehabilitation projects; a Claims Analyst on Boston's \$14.7 billion Central Artery/Tunnel project, a Schedule Analyst on NYC Transit's \$4.5 billion Second Avenue Subway and LIRR's \$11 billion Eastside Access programs, and a Risk Analyst on LA Metro's \$2 billion LAX/ Crenshaw Connector. As a Project and Construction Manager he has led multi-consultant teams responsible for the full range of PM/CM services. His skills include construction management, risk analysis, dispute resolution, complex change order negotiation, claims analysis, schedule management, cost estimating, project controls, PM system implementation, and management consulting on public capital improvement programs. He is a frequent lecturer on topics designed to improve the way projects are delivered and has consulted with numerous public agencies to implement industry best practices. For FTA, Mr. Stephan has served as the PMOC Program Manager on Grand Rapids' Laker Line BRT, City of Albuquerque's Central Avenue BRT, and BART's Transbay Corridor Core Capacity Program.

Sarah Rios, PMA, Task Order Manager has a master's degree from Syracuse University in Regional Planning and extensive project management experience with expertise in cost and schedule controls, capital grant funding, federal project requirements, and liaison with federal agencies. Ms. Rios has a successful track record in the strategic planning of securing FTA funds and managing and implementing major federal bus and rail projects including (New Starts projects) for the New York Metropolitan Transportation Agency (MTA) encompassing NYC Transit, Long Island Rail Road, Metro-North Railroad, Construction, MTA Bus, and Long Island Bus for 12 years. Ms. Rios led efforts to secure Full Funding Grant Agreements, Early System Work Agreements, Construction Agreements, and Federal Railroad Administration High Speed Intercity Passenger Rail funds. Ms. Rios served as MTA Capital Construction's Federal Grant Chief Project Executive for 8 years overseeing a Federal capital program of \$21 billion including East Side Access; Second Avenue Phase 1 and 2; Fulton Street Transit Center; and South Ferry Terminal by ensuring all New Starts project and funding requirements were met through the implementation phases of design, procurement, contracting award, construction to revenue service and closeout. For FTA, Ms. Rios has served as the PMOC Task Order Manager on BART's Transbay Corridor Core Capacity Program and 775 New Vehicle Procurement; Seattle Department of Transportation's Madison Street Bus Rapid Transit Project (BRT); and Capital District's Washington Western BRT.

Steve Lavelle, Intueor, Risk Manager is a Civil Engineer, PMP and RMP with more than 30 years of experience in public transportation. From 1997 to 2011 he served in progressively responsible roles as an employee of New Jersey Department of Transportation. As a Program Manager on numerous Capital Projects, Mr. Lavelle led and directed the management of over 100 capital projects from inception through construction for the central and coastal region of New Jersey (Mercer, Middlesex, Monmouth, and Ocean counties). He managed a portfolio of projects with a total cost over \$1.5 Billion, with responsibility for scope, schedule, cost, quality, risk, communications, human resources, procurement, and integration. As an Executive Manager in the last 5 years of this public career, Mr. Lavelle owned the Department's Capital Project Delivery

Process. He planned, developed, and implemented a Program Management Office (PMO) for the Department. In this role he established all elements of the PMO, including the organizational structure, business and system requirements, operating guidance, roles and responsibilities, reporting and metrics and communications plan. Assisted in developing and implementing business operational improvements to over 30 divisions within the Department, including establishing a risk management program. He directed all PMO activities, provided strategic planning and vision, and provided mentoring and coaching on project management and project delivery processes. Mr. Lavelle also re-engineered NJDOT's Project Delivery Process to streamline delivery, improving communication, minimizing project risk, and limiting costly design and construction changes while maintaining high quality transportation improvements. He recently served as Risk Manager on LA Metro's \$2B LAX/Crenshaw Connector rail project. For FTA, Mr. Lavelle has served as a Risk Manager on Grand Rapids' Laker Line BRT, City of Albuquerque's Central Avenue BRT, and now BART's Transbay Corridor Core Capacity Program.

Francisco Cruz, PMA, Schedule Manager is a licensed Professional Civil Engineer with over thirteen years of experience in transit public works project. He holds a BS in Civil Engineering, and a Masters' in Construction Management. His other professional qualifications include a PMP, RMP, SP, VMA, VDC, and LEED GA. His relevant project experience includes work on New Jersey Transit (NJT) and Port Authority of NY & NJ Access to the Region's Core (ARC) Project; Port Authority Trans-Hudson (PATH) Harrison Station Replacement Project; and PATH Replacement and Upgrade of Christopher Street Station Substation, Substation #9 and Duct Bank Tunnels A/B under Hudson River Projects. On these projects, Mr. Cruz was the PANYNJ's PMO schedule manager that planned, developed, reviewed, and controlled design, right of way and construction packages related to the overall program. Mr. Cruz developed cost-loaded baseline schedules, verified that projects included the agreed upon project scope, and updated progress schedules using Primavera P6. He facilitated interactive planning sessions, identified, and allocated schedule resources, and used financial planning to track budgets. Mr. Cruz also participated in risk analysis workshops and reviews and communicated corrective and preventive actions to keep the program and individual projects on budget and on schedule. Mr. Cruz provided input for the development of FTA's New Starts funding process during the preliminary design phase, and incorporated FTA's project and construction management guidelines and risk management review procedures (OP40). For FTA, Mr. Cruz recently performed schedule risk analysis for the City of Albuquerque's Central Avenue BRT project.

Ken VanderJagt, PMA, Cost Estimation Manager is a Professional Engineer and PMP with over 45 years' experience in large public infrastructure projects, including major passenger rail projects for South Florida's Tri-Rail, LaGuardia Airport Air Train, NJ Transit Access to Regions Core (ARC) and Boston's South Coast Rail. As a member of PMA's Project Management Oversight team, he has supported FTA with readiness reviews on BART's Transbay Corridor Core Capacity project, cost estimate reviews for several New Starts' projects, and risk reviews for Grand Rapids Laker Line bus rapid transit project. He is a highly experienced estimator and scheduler that has performed these services on PMOC reviews of our sponsor's project management plan, risk and contingency management plan, cost estimates, scope documentation, schedules and management capacity and capability reviews.