



Oversight Procedure 24 – Quality Assurance/Quality Control Review

1.0 PURPOSE

The purpose of this Oversight Procedure is to describe the review, analysis, and recommended procedures and reporting requirements that the Federal Transit Administration (FTA) expects from the Project Management Oversight Contractor (PMOC) with regard to the Project Sponsor's quality assurance and quality control program and procedures and the implementation of such procedures.

2.0 BACKGROUND

The review and monitoring of a Project Sponsor's Quality Assurance/Quality Control (QA/QC) program has been a primary function of the Project Management Oversight (PMO) Program since its inception. Ensuring QA/QC is a cornerstone of the PMO Program. To a large degree, the successful implementation of a major capital project depends on the development and execution of a sound QA/QC program by the responsible Project Sponsor and its design and construction contractors.

Specifically, 49 U.S.C. 5327, Project Management Oversight, of the Federal Transit Act, states that a recipient's Project Management Plan (PMP) shall include, at a minimum, a quality assurance and quality control program which defines functions, procedures, and responsibilities for the design and construction of a major capital project. PMO Program contractors are charged with reviewing and monitoring a Project Sponsor's *development and implementation* of a PMP. A vital part of a Project Sponsor's PMP is the QA/QC program which defines a process for assuring that a quality project is designed and constructed.

The FTA Quality Management System Guidelines (QMS), issued in December 2012, define and delineate QA and QC activities:

- **Quality Assurance** includes planning for quality management activities and confirming that those activities were carried out
- **Quality Control** includes the actual implementation of quality management activities, inspecting to confirm that processes are performed correctly and completely, and the documentation thereof.

The FTA Quality Management System Guidelines also recommend that a QA/QC program should specify the organization, procedures, documentation, testing, and methods to be used to provide quality in accordance with contract documents. More specifically, a typical QA/QC program should address, but not be limited to, the following elements.

- Management Responsibility
- Documented Quality Management System

- Design Control
- Document Control
- Purchasing
- Product Identification and Traceability
- Process Control
- Inspection and Testing
- Inspection, Measuring, and Test Equipment
- Inspection and Test Status
- Nonconformance
- Corrective Action
- Quality Records
- Quality Audits
- Training

3.0 OBJECTIVES

The objective of this review is to assess and evaluate the adequacy and soundness of the Project Sponsor's QA/QC program and the Project Sponsor's implementation of such program over the course of the Project.

4.0 REFERENCES

The following are the principal, but by no means the only, references to Federal legislation, regulation, and guidance with which the PMOC should review and develop a strong understanding as related to the Project Sponsor's work being reviewed under this OP:

4.1 Legislative

- Moving Ahead for Progress in the 21st Century, or MAP-21, P.L. 112-141

4.2 United States Code

- FTA statutes, 49 U.S.C. Chapter 53

4.3 Regulations

- Project Management Oversight, 49 C.F.R. Part 633

4.4 FTA Circulars

- C5200.1A, Full-Funding Grant Agreements Guidance, 12-05-02;

4.5 Guidance

- FTA's Quality Management System Guidelines, December 2012.

4.6 Relevant OP References

- OP 1 Administrative Conditions and Requirements
- OP20 Project Management Plan Review

5.0 PROJECT SPONSOR SUBMITTALS

The submittals to be secured by the PMOC from the Project Sponsor shall be appropriate with the stage of project development. Such submittals include, but are not limited to, the following:

- Quality Assurance/Quality Control (QA/QC) Program Plan (subplan of PMP)
- Project Management Plan (PMP)
- Other sub plans

6.0 SCOPE OF WORK

The PMOC shall review the adequacy and soundness of the Project Sponsor's QA/QC Program Plan. This review will occur upon request for entry into Engineering, and upon request for receipt of a Full Funding Grant Agreement (FFGA) or Small Starts Grant Agreement (SSGA) or at FTA requests. Subsequent reviews may be required if updates and/or changes are made to the Project Sponsor's QA/QC plan.

Appendix B contains a typical Table of Contents for a QA/QC Program plan and the milestones for completion of the elements within this plan. Instructions for PMOC review of Project Sponsor's internal cost, schedule, and risk control procedures are contained in other OPs.

6.1 Quality Management Program

The PMOC shall confirm that the Project Sponsor has established a documented Quality Management Program (QMP) of procedures and activities to support the entire organization, as well as the project.

The PMOC shall confirm that the program can ensure satisfaction of project quality objectives related to the control of documents, design, procurement, construction, start-up, and operations. Procedures and activities should include document configuration, change control, and design review. Additionally, procedures may include, as relative to the project, soils and materials inspection and materials testing, among other activities.

Regarding Quality Assurance, the PMOC shall evaluate the Project Sponsor's plan for quality management activities; capabilities regarding the establishment of quality systems, identification and evaluation of quality problems, and provision of solutions. The PMOC shall confirm that quality activities were carried out.

Regarding Quality Control, the PMOC shall evaluate the Project Sponsor's actual implementation of quality management activities and the documentation thereof.

The PMOC shall confirm and assess that the Project Sponsor has adequately defined its quality policy and the quality responsibilities of the project team. The Project Sponsor is responsible for ensuring that the quality policy and program are being implemented and maintained at all levels of the Project Sponsor organization and project staff. The PMOC shall confirm that the Project Sponsor has assigned qualified personnel, independent of those having direct responsibility for the work being performed, to be responsible for QA/QC functions within the project. The PMOC shall also confirm that such personnel are implementing and maintaining the Project Sponsor's quality policy.

The Project Sponsor shall also establish an internal audit process to ensure that the elements of the quality management program are functioning as intended. The PMOC shall review the Project Sponsor's quality control and assurance procedures and determine the adequacy of such procedures.

6.2 Document Control

The PMOC shall confirm that the Project Sponsor has an established document control program within its QA/QC Program Plan, and shall assess the adequacy of such control and assurance procedures and requirements. During review of the Project Sponsor's document control procedures, the PMOC shall confirm that the Project Sponsor has specified a written document control procedure, which includes document review and document distribution and storage, and that incorporates the requirements and responsibilities of design consultants and various construction contractors. Further, the PMOC shall confirm that the Project Sponsor has in place adequate quality assurance procedures to ensure document controls are in place and being implemented.

6.3 Design Control

The PMOC shall confirm that the Project Sponsor has an established Design Control Plan within its QA/QC Program Plan and shall assess the adequacy of such quality control and assurance procedures and requirements. The PMOC shall confirm that the Project Sponsor has specified procedures for design verification and design review, and shall assess the adequacy and efficacy of these control and assurance procedures. Design verification procedures shall include activities such as independent checks on design drawings and specifications and/or checklists documenting completeness, coordination, constructability, operability, and maintainability; and design calculations for structural, mechanical, electrical, etc. Further, the PMOC shall confirm that the consultant(s) responsible for design have established procedures for controlling their design processes. The PMOC shall also confirm that the Project Sponsor has specified design review procedures for all design consultants and procedures for design and/or specification changes including signoff and documentation of such changes. Finally, the PMOC shall confirm that the Project Sponsor has documented procedures and requirements regarding "as-built" documents. Further, the PMOC shall confirm that the Project Sponsor has in place adequate quality assurance procedures to ensure design control procedures are in place and being implemented.

6.4 Procurement/Construction/Inspection

6.4.1 Procurement

The PMOC shall confirm that the Project Sponsor has in place written procedures that will; ensure competition in the bidding by obtaining bids from a number of qualified contractors for desired services. The PMOC shall confirm that the Project Sponsor complies with the requirement to include in its procurement plan a statement of general requirements, which includes quality requirements and a requirement for any past, demonstrated capability, and performance of quality implementation. The PMOC shall review and assess the Project Sponsor's procedures for ensuring that quality control requirements are included within proposals/bids, and formally communicated to potential consultants/contractors/subcontractors.

The PMOC shall review the Project Sponsor's procedures for ensuring that procurement documents are reviewed and approved by a designated authority prior to release, with special attention to the review of the Project Sponsor's construction contract documents including general and special conditions and quality control requirements.

The PMOC shall confirm that the Project Sponsor includes in contract documents, where appropriate, a requirement for equipment manufacturers or others supplying products for the project, that clearly provides for product identification and traceability. The PMOC shall also review and assess the adequacy of the Project Sponsor's requirements for product identification and traceability for products and materials turned over to the owner at project conclusion.

6.4.2 Construction/Inspection

The PMOC shall review and assess the adequacy of the Project Sponsor's requirements for a quality control inspection and testing program through all phases of the work including inspection and testing procedures for special processes and requirements for calibration and maintenance of inspection, measuring, and/or test equipment. The PMOC shall confirm that the Project Sponsor's QA/QC Program Plan adequately indicates and describes the types of inspection and testing required and the standards to be met and provides reference to such testing and standards requirements within the project specifications. Further, the PMOC shall also confirm that the Project Sponsor has in place adequate quality assurance procedures to ensure successful implementation of the quality control program during construction of the works.

The PMOC shall review and assess the adequacy of the Project Sponsor's procedures for handling nonconforming work. The PMOC shall confirm that such procedures define responsibilities, conditions that would cause work to stop, and documentation procedures to record nonconforming work. Further, the PMOC shall review and assess the adequacy of the Project Sponsor's procedures for determining the root cause of the nonconforming work and taking corrective action to preclude recurrence.

6.5 Operations, Startup, and Training

The PMOC shall review and assess the adequacy of the Project Sponsor's control procedures for the testing of systems, vehicles, and service equipment, as well as the Project Sponsor's safety certification process, training procedures for operating and maintenance to ensure a smooth transition to operations. The PMOC shall also confirm that the Project Sponsor has in place adequate quality assurance procedures to ensure successful implementation of the training program.

7.0 REPORT, PRESENTATION, RECONCILIATION

The PMOC shall provide the FTA with a written report of its findings, analysis, recommendations, and professional opinions, including a description of the review activities undertaken. After FTA approval, the PMOC should share the report with the Project Sponsor. In the event that differences of opinion exist between the PMOC and the Project Sponsor regarding the PMOC's findings, the FTA may direct the PMOC to reconcile with the Project Sponsor and provide the FTA with a report addendum covering the agreed modifications by the Project Sponsor and PMOC.

The report formatting requirements of OP 01 apply. When necessary, the PMOC shall perform data analysis and develop data models that meet FTA requirements using Microsoft Office products such as Excel and Word and use FTA-templates when provided. The PMOC may add other software as required, but documentation and report data shall be made available to the FTA.

APPENDIX A

Acceptable Quality Level

	DESIRED OUTCOME	PERFORMANCE REQUIREMENT	CHECK LIST	ACCEPTABLE QUALITY LEVEL	PERFORMANCE MEASURE	MONITORING METHOD
1	The PMOC shall assess and evaluate the adequacy and soundness of Project Sponsor's QA/QC program and implementation of it throughout the course of the Project.	R1a. The PMOC shall develop and document a process for review and analysis of a Project Sponsor's QA/QC program.		Q1a. PMOC provides documentation of the process	M1a. Review of the process documentation.	MM1a. Periodic review by FTA or its agent.
		R1b. The PMOC shall use its process and project management judgment to evaluate the adequacy, soundness and implementation of the QA/QC program over the course of the Project.		Q1b. Assessment must be made and the PMOC provides internal confirmation that the process has been followed.	M1b. Documented assessment of the QA/QC program and its implementation as an integral component of Project Sponsor's Project Management.	MM1b. Periodic review by FTA or its agent.
2	PMOC shall confirm that Project Sponsor has established a documented Quality Management Program (QMP) of procedures and activities that fully support the Project and the entire Project Sponsor organization.	R2a. The PMOC shall provide FTA with its opinion as to the ability of Project Sponsor's QMP to satisfy Project objectives related to documentation, design, procurement, construction, start-up, and operations.		Q2a. Professional opinion of the soundness of Project Sponsor's QMP for the Project phase.	M2a. Documented evidence of a thorough review by PMOC of soundness of Project Sponsor's QMP, supported by professional opinion.	MM2a. Periodic review by FTA or its agent.
		R2b. The PMOC shall provide FTA with an opinion as to Project Sponsor's implementation of its Quality Assurance Plan, including quality management activities, quality systems, problem solving, and confirmation that quality activities were carried out.		Q2b. Professional opinion of implementation of Project Sponsor's QA Plan and confirmation that it was utilized throughout the Project.	M2b. Documented evidence of a thorough review of Project Sponsor's implementation of its QA Plan with confirmation that quality activities were carried out, supported by professional opinion.	MM2b. Periodic review by FTA or its agent.
		R2c. The PMOC shall provide FTA with an opinion as to Project Sponsor's implementation of its Quality Control Plan, including evaluation of the actual implementation of quality management activities and documentation of them by the Project Sponsor.		Q2c. Professional opinion of implementation of Project Sponsor's QC Plan throughout the Project.	M2c. Documented evidence of a thorough review of the implementation of Project Sponsor's QC Plan, supported by professional opinion	MM2c. Periodic review by FTA or its agent.
		R2d. The PMOC shall provide FTA with its opinion of the adequacy of Project Sponsor's QA/QC Plan with respect to document control procedures for review, distribution, and storage and content and that Project documentation is being maintained according to the Plan.		Q2d. Professional opinion of QA/QC document control and its implementation on the Project.	M2d. Documented evidence of a thorough review of the QA/QC Plan for document control and confirmation of its proper implementation, supported by professional opinion.	MM2d. Periodic review by FTA or its agent.
		R2e. The PMOC shall provide FTA with its opinion of the adequacy of Project Sponsor's QA/QC Plan with respect to Design Control and Design Control procedures and confirm that those procedures are in place and being adhered to.		Q2e. Professional opinion of QA/QC design control and its implementation on the Project.	M2e. Documented evidence of a thorough review of the QA/QC Plan for design control and confirmation of its proper implementation, supported by professional opinion	MM2e. Periodic review by FTA or its agent.
		R2f. The PMOC shall provide FTA with its opinion of the adequacy of Project Sponsor's QA/QC Plan with respect to procurement, construction/inspection, testing, startup, and training and confirm that Project Sponsor has in place the necessary procedures to insure competition in bidding, appropriate construction inspection and testing, vehicle and system testing and Project startup.		Q2f. Professional opinion of QA/QC procedures of procurement, construction/inspection, testing, startup, and training for the Project.	M2f. Documented evidence of a thorough review of the QA/QC Plan for proper procedures in procurement, construction/inspection, testing, startup, and training, supported by professional opinion	MM2f. Periodic review by FTA or its agent.

APPENDIX A

Acceptable Quality Level

	DESIRED OUTCOME	PERFORMANCE REQUIREMENT	CHECK LIST	ACCEPTABLE QUALITY LEVEL	PERFORMANCE MEASURE	MONITORING METHOD
3	The PMOC shall document its findings, professional opinions, and recommendations in a report to the FTA.	R3. The PMOC shall present its findings, conclusions, and recommendations to FTA and reconcile other reports and those recommendations with the Project Sponsor to the extent possible.		Q3. Reports and presentations are professional, clear, concise, and well written. The findings and conclusions have been reconciled with other PMOC reports and have been reconciled with Project Sponsor to the extent possible.	M3. PMOC's findings, conclusions, recommendations, and presentation.	MM3. Periodic review by FTA or its agent.

APPENDIX B

Sample Table of Contents – Quality Assurance/Quality Control Plan

Quality Control/Quality Assurance Table of Contents	In PD and/or Requesting Entry to Engineering	In Engineering and/or Requesting FFGA/SSGA	In Bid/ Award and/or Construction	Startup and Safety Certification
Quality Management Program				
Introduction	○			
Quality Policy	○			
Quality Objectives	○			
Quality Management Responsibility	○			
Quality Management Training Procedures	○			
Document Control Procedures and Activities				
Project Document Review, Distribution, Storage Procedures	○			
Quality Records Distribution, Maintenance, Storage Procedures	○			
Document Control Quality Assurance Procedures	○			
Design Control Procedures and Activities				
Design Verification Procedures	○			
Design Review Procedures for Drawings and Specifications	○			
Design Change Procedures	●	○		
Design Control Quality Assurance Procedures	○			
Procurement Procedures and Construction Procedures				
Construction Procurement Procedures, Identification of Contract Requirements	●	○		
Construction Contract Document Review Procedures including General and Supplementary Conditions	●	○		
Equipment and Vehicle Procurement Procedures	●	○		
Product Identification	●	○		
Product Identification Procedures	●	○		
Inventory Control Procedures	●	○		
Routing Documentation Procedures	●	○		
Special Process Procedures	●	○	○	
Construction Inspection Procedures (project site and fabrication site)	●	○	○	
Measuring and Test Equipment Quality Control Procedures	●	○	○	
Testing Procedures (soils, materials)	●	○	○	
Nonconformance Procedures	●	○	○	
Corrective Action Procedures	●	○	○	
Procurement/Construction Quality Assurance Procedures	●	○	○	
Operations, Startup, and Training				
Testing Procedures for Systems, Vehicles, Service Equipment	●	○	○	○
Training Procedures	●	○	○	○
Operations, Startup, Training Quality Assurance Procedures	●	○	○	○

NOTE: ▲ – Preliminary information required; ● – Element to be completed; ○ – Element to be modified or augmented with additional information as necessary.