QUALITY MANAGEMENT SYSTEM PLAN (QMSP)

Washington Metropolitan Area Transit Authority (WMATA)
August 2018
### REVISION HISTORY

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<tr>
<th>Revision No.</th>
<th>Revision Date</th>
<th>Description of Changes</th>
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<tr>
<td>0.1</td>
<td>06.13.17</td>
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<td>0.2</td>
<td>07.14.17</td>
<td>Re-outlined and re-formatted per June 2017 QICO input</td>
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<td>0.3</td>
<td>08.04.17</td>
<td>Updates and corrections to body text, visual aids, and attachments; additional format enhancements for consistency and clarity</td>
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<tr>
<td>1.0</td>
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<td>1.1</td>
<td>01.26.18</td>
<td>Updates to responsibility matrix and organization charts based on organizational changes; Enhancements to visual aids; Additions to text regarding the approach to Internal Reviews and Quality Assessments and associated appended procedures as well as terms in the Definitions section</td>
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<td>1.2</td>
<td>06.01.18</td>
<td>Updates to QMS documentation hierarchy in Section 2.2.3 and changed &quot;Forms&quot; to “Forms &amp; Records”; addition of General Counsel as a chief level department to Section 2.3.2.1 org chart, and QICO org chart as well as QICO responsibilities. Addition of “discrepancies” to definition section; modified attached QMP template (Appendix 4.6)</td>
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<td>1.3</td>
<td>08.07.18</td>
<td>Added customer satisfaction component to Quality Policy on approval page and 2.2.1.2; Section 3.10 – re-defined &quot;Quality Records&quot; to improve applicability throughout the Authority; Added list of all core QMS Procedures to Section 4.5; In Section 2.1 Core QMS Standards, added detail to indicate that the top level Core QMS Standards Procedures do not require separate signatures from the GM, the Chief of INCP, and the Managing Director of QICO; Added relevance/integration of existing WMATA documents to this QMSP in Document Control Section 3.2.7</td>
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WMATA QUALITY POLICY

All work must be performed to meet or exceed WMATA standards to ensure the safety of our employees, contractors and traveling public, while consistently delivering quality service and customer satisfaction.

MANAGEMENT COMMITMENT

The General Manager is committed to:

- Ensuring that the quality policy is communicated to all employees and applied across the Authority through training,
- Full compliance with policy and quality-related processes, practices, programs, and procedures at all levels of the organization, and
- Providing instruction, training, evaluation, and supervision necessary to achieve the required levels of competence within each department.

All WMATA employees, from department Chiefs to the front-line, as well as contractors, are expected to adhere to the Quality Principles and guidelines identified in this Quality Management System Plan (QMSP). To ensure full compliance within WMATA, the Office of Quality Assurance, Internal Compliance & Oversight (QICO) s granted access and cooperation from all departments and contractors in support of assessments, reviews, and spot checks.

For and on behalf of the Washington Metropolitan Area Transit Authority,

Paul J. Wiedefeld
General Manager and CEO

8/9/18

Eric Christensen
Chief, Internal Compliance (INCP)

8/9/18

Angel Peña
Managing Director
Quality Assurance, Internal Compliance & Oversight (QICO)

08/08/18
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The Office of Quality Assurance, Internal Compliance and Oversight (QICO) developed this Quality Management System Plan (QMSP) for the Washington Metropolitan Area Transit Authority (WMATA, “Metro”, or “the Authority”) to describe how the agency defines and approaches quality.

The QMSP represents a governing document and guiding vision to direct and focus what will be a multi-year effort to comprehensively implement a WMATA Quality Management System (QMS). This document lays out the structure and responsibilities for managing quality in every department, for every process, every time.

This document will first provide a brief introduction to Quality Management Systems and their importance to WMATA, followed by a detailed overview of WMATA’s plan and framework to implement a QMS. Subsequent sections provide specific requirements of core QMS standards.

The Plan is a living document that is based on current realities and assumptions, and it is therefore expected that it will be subject to future revisions. Please join us in the implementation of this ambitious but essential program to assure the continued future delivery of quality services to the entire region.

Angel Peña
Managing Director
Office of Quality Assurance, Internal Compliance, & Oversight (QICO)
Washington Metropolitan Area Transit Authority (WMATA)
1 QUALITY MANAGEMENT: PURPOSE & NEED

1.1 WMATA CONTEXT

Every day, a vast number of people and assets come together at WMATA to operate Washington, DC’s regional public transportation system:

Additionally, WMATA’s Capital Improvement Program expends roughly $1 billion dollars per year to rehabilitate, replace, and expand the asset base.

An organization as large, complex, and critical as WMATA – with nearly countless daily interactions and handoffs between thousands of people and thousands of assets – justifies a comprehensive and coordinated Quality Management System to assure meeting the requirements of its stakeholders, particularly those of its riding customers, member jurisdictions, and the regulations established by oversight bodies.
1.2 QUALITY MANAGEMENT

A quality management system (QMS) is a formalized system that documents processes, procedures, and responsibilities for achieving quality policies and objectives. A QMS helps coordinate and direct an organization’s activities to meet customer and regulatory requirements and improve its effectiveness and efficiency on a continuous basis.

- American Society for Quality

1.2.1 QMS Overview

An effective quality management system:

- Promotes reliability, with quality assets and services performing consistently, without fail
- Reduces wasted time and materials
- Defines and controls processes
- Promotes continuous process improvement
- Maximizes overall efficiency in providing assets and services
- Forms and communicates expectations, engaging employees
- Identifies and prioritizes training opportunities and requirements
- Shifts focus from reactive (correcting failures) to proactive (preventing failures)

The QMS affects every aspect of an organization's operations and performance. The QMS integrates quality policy throughout the organization by creating a common language, and describing common quality principles for use by the entire organization. The QMS includes all documents that together specify quality requirements, resources, and practices, including the activities and processes necessary to deliver assets, services, projects, contracts, tasks.

It is comprised of documents with increasing levels of specificity:

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*QMSP PURPOSE & NEED*
1.2.2 The Applicability of Quality at WMATA

In recent decades, large U.S. transit systems have successfully adopted and implemented Quality Management Systems for major federally-funded capital projects, as per Federal Transit Administration (FTA) requirements and guidance. The Quality Management framework can be applied not only to major expansion projects, but also to the ongoing operation and maintenance of the transportation system.

In the establishment of standardized and comprehensive strategic, tactical, and directive documents governing the day-to-day work of WMATA departments, these can be identified and structured based on several components/perspectives of quality, including:

- **Asset Quality**: Ensuring that WMATA’s assets meet the requirements of policies, procedures, specifications, contract documents, industry practices, regulations, and other applicable documents.

- **Construction Quality**: The organization, procedures, inspections, tests, and documentation implemented by the Authority, construction management Consultants, and/or Contractors to ensure that construction work, materials, and services meet the design, contract, and regulatory requirements.

- **Customer Service Quality**: The collection and analysis of customer feedback, communication of key results internally, and adoption of strategies to enhance customer service and satisfaction.

- **Design Quality**: The organization, procedures, and documents used to control and verify that designs meet the specified design criteria, contractual requirements, and agency regulations.

- **Maintenance Quality**: The organization, procedures, inspections, tests, and documentation implemented by the Authority, its Consultants, and its Contractors to ensure the safety and reliability through proper maintenance of assets.

- **Manufacturing Quality**: The procedures, inspections, tests, and documentation used by manufacturers to ensure that purchased assets meet the Authority’s specified requirements.

- **Service Delivery Quality**: The organization, procedures, inspections, tests, and documentation implemented by the Authority, its Consultants, and its Contractors to ensure the safety and reliability of its facilities and operations.

- **Procurement Quality**: The procedures employed ensure that purchased assets and services meet the Authority’s specified requirements.
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2 WMATA QUALITY MANAGEMENT SYSTEM PLAN (QMSP)

This Quality Management System Plan will be used both internally and externally. It will guide employees through WMATA’s expectations and standards that must be met and maintained to ensure compliance with requirements. The responsibilities, procedures, and documents comprising the QMS, including this QMSP, apply to all offices, departments, and projects within the Authority’s responsibility. The QMSP will also be used externally to introduce the QMS to the Authority’s customers, stakeholders, contractors, suppliers, and vendors.

The Plan is a living document that is based on current realities and assumptions, and it is therefore subject to future revision.

2.1 CORE QMS STANDARDS

The WMATA QMS has been structured to address 15 core standards, as summarized below. These have been developed based on international standards (ISO 9001:2015) as tailored to a transit-specific context.

1. Management Responsibility
   • Commitment of senior management to implement, maintain, and continually improve upon WMATA’s Quality Management System

2. Documented Quality Management System
   • The combined set of quality documents, including a Quality Management System Plan, subordinate Quality Management Plans, Policies & Procedures, Work Instructions, Forms, etc.

3. Design Control
   • Processes to ensure the consistent development and maintenance of quality design documentation for projects and assets based on requirements, standards, criteria, etc.

4. Document Control
   • Managing information to ensure the most current approved documents are in use

5. Purchasing
   • Providing for timely procurement of the right items/assets and services required for proper performance

6. Identification & Traceability of Assets & Material
   • The ability to track the unique history, location, performance, and configuration of any asset over its lifecycle

7. Process Control
   • Management and documentation of inter-related resources and activities to turn inputs into outputs/outcomes

8. Inspection, Testing & Status
   • Verification and documentation that practices, processes, assets, and materials comply with applicable procedures, specifications, etc. and are fit for service

9. Inspection, Measuring & Test Equipment
   • Identification and periodic testing and calibration of measuring and test equipment to assure readiness for use

10. Non-Conformance
    • Systematic tracking of work performed or material that does not meet procedures, specs, contract requirements, etc.

11. Corrective & Preventive Actions
    • Measures taken to modify processes/procedures to correct and prevent recurrence of non-conformances and failures

12. Quality Records
    • Documents generated by Quality functions that provide objective evidence of fulfillment of requirements

13. Internal Reviews & Quality Assessments
    • Independent, objective review of conformance to quality standards and/or the overall effectiveness of processes in delivering acceptable levels of quality

14. Training
    • Providing skills and knowledge required for staff to successfully perform a job

15. Customer Focus
    • Proactively addressing the needs and wants of internal and external customers, always
2.2 WMATA QMS FRAMEWORK

Successfully incorporating the Core 15 Standards identified in 2.1 above, into WMATA’s practices requires a commitment by management, a roadmap for what documentation and elements to develop first, and the development of an assurance and oversight plan by the department and individuals accountable for the QMSP.

2.2.1 Management Responsibility

Page iii of this document demonstrates the uniform commitment of WMATA’s executive management to the adoption and success of the Quality Management System.

The Managing Director of Quality Assurance, Internal Compliance, and Oversight (QICO) will serve as the designated management representative responsible for ensuring that the Quality Policy is implemented and maintained.

The QICO Managing Director or designee will conduct formal reviews of the Policy at regular intervals to ensure that it remains applicable to the Authority’s work and is effective at all levels of WMATA, and will maintain a direct reporting relationship to the WMATA General Manager.

2.2.1.1 Policy & Commitment

All work must be performed to meet or exceed WMATA standards to ensure the safety of our employees, contractors and traveling public, while consistently delivering quality service and customer satisfaction.

2.2.1.2 Quality Program Objectives

WMATA has adopted the above Quality Policy and is establishing a supporting Quality Management System to achieve the following primary quality objectives:

- Delivery of services safely, reliably, efficiently, and in compliance with all applicable regulations and requirements;
- Establishment and implementation of a formal quality management system that is effective, responsive, and in line with industry best practice;
- Reduction of the Authority’s risk;
- Value added to WMATA’s assets, resources, and the greater Washington region; and
- Continuous improvement of and dedication to the quality of WMATA’s public services and facilities.

2.2.1.3 Quality Principles

WMATA employees, consultants, contractors, and vendors shall adhere to the following quality principles inherent in the Quality Policy and critical to achieving the above:

- A Customer Focus that determines customer needs and expectations, converts them to requirements, and meets the requirements with the goal of enhancing customer satisfaction.
- Effective Leadership that instills a “Culture of Quality” by promoting the Quality Policy, affirming the Management Commitment, and fully implementing the Quality Management System.
• A **Process Approach** to plan, coordinate, supervise, monitor, and direct the Authority's maintenance of assets and operations through checking, testing, documentation, periodic reviews, assessments, and audits.

• **Team Building and Empowerment** with appropriately-trained, competent, and skilled personnel.

• Implementing **Evidence-based Decision Making**, which considers work responsibilities and deliverables thoughtfully, through a careful understanding of a problem, its stakeholders, and the applicable contractual and regulatory requirements.

### 2.2.2 QMS Organizational Role

WMATA’s core business units are those that directly deliver service to customers, in particular the transportation departments (operating vehicles and stations), the maintenance departments (ensuring vehicles and stations are fit for safe and reliable service on a daily basis), engineering groups (ensuring designs and modifications conform to requirements and constraints), and the capital programs groups (delivering new assets for service). Feedback and requirements of WMATA’s customers and stakeholders in turn feed back into informing and prioritizing WMATA management initiatives and decisions.

Quality Management represents one of several key supporting management functions and approaches that WMATA will apply to support the core business units to deliver safe, reliable, and financially responsible service to its riders and the region.
2.2.3 QMS Hierarchy

The collection of documents which will comprise the WMATA QMS are organized in a hierarchical manner, with different types of QMS documentation corresponding to levels of accountability within the WMATA organization. This relationship is illustrated below:

Just as the General Manager specifies strategy and direction for the WMATA Chiefs to delegate and execute, so too does the Quality Management System Plan, an enterprise governance document, provide strategy and direction for the development of Quality Management Plans comprised of appropriate standards, policies, and procedures that reflect the implementation of the Core QMS Standards identified in the QMSP.
2.3 QMP DEVELOPMENT

Quality Management Plans (QMPs) will form the “glue” that binds together the components of the QMS, by organizing and connecting the work instructions, forms, and procedures executed daily by staff into a consistent Quality framework across the Authority.

In some cases, development of a QMP means gathering, organizing, and refreshing existing documentation to conform to the WMATA QMS system. Where gaps or deficiencies in procedures, work instructions, or quality processes are identified, a new or revised QMP will reflect the development of new documentation and training, as applicable, to correct the gap.

In all cases, QICO will partner with, and support departments, in developing required QMP material and training plans, and with implementation. QICO has developed a QMP Template (see Appendix 4.6) to facilitate the gathering and development of essential QMS standards and components.

2.3.1 QMP Description

QMPs describe a department’s or project’s procedural approach to align the QMSP requirements with the specifics of that department’s or project’s deliverables. It describes those activities to ensure quality delivery of services and assets. Its purpose is to describe and define the processes necessary for quality operations.

Quality Management Plans will include:

- Desired results or end states
- Process steps to capture practices, and procedures
- Assignment of responsibility and authority
- References to specifications, standards
- Inspection and testing requirements
- Documented procedures for capturing and approving changes, and modifications
- Metrics to capture achievements
- Minimum frequency of review/updates appropriate to ensure the department or project remains adaptive to changing conditions and priorities.

The QMP and supporting documents (procedures, work instructions) integrate the requirements of the QMSP. In this way, each office/department develops its own best way for contributing to the safety, reliability and fiscal responsibility of WMATA. Specific quality procedures translate requirements into the actions producing desired outcomes. The QMP with supporting documents describes the practices, assigns the personnel (by name or position), the inspection and testing requirements, and the acceptance criteria. It includes any legal requirements, regulations, industry standards, organization policies, internal guidelines, and best practices necessary to provide the desired outcome.
The QMP:
- Assures conformance to requirements
- Meets internal and external requirements
- Provides traceability
- Provides objective evidence
- Provides a basis for training

2.3.2 Planned QMPs

The WMATA QMS will be comprised of three types of subordinate, conforming QMPs:
- Departmental QMPs,
- Project QMPs, and
- 3rd Party QMPs.

The requirements to develop and maintain a particular QMP of one of the above types are described below.

2.3.2.1 Departmental QMPs

WMATA departments will develop and maintain QMPs to assure the quality of ongoing operations. Initially, QMPs will be developed at a minimum, at the Chief Level. The following WMATA organizational chart indicates the anticipated minimal departmental requirements for QMP development, with the intent of defining the Quality Management Plan structure, based on the direct reports to the General Manager of WMATA (which may change):

![Organization Chart]

Departmental QMPs must only address the QMS standards that are applicable to the operation and responsibilities of that department. In Section 2.3.3 below, QICO has provided a preliminary analysis of which categories of standards are to be addressed for which department.

To better accommodate the documentation of Quality Management processes in larger departments with a broad variety of organizational units, Departmental QMPs may be segmented into sub-sections as appropriate. However, when and where practicable, the standardization of quality practices and processes across functions is desirable.
2.3.2.2 Project QMPs

Major capital projects must have Quality Management Plans. FTA’s QMS Guidance (FTA-PA-27-5194-12.1) defines a major capital project as:

1. The construction of a new fixed guideway or extension of an existing fixed guideway;
2. The rehabilitation or modernization of an existing fixed guideway with a total project cost in excess of $100 million; or
3. Upon the determination of the FTA Administrator.

WMATA’s Capital Program will at minimum adhere to these criteria. The Managing Director of QICO, with the consent of the General Manager, may identify and designate additional capital projects as requiring a project-specific Quality Management Plan if not meeting any of the above 3 criteria.

2.3.2.3 3rd Party QMPs

WMATA contractors will be required to maintain and provide their conforming Quality Management Plans to assure the internal quality of services or materials provided to WMATA. Such QMPs may be explicitly identified as contractual deliverables or may be a requirement subject to review on-demand by WMATA’s assigned Quality representative.

2.3.3 Preliminary Department Responsibility Matrix

As identified in Section 2.3.1 above, the specific requirements of each QMP will vary depending on the context of the department. QICO has prepared the preliminary Departmental QMS Responsibility Matrix, shown on the following page. This matrix indicates which of the QMS standards identified in Section 2.1 above are applicable to the business processes and responsibilities of each WMATA department. The matrix uses “P” to signify that a department will have a primary role in authoring, revising, and/or maintaining documents or documented processes, and “S” to signify a secondary/supporting role having input or being impacted by documents or processes owned by another department.

QICO anticipates that this matrix will be updated pending input and discussion from the various departments. The matrix in its ongoing form will be the basis of a continual “gap assessment” to target potential weak areas in WMATA’s QMS to target QMP development efforts.
## Preliminary QMS Responsibility Matrix

### WMATA Organizational Structure

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<td>Support Services (SSRV)</td>
</tr>
<tr>
<td>Safety &amp; Environmental Management (SAFE)</td>
<td>Management Audits, Risk, and Compliance (MARC)</td>
</tr>
<tr>
<td>Internal Compliance (INCP)</td>
<td>Special Projects (SPEC)</td>
</tr>
<tr>
<td>General Counsel (COUN)</td>
<td></td>
</tr>
</tbody>
</table>

* Matrix Illustrates Chief and Department Levels Only.
* P = Primary Role: Organization is authoring/maintaining documents or documented processes
* S = Secondary/Supporting Role: Organization provides inputs or is impacted by a document/process owned by another WMATA department

Organizational Structure as of 01/22/2018
2.3.4 Prioritization of QMP Development

While the QMSP envisions the eventual development of QMP’s across the entire organization, it is necessary in practice to prioritize QMP development, review, and adoption efforts. QMP development efforts will be focused first on those elements of the operation that are subject to the highest priority and/or greatest number of open regulatory findings and active Corrective Action Plans. As these findings are focused on safety-critical operational, maintenance, and engineering functions that also have direct impact on service reliability, this focus will ensure a risk-prioritized approach to QMS implementation.

2.3.5 QMP Review Process

Approval and maintenance of quality management plans will follow a general cycle that will be established, administered, and documented by QICO:

1. **Submit**: Responsible organization drafts QMP and submits it to QICO.
2. **Review, Comment, and Revision**: QICO reviews the draft QMP and returns comments to the responsible organization. The responsible organization revises and re-submits the QMP as warranted.
3. **QMP Approval**: QICO provides written approval of the QMP to the responsible organization, and publishes the approved and adopted QMP as part of the Documented Quality Management System.

The size and composition of a Quality Management Plan review team will be determined by the QICO Managing Director or designated WMATA Quality Manager (WMATA employee or consultant representative) for the given program, project, contract, or procurement. For office/departmental QMPs and projects without designated quality managers, the QICO Managing Director will appoint appropriate review teams.

For some projects, third party representatives (e.g. utilities, adjacent property owners, public safety, municipalities, etc.) may be required to participate in QMP reviews as specified in Memoranda of Agreement (MOA) or other agreements. The QICO Managing Director or designated WMATA Quality Manager for the project will determine the level of QMP review participation required.

2.3.6 QMS Training

Following the adoption of this QMSP, QICO will develop a QMS training curriculum and training plan to support WMATA departments, not only in the development of QMPs, but also in the adoption of a Quality Management perspective, in day-to-day work.
2.4 QMS OVERSIGHT & MONITORING

The Office of Quality Assurance, Internal Compliance, & Oversight (QICO) is responsible for overseeing and ensuring the development and implementation of WMATA’s Quality Management System according to the framework specified in this document.

While WMATA department Chiefs and Directors are ultimately responsible for the content and efficacy of their respective Quality Management Plans, QICO will provide ongoing assistance and guidance along with structured monitoring to support successful development.

2.4.1 QICO Roles & Responsibilities

The QICO Managing Director bears ultimate responsibility for the department’s duties regarding the QMS, but is supported by a team of accountable and empowered managers who will administer particular components of the QMS.

The QICO department is organized per the following organizational chart:
The roles & responsibilities of key QICO staff with respect to the QMS are as follows:

<table>
<thead>
<tr>
<th>Position</th>
<th>Quality Role</th>
<th>QMS Responsibility</th>
</tr>
</thead>
<tbody>
<tr>
<td>QICO Managing Director</td>
<td>Reports to the Chief of Internal Compliance and the General Manager on issues pertaining to Quality</td>
<td>Overall accountability for QMS</td>
</tr>
<tr>
<td>QICO Director</td>
<td>Manages QICO department operations</td>
<td>Management of QMS implementation &amp; oversight as delegated by the Managing Director</td>
</tr>
<tr>
<td>Program Manager - Rolling Stock and Passenger Service Assurance Programs</td>
<td>Manages Quality Assurance programs for railcar (including new rail car commissioning), bus, MetroAccess vehicle, rail-borne equipment and other non-revenue vehicles maintenance, operation and engineering</td>
<td>Monitor and assess compliance with Quality requirements for rolling stock maintenance, operations and engineering</td>
</tr>
<tr>
<td>Program Manager - Infrastructure Assurance Program</td>
<td>Manages Quality Assurance programs for infrastructure maintenance, engineering and asset management</td>
<td>Monitor and assess compliance with Quality requirements for infrastructure maintenance, engineering and asset management</td>
</tr>
<tr>
<td>Program Manager - Capital Projects and Parts &amp; Materials Assurance Programs</td>
<td>Manages Quality Assurance programs for Capital Improvement Projects, and Rolling Stock/Infrastructure Parts &amp; Materials (including procurement, receiving and storage)</td>
<td>Monitor and assess compliance with Quality requirements for capital improvement projects (management and execution) and parts &amp; materials management</td>
</tr>
<tr>
<td>Program Manager - Compliance, Policy and Quality Improvement Programs</td>
<td>Monitors and ensures compliance with required actions and findings resulting from Internal Reviews and from External Oversight authorities (e.g. FTA, TOC, NTSB, GAO, etc.); Leads process improvement initiatives, research, policy and strategy</td>
<td>Advise on the status of Corrective Action Plans, drive quality policies and lead process improvement initiatives in support of QMSP</td>
</tr>
</tbody>
</table>
2.4.2 QMS Surveillance Plan

QICO will deploy several processes to assure continued progress on QMS implementation; some of these processes will occur on a scheduled/periodic basis, while others will be conducted as-needed on a risk-prioritized basis.

In all instances, the success of this surveillance depends on QICO having unrestricted access and full cooperation from all departments during all Quality related activities under the delegated authority and direction of the WMATA General Manager.

2.4.2.1 Triennial QMS Review

The QICO Managing Director will be responsible for producing at minimum a triennial (once every 3 years) review of the WMATA QMS in comparison to the framework and requirements outlined in this QMSP. This comparison and review shall be based on a variety of inputs, including:

- Results of internal and external audits, Quality Assessments, and Internal Reviews
- Non-conformance data
- Status of Corrective and Preventive Actions
- Evaluation on the suitability, adequacy, and effectiveness of the current QMS

The draft QMS Review will be presented to the WMATA Executive Management team for comment prior to finalization and issuance of the final annual QMS Review.

The QMS Review will provide recommendations and/or required actions for maintaining and improving the QMS, and will inform priorities in QICO’s annual internal review and assessment plans described below.

2.4.2.2 Internal Reviews & Quality Assessments

In its role overseeing the development and implementation of the WMATA QMS described in this Plan, QICO will perform two related types of internal assessment:

- Internal Reviews are comprehensive assessments of functional areas of WMATA’s operations - Engineering & Maintenance; Service Delivery; Capital Programs; and Safety & Security. These reviews may span multiple departments, have broad scopes and are intended to provide WMATA senior management with an assessment of the current methods and practices associated with the specific subject area being examined.

- Quality Assessments are performed to evaluate conformance to the procedures and actions that are to be documented in Quality Management Plans, as well as success towards achieving identified quality targets. Quality Assessments are focused on determining the existence and effectiveness of quality management practices in day-to-day business (for departments) or during delivery (for projects).
The results of these internal reviews and quality assessments shall be scored based on pre-defined quality management practice measures, which at a minimum include the following:

- **Policies, Procedures & Standards** – a measure of rules and processes, including the existence/applicability of and adherence to, as they relate to the reviewed function.
- **Quality & Compliance** – a measure of work performed in accordance with defined requirements, such as design specifications, workmanship standards, and tolerances.
- **Traceability** – a measure of organizational control of documentation and records, including document control mechanisms and work order management.

The QICO Managing Director will present an Annual Review Plan to the WMATA General Manager for review and approval, which takes into account the scoring results of prior year internal reviews and quality assessments to drive the identification of focus areas, the scope of examinations and schedule for next year’s plan. This Annual Review Plan will identify and describe planned internal reviews and major assessments for the coming calendar year. Upon approval, the Annual Review Plan will be shared with all WMATA department Chiefs to communicate scheduled major internal reviews.

QICO Managers (see Section 2.4.1) are responsible for planning, scheduling, and coordinating systematic quality assurance programs, including regular internal reviews and quality assessments, in their respective assigned areas. QICO Managers will contribute to the development of the Annual Review Plan based on their ongoing observations and the results of their Quality Assessment programs.

In addition to scheduled reviews and assessments, QICO may from time to time perform unscheduled assessments on an as-needed basis as determined by the QICO Managing Director, the Chief of Internal Compliance, and/or the WMATA General Manager. Such assessments may or may not be announced prior to issuance of the resulting draft report, depending on the requirements of the assessment.

Additional characteristics of Quality Assessments (pertaining to those performed by QICO, and those by other departments) are described in Section 3.11.

### 2.4.3 Documenting the QMS

The WMATA documented Quality Management System (QMS) is composed of this governance document, the Quality Management System Plan (QMSP), and all subordinate Quality Management Plans (QMPs) developed by WMATA for its departments, programs, projects, and other definable scopes of work requiring quality oversight.

The most up-to-date distributed version of the QMSP and associated QMPs, inclusive of procedures and forms, shall be made available to all WMATA staff, contractors, consultants, and vendors, in accordance with document control requirements.
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This chapter provides greater specificity regarding the Core QMS Standards as enumerated in Section 2.1 above. These standards are categorized below with their corresponding QMSP Section number:

<table>
<thead>
<tr>
<th>3.1 Design Control</th>
<th>3.7 Inspection, Measuring &amp; Test Equipment</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Processes to ensure the consistent development and maintenance of quality design documentation for projects and assets based on requirements, standards, criteria, etc.</td>
<td>• Identification and periodic testing and calibration of measuring and test equipment to assure readiness for use</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>3.2 Document Control</th>
<th>3.8 Non-Conformance</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Managing information to ensure the most current approved documents are in use</td>
<td>• Systematic tracking of work performed or material delivered that does not meet procedures, specs, contract requirements, etc.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>3.3 Purchasing</th>
<th>3.9 Corrective &amp; Preventive Actions</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Providing for timely procurement of the right items/assets and services required for proper performance</td>
<td>• Measures taken to modify processes/procedures to prevent recurrences of non-conformances and failures</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>3.4 Identification &amp; Traceability of Assets &amp; Material</th>
<th>3.10 Quality Records</th>
</tr>
</thead>
<tbody>
<tr>
<td>• The ability to track the unique history, location, performance, and configuration of any asset over its lifecycle</td>
<td>• Documents generated by Quality functions that provide objective evidence of fulfilment of requirements</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>3.5 Process Control</th>
<th>3.11 Internal Reviews &amp; Quality Assessments</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Management and documentation of inter-related resources and activities to turn inputs into outputs/outcomes</td>
<td>• Independent, objective review of conformance to quality standards and/or the overall effectiveness of processes in delivering acceptable levels of quality</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>3.6 Inspection, Testing &amp; Status</th>
<th>3.12 Training</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Verification and documentation that practices, processes, assets, and materials comply with applicable procedures, specifications, etc. and are fit for service</td>
<td>• Providing skills and knowledge required for staff to perform a job</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>3.13 Customer Focus</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>• Proactively addressing the needs and wants of internal and external customers, always</td>
<td></td>
</tr>
</tbody>
</table>
Applicability of QMS Standards

These sections comprise statements of requirements and principles, which will be codified through policies, procedures, training, and review/assessment.

These QMS standards are generally applicable to:

- Departmental QMPs,
- Project QMPs,
- 3rd Party QMPs, and
- The QMS as a whole.

Departmental QMPs and Project QMPs must minimally address any and all applicable QMS standards. The preliminary matrix of which categories of standard are assumed applicable for each department is provided in Section 2.3.3.

Where applicable, policies and procedures to govern these practices are referenced in the Appendices. Additional applicable policies and procedures are under development.

In all cases, the requirements and principles given here are subject to future revision to better reflect WMATA’s unique organization and environment. The specific application and implementation of these standards to each and every quality situation at WMATA is expected to be crafted by the appropriate subject matter experts and accountable management in the QMP. The guidance herein is not meant to be overly prescriptive, and is not meant to create excessive administrative and bureaucratic requirements that do not bring commensurate value in the form of improved quality.
### 3.1 DESIGN CONTROL

Design control includes planning, execution, and monitoring/controlling components:

- Identification and understanding of design requirements
- Planning and scheduling activities (e.g. testing, piloting) to verify that the design meets requirements
- Executing and documenting design verification
- Controlling design changes

WMATA designers, and consultant designers shall develop and submit Design Quality Plans (DQP) that comply with the requirements specific to each project and this QMSP.

#### 3.1.1 Design Requirements

The WMATA department or project designer must understand all relevant design criteria, inclusive of WMATA interpretations of design criteria for specific projects, to deliver high quality designs to the Authority. Applicable design requirements and criteria may include or be found in the following:

- Contract documents
- Preliminary engineering studies and drawings
- WMATA general technical requirements
- Codes, specifications, and standards (WMATA, international standards, adjacent jurisdictions, DOTs, utilities, etc.)
- Performance criteria

The WMATA designer, or consultant designer, shall compile all applicable requirements for the design and submit it to WMATA for review and concurrence prior to engaging in design activity. Depending on the size and scope of the work or project, the designer may elect to submit multiple design requirements by discipline or geographic area.
3.1.2 Design Quality Plan

The WMATA designer, or consultant designer, must provide to WMATA for review and approval, a comprehensive Design Quality Plan (DQP), in compliance with this QMSP and any project specific quality management requirements that contain written, detailed Quality Control and Quality Assurance procedures for all disciplines (power, track, structures, signals, etc.).

Design Quality Control activities include:

- Checking drawings and calculations,
- Verifying correct application of specifications, and
- Resolving discrepancies or comments from reviewers.

Design Quality Assurance activities include:

- Review of quality control records,
- Surveillances, audits, and
- Over-the-shoulder reviews to ensure that disciplines and design teams execute and document QC activities in accordance with the DQP, applicable standards, and the design contract.

The Design Quality Plan must also provide a clear understanding of quality procedures performed by design sub-consultants. Depending on the scope of work and contract agreement, a sub-consultant may submit its own plan and procedures for review, approval, and incorporation in the project DQP, or it may elect to adopt the prime consultant’s plan.

The DQP shall include support of audit activities and resolution of potential audit findings for audits conducted by WMATA or its representative at any time throughout project delivery.

3.1.2.1 Interfaces

Identification and understanding of the internal and external design interfaces is critical to Design Quality. The DQP must include processes to ensure effective design coordination and integration between disciplines, sub-consultants and potential adjacent projects that result in designs ready for construction. This includes, as applicable:

- Identifying organizations external to the design team who will review and approve the design, and
- Provide procedures for submitting, reviewing, revising, and approving design deliverables.
Design interfaces with the project following the completion of design shall also be included in the DQP. This may include, as applicable:

- Post-design reviews and responses to requests for information, design changes, or non-conformances, and
- Procedures for hand off to operations, and maintenance, including sufficient information to ensure assets can be maintained to design standards and configurations.

### 3.1.2.2 Documentation

The Design Quality Plan shall describe how design and design quality documents will be generated, stored, and transmitted throughout the project. This includes both hard copy and electronic documents.

All procedures described in a Design Quality Plan should have corresponding sample or template documents that will be used to accurately and comprehensively record the results of Design Quality activities. Such documents may include (but not be limited to):

- Drawing and calculation check-prints
- QA/QC certification forms
- Design criteria checklists
- Audit checklists
- Document logs
- Comment disposition forms
- Design deviation/waiver request forms
- Design change forms
3.1.3 Control of Design Changes

Procedures for controlling design changes following completion of design or during maintenance or construction work should be included in the Design Quality Plan. Types of design changes that can occur following design completion or design release for construction include:

- **Designer-initiated changes**: Design changes that are identified by the design team and must be pushed out to maintenance, construction, or construction management teams.

- **Field-initiated changes**: Design changes requested by a maintenance team, construction contractor or manager for constructability, efficiency, or safety purposes.

- **Specification deviations or variances**: Field-initiated requests to change the construction and material specifications released by the designer.

- **Requests for Information**: Field-initiated requests to clarify the design or provide information missing from the design.

The DQP procedures for these changes shall include review and approval processes, timeframes for review and response, request forms, systems for logging and tracking change requests, and processes for revising and transmitting design drawings and specifications.
3.2 DOCUMENT CONTROL

WMATA departments and projects must include procedures for receiving, transmitting, reviewing, approving, disseminating, and archiving critical documents in their respective QMPs. These procedures shall apply to both hardcopy and electronic documents, including pre-existing WMATA documentation (see Section 3.2.7).

Document management and control activities to be covered by procedures as part of a QMP include, as applicable:

3.2.1 Standardization
- Common rules for nomenclature, numbering, and pagination of documents
- Form templates, color and graphics standards, and branding guidelines
- References and style guides for writing and correspondence

3.2.2 Receiving/Transmitting
- Rules for numbering and logging inbound and outbound documents
- Guidelines for transmittal media (e.g. hard copy, disks, electronic transfer, number of copies, etc.)

3.2.3 Reviewing and Approving
- Routing and approval chains for documentation and documents required by this QMSP
- Signatures and seals required to release or certify documents (e.g. Released for Construction drawings)

3.2.4 Controlling
- Processes to establish a baseline set of working or approved documents (policies, procedures, drawings, specifications, etc.)
- Rules for revising baseline documents due to changes, to include revision numbering and dating, depiction of changes on baseline set (e.g. redlines, clouds), and revision history or change summary documents
- Approvals required to revise current documents, revised documents shall be reviewed and approved by the same authorities involved in their original review and approval
- Processes to ensure only current revisions of documents are available for use, and that obsolete or superseded documents are prevented from unintended use
- Maintenance of a master document list, including current revision level or date
3.2.5 Disseminating

- Lists of personnel by office/department or other category required for distribution of documents
- Timeframes for document distribution
- Identification of electronic repositories from which documentation is accessed

3.2.6 Archiving

- Document and data storage procedures, both during execution and upon completion.
- Document accessibility to WMATA and other agencies throughout the project or system lifecycle
- Guidelines for removing, superseding, or eliminating obsolete documents
- Handover procedures to WMATA and/or operating organization for asset management

3.2.7 Existing WMATA Documentation

- WMATA has an extensive library of quality documentation that predates implementation of this Quality Management System; these documents integrate with the QMS.
- Examples of pre-existing WMATA documentation include Authority-wide Policy Instructions (PIs), Manuals, Handbooks, Standard Operating Procedures (SOPs), Operations Administrative Procedures/Policies (OAPs), existing templates, guides, guidelines, Technical Documentation (e.g. drawings and specifications), and Instructions.
- Reference each department’s list of controlled documents, to review the pre-existing WMATA documents, which are relevant to the activities of their department. In many cases, such documents are accessible for internal employees via the WMATA intranet site, Metroweb.
Maintaining a system of controls governing key documents is an essential Quality Management System practice for nearly every department and function at WMATA. For example, Document Control assures that:

- Technicians receive and use the most up to date inspection procedures and checklists/forms for safety-critical assets.

- Engineers and mechanics can find the correct technical specifications and documentation for unique, complex, configurable assets.

- Managers, auditors, and others can verify whether, when, and by whom new procedures, directives, and other management documents were reviewed and authorized.
3.3 PURCHASING

WMATA managers must ensure that all purchased services, assets and materials meet the Authority’s requirements.

To do so, departments, projects, maintenance, and operations teams must deploy procurement management and supplier quality systems appropriate to the scope of work (SOW) to be performed. SOWs must define minimum quality requirements, referring to or attaching this QMSP, associated QMPs and/or applicable quality procedures. Procurement documents should be reviewed and approved by a party, independent of the development of such documents, for adequacy and consistency of specified requirements prior to release.

For many construction and maintenance projects, the scope and complexity of the work will be such that managers can utilize WMATA’s existing procurement resources and procedures. Large scale, long-term, and highly complex programs or projects may require separate procurement and contract management personnel who will establish purchasing procedures as part of the project-specific QMPs.

WMATA purchasing procedures adopted or established for a department or project shall be referenced in the appropriate QMP and must apply to all consultants, contractors, suppliers, manufacturers, and vendors.

Procurement documents and records that demonstrate verification of purchased assets, materials or services must be maintained. Quality Managers will conduct assessments to ensure that both procurement personnel and contracted parties comply with contract requirements and the requirements of this QMSP.

Maintaining quality purchasing processes means not only conducting procurements in accordance with all applicable federal and WMATA regulations and procedures, but also having procedures and practices in place to ensure that materials and services meet WMATA’s needs:

- Are replacement parts available when needed? Do all materials fit their intended function and purpose?
- Did a contractor adhere to all contractual requirements and procedures in delivering new assets for WMATA?
3.4 IDENTIFICATION & TRACEABILITY OF ASSETS & MATERIAL

The Authority's assets, including the materials, assemblies, and components installed on those assets, must be compliant with specifications and they must be identified and tracked as compliant through all stages of their lifecycle.

WMATA QMPs will include policies and procedures that ensure that all assets to be installed or maintained within the existing system by the respective department or project are identified and traceable through all stages of delivery, installation, and operation.

Types of material and their traceability documents include:

- **Assets** shall be uniquely identified, and physically marked when possible, in accordance with project contract documents or a department's applicable Asset Management standards.
  
  - Conformance verification documents for individual assets must be maintained, including e.g. component lists, performance tests, and physical inspections, certifications, etc.
  
  - As applicable for reliability or safety needs, individual components shall also have verification documents, such as source certifications, test reports, and inspection reports. WMATA or its representative may elect to inspect the assembly at its point of manufacture in accordance with the procedures, specifications, or contract documents. Assemblies may also require follow-on testing at separate laboratories or test facilities, which must also be documented and traceable.

- **Raw Materials** should be identified, with physical identification when possible, by batch or heat number, delivery or weigh ticket, invoice number, date, or packing slip. Conformance is typically verified through test reports and material certifications from the source (e.g. foundry, quarry, etc.).

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**Quality in Practice**

Being able to trace assets and raw materials is essential to ensure that WMATA delivers quality, safe, and reliable service to the public. Strategically and effectively identifying and tracing material and assets supports critical asset management needs such as:

- Identifying unreliable and failing components to remove from service for repair/replacement
- Ensuring inspection & maintenance of every single one of thousands of critical assets throughout the system
3.5 PROCESS CONTROL

Each department and project shall include and describe in its QMP the processes that bring together resources, equipment, and activities resulting in work products, assets and services. In the context of WMATA Quality Management, this primarily means the comprehensive and consistent development and documentation of Standard Operating Procedures (SOPs) and/or Administrative Policies that specify the work performed by a department.

Policies and procedure instructions must be maintained in accordance with Section 3.2 above. Records of Process Control shall be maintained in accordance with Section 3.10 below.

3.5.1 Departmental Processes

Operations, maintenance, engineering, and support departments shall provide processes, including applicable parameters, required to directly maintain and operate the transit system or support operations, as appropriate. Many such processes are documented in various forms, such as:

- Standard Operating Procedures (SOPs)
- Operations Administrative Policies (OAPs)
- -1000 series manuals (e.g. TRST-1000, ATC-1000, etc.)
- Maintenance control policies
- Maintenance manuals
- Safety Manuals (e.g. System Safety Program Plan, Roadway Worker Protection Manual)
- Communications protocols

Applicable parameters and constraints should be identified in the respective process documentation. Examples of such parameters include:

- Work and operating schedule thresholds
- Safety requirements
- Communication methods/media

Maintaining and controlling a set of processes is readily recognized as an essential activity for departments that perform inspections and maintenance or directly operate transit service. Likewise, for departments subject to strict regulatory requirements (e.g. Procurement).

However, the need to document and control processes extends beyond; for example:

- Has a standard process been followed to both select a preferred candidate and negotiate salary requirements prior to extending a formal written job offer?
- Have press releases, website content, and press statements passed through applicable review/approval channels prior to issuance?
### 3.5.2 Programs, Projects

Project QMPs will include procedures to ensure use of suitable production and installation equipment, suitable work environment, qualification/certification of personnel, and conformance with contractually required standards and codes to ensure quality of the work. Examples of controlled process components include:

- Establishing the sequence of installation/fabrication
- Safety requirements
- Equipment required to perform the work
- Materials required to perform the work
- Environmental requirements during production or installation (e.g. minimum/maximum ambient temperatures, evaporation rate, time of day or time of year restrictions)
- Crew size and craft/discipline requirements
- Required qualifications/certifications of personnel performing the work
- Required monitoring processes
- Required inspections and tests
- Applicable codes and standards
3.6 INSPECTION & TESTING

All work performed on WMATA assets and inventory by the Authority and/or contracted organizations will be subjected to appropriate testing to verify that purchased parts, work or services delivered meet the Authority’s specified requirements as well as compliance to applicable federal, state, and local laws and regulations.

Each WMATA QMP shall incorporate appropriate documentation of inspection and testing requirements consistent with the needs of the project/program or asset.

- **Inspection:** The act of observing, documenting, and reporting the work, task, or maintenance procedure to verify whether the practices, processes, and assets comply with the contract documents and safety requirements. This includes at the source inspections, receiving inspections of purchased assets, first article inspections, in-process inspections, and final inspection activities to verify compliance with contract requirements and requirements of the project specific QMP.

- **Testing:** Subjecting an item to a set of physical, chemical, environmental, or operating conditions to verify the item meets quality and safety requirements. This includes testing of purchased assets, in-process testing and final testing activities to ensure compliance with contract requirements and the requirements of the project specific QMP. Testing may also include requirements for obtaining, and maintaining individual licenses, certifications, and the qualifications of component operators.

Inspection and testing procedures shall be performed and documented by qualified individuals with knowledge of the specific asset and the procedures defined by the corresponding specific quality plan, documented procedures or industry standard procedures.

Documents shall include, where appropriate, specifications for inspection or testing procedures, frequency and location of inspections or tests, requirements for witnessing inspection or testing, and instances in which inspection or testing at the source is required prior to shipping.

3.6.1 Inspection & Testing Procedures

Appropriate inspection and testing procedures will be developed as part of each QMP to ensure the safety, quality, system reliability, service life, and regulatory compliance of each item or element. Procedures shall reference the appropriate code or standard to be used for each test or inspection. To ensure these requirements are met, inspection and testing procedures and documentation of these procedures will be performed by separate, tiered entities: Quality Control (QC), Quality Assurance (QA), and Owner’s Quality Oversight (OQO). The specific responsibilities of each entity shall be defined in each QMP.
3.6.1.1 Quality Assurance

Quality Assurance (QA) inspection and testing procedures are intended to directly improve Quality Control (QC) procedures and outcomes through independent management actions. The Authority’s designated QA representatives are responsible to verify, that QC acceptance of the work conforms to specifications and that only work that has been accepted by documented observations, inspections, verifications, and testing is incorporated into the final product. QA representatives shall be organizationally independent from QC functions, the latter being the direct responsibility of the process owner.

3.6.1.2 Owner’s Quality Oversight

Owner’s Quality Oversight (OQO) is any inspection, testing, or auditing performed by a third party completely independent of both the QC and QA processes. QICO may independently perform random inspections and testing as well as auditing of QC and QA procedures to ensure a consistent and quality product, and compliance with the applicable QMP.

3.6.2 Inspection & Testing Documentation

All inspections and testing performed by the Authority or its agents shall be recorded, with records maintained by the corresponding department, program, or project to serve as documentation that each item has been accepted and meets the specified requirements.

Each defined inspection and test that is performed on a WMATA asset must:

- Be recorded in a traceable report,
- Document a uniquely identified asset,
- Identify the WMATA employee(s) and/or contractor(s) performing the inspection/test, and
- Identify whether or not the item has met specifications or has any identified non-conformances during the reporting period.

All reports will be reviewed and approved by the direct supervisor of the WMATA representative performing the inspection/testing, or the WMATA representative responsible for overseeing inspection and testing performed by consultants, contractors or vendors. The Quality Manager of the respective project or operations department will ensure all required inspection and testing has been performed and documented prior to placing a product into service.

QMPs shall also include any software or data systems to be used to assist in creation and organization of inspection and test documentation. The QMP shall include guidelines for electronic file naming and archiving, and should include provisions for WMATA representatives to access electronic documents.
3.6.3 Inspection & Testing Status

WMATA and its designated agents shall identify the inspection and test status of work, tasks or assets to ensure that only a work product or asset that has successfully passed the specified inspections and tests is accepted and put into service and that all work is performed according to applicable procedures or work instructions.

QMPs must include procedures for identifying inspection and test status for work items throughout production and installation processes as well as inspection and test status for existing assets in service.

3.6.3.1 Procedures

Procedures for identifying the asset or work item status shall at a minimum include:

- Description of the work item and unique asset identification, as applicable
- List of required inspections and tests, referencing regulatory standards when applicable
- Method for identifying the status of each item, i.e. conformance or non-conformance

Status During Production (if applicable)

WMATA office/department, project/program, and other QMPs shall establish procedures to verify and document that specified inspections and tests have been performed on materials and equipment of a work item, task, or asset during production or maintenance, and that these components conform to contract documents. Established procedures will ensure that at the time of receiving purchased assets the status of inspection and testing of that product is clearly identified physically on the item and that documentation verifying the product conforms to contract documents is in possession of the Authority or its agent.

Status During Installation (if applicable)

Appropriate procedures to track the inspection and test status of a work item, task or existing asset will be provided in order to ensure a product that does not conform to the inspection and testing specified in the QMP is not installed or put into service, including not being placed into inventory.

No asset or item shall be placed in service until the status of all testing and inspection(s) required by the specified QMP is completed and documented as meeting contract requirements or WMATA’s internal procedures, standards, and specifications.
3.6.3.2 Status Documentation

Proper documentation is critical to tracking the inspection and testing status of a product. Documentation procedures of inspection and test status shall be in place to provide identification and traceability for conforming and nonconforming assets and items during production, installation or maintenance.

*Physical Identification of Items/Assets*

When physically possible, the test and inspection status of an asset will be identified by means of unique markings, stamps, labels, or other suitable means on the product itself.

*Inspection and Test Reports*

For assets that require material testing, reports that indicate conformance or non-conformance to applicable standards or targets will be produced and maintained. QMPs shall identify the database for tracking material test status, when appropriate.
**3.7 Inspection, Measuring, & Test Equipment**

All inspection, measuring, and testing equipment utilized by the Authority or its agents and contractors to assure that assets, purchased materials, work or services meet requirements must be uniquely identified, calibrated, verified, and maintained.

The Authority will maintain equipment logs and records that will include at a minimum:

- Equipment Type
- Manufacturer
- Model and/or Serial Number
- Calibration date and frequency required
- Calibration method or procedure
- Results of calibration/verification
- Service records

Inspection, measuring, and testing equipment used will have a visible label, when physically possible, that displays the latest calibration date as well as the upcoming due date for calibration of the equipment.

QMPs must identify any applicable equipment under the purview of the respective department and/or project. Calibration or verification shall be performed in accordance with applicable national standards, such as the American section of the ASTM (American Society for Testing and Materials) International standards, or defined standards within the QMP (for cases in which national standards do not exist) on a pre-set schedule. Individuals performing calibration or verification activities must be qualified in the appropriate calibration methods.

All testing equipment shall only be used as per manufacturer’s instructions/recommendations and in a safe manner by personnel trained and certified, when required, to operate it.

**3.7.1 Equipment Licenses and Regulations**

Ownership and use of testing equipment may require a license from the jurisdiction in which the equipment will be operating and/or stored. Neither the Authority nor any of its contracted agents shall own, transport, or operate such equipment without proper and current licensure.

**3.7.2 Material Testing Laboratory**

When required by procurement documents, contracts, specifications, QMPs, procedures, policies or other documents, a material testing laboratory will be operated by a designated agent of the Authority to confirm material meets required specifications prior to installation and placement into service, and/or to confirm that in-place materials meet specifications.


### 3.8 NON-CONFORMANCE

WMATA QMPs will establish procedures to:

1. Identify when a work item, existing asset, or task does not conform to requirements (whether contractual, technical, procedural);

2. Ensure that work items or existing assets that do not conform to contract documents and specifications are immediately identified and, if applicable, removed or prevented from being placed into service until an appropriate disposition is determined and approved;

3. Report upon such non-conformances and determine the appropriate disposition, which may include replacement, rework, repair, or use as-is; and

4. Document non-conformances in reports, forms, logs, as applicable to verify that only work that meets requirements is accepted and to facilitate trend and root cause analysis.

In the case of maintenance departmental QMPs, it is expected for that most non-conformance tracking will be satisfied using the work order functionality of WMATA’s Asset Management system, Maximo. Where applicable, such QMPs would therefore present the procedures and instructions that ensure the correct documentation of each required step in the Asset Management system.

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**Quality in Practice**

Processes and methods for identifying and tracking non-conformances are specific to the subject matter and work of each department or project. Regardless of exactly how a department or project performs these QMS requirements, they are essential as part of proactively preventing failures in service and establishing a continual improvement process.

- **Track inspectors** identify non-conformances in track assets and log them via the appropriate forms and systems, where they are tracked until resolution.

- **Transportation supervisors** and the Operations Control Center log instances in which standard procedures are not followed and follow-up with re-training.
3.9 CORRECTIVE & PREVENTIVE ACTION

WMATA QMPs will establish and document corrective action procedures to evaluate, remediate, and prevent reoccurrence of non-conforming work or assets. These procedures shall investigate the root cause of nonconforming work and implement action plans to address the root cause and prevent recurring non-conformance.

Departments should maintain their own internal processes for undertaking internal or external corrective & preventive actions, as part of instilling a culture of continual improvement. Additionally, internal reviews or quality assessments performed by the QICO department or external audits performed by oversight authorities such as the FTA may result in findings and required internal or external corrective and preventive action.

Elements of Corrective & Preventive Action

When a work item or existing asset is determined to be non-conforming, corrective action procedures must be in place to identify the root cause of this condition so that it can be addressed to both rectify the non-conformance and prevent recurrence. These procedures include:

- **Identifying the root cause of the non-conformance.** The root cause of a non-conformance must be identified prior to the responsible party proposing or implementing an effective corrective action.

- **Determining a corrective action plan sufficient to address the root cause and prevent recurrence of the non-conformance.** Upon identification of the root cause, the responsible party shall determine and propose an action plan that will address the root cause and prevent future occurrence of the non-conformance.

- **Evaluating effectiveness of the corrective action performed.** The corrective action shall be implemented by an agreed upon date and subsequently reviewed to ensure it is effective in addressing the root cause and preventing the recurrence of the non-conformance. If found to be ineffective, actions shall be taken to determine if either the action was not implemented as planned, or the root cause has not been identified and/or addressed.

- **Document and maintain records of the root cause and corrective actions taken.** Corrective actions, including root cause analysis, performed to address non-conformance shall be documented on a traceable report by the Authority’s quality representative, and maintained as a quality record in accordance with the QMSP.

The elements of a Preventive Action process are essentially the same, however they are based on a continuous risk assessment to identify potential non-conformances and take action to prevent a non-conformance from occurring, rather than responding to one that has already occurred.
3.10 QUALITY RECORDS

Quality records are the documents which provide objective evidence that procedures, work instructions, policies, processes, etc., have been executed as required. They are the documented evidence that work has been performed in accordance with the specifications, policies, procedures, requirements of office/department QMPs, project-specific QMPs and this QMSP.

WMATA QMPs will include procedures for the filing, archiving, maintenance and disposition of quality records. Established procedures will outline the following processes for the quality records:

- **Identification**: QMPs will define the quality records for the office/department, project/program, maintenance operation, and operations group. Documents that shall be considered as quality records include, but are not limited to:
  - Design Reviews
  - Material Certifications
  - Material Test Reports
  - Asset Inspection Reports
  - Equipment Calibration & Service Records (when required by policy/regulatory mandate)
  - Maintenance Work Orders
  - Personnel Training & Qualification Records
  - Assessment, Review, & Audit Reports
  - Shipment Authorization & Acceptance Forms
  - Non-conformance Reports
  - Corrective Action Reports
  - Dispatch records
  - Operations Center video records

- **Collection**: QMPs will identify the Authority's representative responsible for ensuring that quality records are comprehensive and completed and collected within the specified timeline.

- **Filing**: QMPs will establish a process for organizing and indexing quality records. The established filing system of quality records shall allow for the ability to readily retrieve documents as needed for review and use. The filing process may also include the use of metadata or file naming conventions to facilitate ready retrieval.

- **Storage**: QMPs will describe the method by which quality records are stored to prevent damage or loss. This shall include the security and back-up of electronic data. The means for storage of quality records shall allow for the ability to readily retrieve documents as needed for review and project use.

- **Disposition**: QMPs will specify retention times, in accordance with contract requirements, of quality records as well as establish the process for final disposition. Quality records that are associated with on-going litigation or claims shall be maintained as directed by the legal department. Quality records related to the safety of a work item will be maintained while that work item is in service.
3.11 INTERNAL REVIEWS & QUALITY ASSESSMENTS

Internal reviews and quality assessments comprise a key component of the Authority’s assurance programs – illustrated in the QICO organization Chart, Section 2.4.1. They are foundational to the successful implementation of the QMSP through their assurance of compliance with the requirements and procedures established in QMPs.

QMPs shall designate the quality representative(s) responsible for the office/department, project/program, specific QMP, operations, or maintenance activity. To ensure the integrity and objectivity of the process, only personnel independent of those having direct responsibility for the activities being reviewed shall carry out internal reviews and quality assessments.

Internal reviews and quality assessments are applicable at all levels of the WMATA QMS: routine tasks, work instructions, procedures, plans, and the QMP itself are all viable subjects for review. Areas of focus include: Engineering & Maintenance; Service Delivery; Capital Programs – Management & Execution; and Safety & Security. QICO’s internal review and quality assessments framework as applied to the QMS as a whole and to particular activities are further described in Section 2.4.2.2.

Required elements and characteristics of reviews and assessments are summarized below.

3.11.1 Planning

Reviews and assessments shall be scheduled at a frequency commensurate with the importance, risk profile, and previous performance of the activity or its performing organization. Frequencies may be increased as needed, to more closely monitor performance or risk.
In preparation for a review or assessment, the lead reviewer shall notify the reviewee(s) of the upcoming activity and shall develop a review plan to include scope, methodology, and schedule. The lead reviewer may designate a review team, to include any subject matter experts who can provide specific insight into the areas under review. The lead reviewer shall also identify potential participants from the department or office under review, assessment locations (e.g., office, field, off-site), and any associated logistical requirements such as software access, travel, and site safety considerations.

### 3.11.2 Performance

Elements selected for review shall be evaluated against documented requirements and shall be verified through objective evaluation of evidence either provided by the reviewee or observed by the reviewers. Objective evidence may include certifications, test reports, approved submittals, and other quality records.

The lead reviewer will assess each element according to the requirement and the objective evidence and assign an evaluation using the following terminology:

- **Compliant**: the assessed element completely meets requirements.
- **Recommendation for Improvement**: the reviewed element is compliant with requirements; however, the review team identified potential improvements to established procedures or work plans to ensure continued compliance.
- **Observation or Concern**: a reviewed element has minor discrepancies with requirements and may become non-compliant or present other risks under current conditions.
- **Finding**: the assessed element is noncompliant or clearly violates a requirement such that corrective measures are necessary, and addressed through the corrective action process described in Section 3.9. Findings are assessed based on risk and assigned a risk rating; the risk and severity of a finding is one of the primary factors in determining the priority of corrective action.

### 3.11.3 Reporting

QMPs shall establish guidelines and templates for summarizing and recording, and reporting the results of reviews and assessments. QMP’s will also, when warranted, include requirements and/or forms for reporting and tracking findings resulting from assessments, Reviews, and other audits, to include response and resolution in accordance with the corrective action processes defined per Section 3.9.

Completed reports, and checklists shall be maintained as Quality Records in accordance with Section 3.10.
3.11.4 Scoring

At the conclusion of each internal review the results of what was examined are quantified and scored based on the reviewee’s performance in the quality management (QM) practice measure categories defined in Section 2.4.2.2, and a risk evaluation based on the severity of review findings. Illustrated below are the elements of an internal review that QICO uses to determine the quality score. This scoring methodology is a component of WMATA’s overall strategy to drive continual improvement through quantifiable review and assessment results.

<table>
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<tr>
<th>What We EXAMINE</th>
<th>What We MEASURE</th>
<th>What We FIND</th>
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<tbody>
<tr>
<td>Function Reviewed</td>
<td>QM Practices + Risk Evaluation</td>
<td>Quality Score</td>
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</table>

**Engineering & Maintenance**
Departments or offices that perform engineering or maintenance of WMATA assets – Rolling Stock, Facilities, Guideway and Systems.

**Service Delivery**
Departments or offices that are directly involved in the transportation of passengers to include the functions that operate revenue vehicles, Metro stations and central communications.

**Capital Program - Management & Execution**
Departments, offices or projects teams that are responsible for managing a capital program or project from the initial planning phase through to project closure and handoff to Operations.

**Safety & Security**
Departments or offices that are subject to external (federal, state or local) and internal system safety and system security regulations.

**Policies, Procedures & Standards**
A measure of rules and processes, including existence/applicability of and adherence to, as they relate to the reviewed function.

**Quality & Compliance**
A measure of work performed in accordance with defined requirements, such as design specifications, workmanship standards, and tolerances.

**Traceability**
A measure of organization control of documentation and records, including the document control mechanisms and work order management.

**High Rating**
A finding, if unaddressed could Almost Certainty result in a Major failure of a business process to meet objectives

**Elevated Rating**
A finding, if unaddressed could Likely result in a Significant failure of a business process to meet objectives

**Moderate Rating**
A finding, if unaddressed could Possibly result in a Moderate failure of a business process to meet objectives

**Low Rating**
A finding, if unaddressed could Possibly result in a Minor failure of a business process to meet objectives

**Exemplary**
consistent quality outcomes, strong management practices, few or no finding of elevated risk or higher

**Satisfactory**
acceptable quality outcomes, limited areas for improvement in management practices, some findings of elevated risk or higher

**Marginal**
generally-acceptable quality outcomes, multiple areas for improvement in management practices, numerous findings of elevated risk or higher

**Deficient**
inconsistent and low-quality outcomes, apparent deficiencies in management practices, numerous findings of elevated risk or higher
3.12 TRAINING

All personnel who perform work for WMATA shall be qualified based on education, experience, and training as outlined in the QMP. QMPs will establish training procedures for the identified personnel who perform the work. At a minimum, the QMP will outline the following processes for training:

- Establish the process by which project or operations teams are trained in the QMP and understand the importance of quality and their impact on overall quality.

- Identify the training needs of all staff. Training needs may vary by role (i.e., Project Manager, Maintenance Manager, Operations Manager, Engineer, Document Control, etc.); therefore, QMPs shall utilize a training matrix as appropriate to identify staff roles and the corresponding, relevant training needs for each role.

- Establish a schedule for providing required training. QMPs shall identify how often each required training will be repeated and when that training will be offered to project or department staff.

- Evaluate the effectiveness of the training. QMPs shall outline a procedure for reviewing the effectiveness of training and determine if revisions or additional training is required.

- Maintain all training and qualification documents per Section 3.10. This shall include documentation associated with each training session (i.e., attendance lists, agendas, test results, etc.). The results of training evaluations shall be recorded and maintained. Additionally, project staff qualifications, including completed training, certifications, and licenses, shall be maintained within project or department files.

Metro received the Gold Safety Award from APTA for our Roadway Worker Protection Program - the backbone of our safety training efforts. WMATA's program is now recognized as a model for the industry.
3.13 CUSTOMER FOCUS

Meeting the requirements and expectations of our paying customers and stakeholders is paramount. WMATA’s Transportation functions directly serve our riders. The delivery of quality service to the riding public depends also on numerous departments providing quality services to internal customers.

3.13.1 Internal Customers

As shown in the diagram in Section 2.2.2, most WMATA departments provide services and support either directly or indirectly to the Transportation business units which directly serve riders with transit service.

Departmental QMPs must identify the department’s customers, define how quality can be described or measured, and identify targets or goals for quality. In this way, the Customer Focus standard of the Quality Management System goes hand-in-hand with WMATA’s programs for Business Planning and Performance Measurement programs.

The ability for Transportation departments to deliver quality transit service depends on numerous other WMATA functions, both directly and indirectly. For example:

- **Human Resources** • Recruits professional staff for...

- **Procurement** • Contracts for material purchase, to be received and inventoried by...

- **Supply Chain** • Supplies replacements parts to...

- **Traction Power Maintenance** • Maintains power supply so that...

- **Rail Transportation** • Operates trains in revenue service, carrying customers
3.13.2 External Customers

Ensuring WMATA meets the needs and expectations of its riders depends on ensuring continuous effort in tracking measures of service quality and customer satisfaction.

The QMPs for departments responsible for the above functions will identify the process and method by which these functions are carried out and scoped to best reflect what aspects of quality are most important to the riding public, and how that information is delivered to internal customers.

QMPs for departments that utilize this information will describe the processes by which information is obtained and fed back into decision-making and prioritization in a continual improvement process. Where applicable, QMPs will emphasize efforts that impact the key drivers of customer satisfaction.

4 APPENDICES

4.1 REFERENCES


Federal Transit Administration Quality Assurance and Quality Control Guidelines: FTA-IT-90-5001-02.1


4.2 ACRONYMS

APTA
American Public Transportation Association

ASTM
Association for Testing Materials

CFR
Code of Federal Regulations

DHS
Department of Homeland Security

DOT
United States Department of Transportation

DQP
Design Quality Plans

EMT
Executive Management Team

FEMA
Federal Emergency Management Agency

FTA
Federal Transit Administration

GAO
Government Accountability Office

ISO
International Organization for Standardization

MARC
Management Audits, Risk and Compliance

MOA
Memoranda of Agreement

NTSB
National Transportation Safety Board

OAP
Operations Administrative Policy

OIG
Office of Inspector General

OQO
Owner’s Quality Oversight

QA
Quality Assurance

QC
Quality Control

QICO
Quality Assurance, Internal Compliance and Oversight

QMP
Quality Management Plans

QMSP
Quality Management System Plan

SAFE
Office of System Safety and Environmental Management

SEPP
Security Emergency Preparedness Plan

SOP
Standard Operating Procedures

SSPP
System Safety Program Plan

TOC
Tri-State Oversight Committee

WMATA
Washington Metropolitan Area Transit Authority
4.3 DEFINITIONS

Assessment – See “Quality Assessment” below.

Assessment Finding or Issue – Record of evidence that a criterion for audit, assessment, or review is being met (compliance/conformance) or that is not being met (non-compliance/non-conformance).

Assets – An item, part, system, assembly, vehicle or thing that has potential or actual value to WMATA in maintaining its system in providing reliable service to the public, including but not limited to rolling stock, track, structures, systems, facilities, stations, major equipment, etc.

Audit – One time or periodic, independent, and documented review and verification of activities, records and processes to determine their conformity to requirements.

Authority – Washington Metropolitan Area Transit Authority (WMATA)

Calibration – a comparison of two instruments, measuring devices, or standards, one of which is known to be accurate. Calibration is performed to detect, correlate, eliminate, and report by adjustments any variation in accuracy of the instrument or measuring device.

Closeout – The process of completing the actions required under a corrective action plan.

Compliance – An affirmative indication or judgment that a product or service has met the requirements of the relevant specification, contract, or regulation.

Conformance – An affirmative indication or judgment that a product or service has met the requirements of the relevant specifications, contract, or regulation.

Core QMS Standards – The 15 distinct categories of characteristics, requirements, and best practices whose development and implementation are essential to WMATA’s adoption of a Quality Management System that aligns with industry practices.

Corrective Action – Problem remediation, root cause identification, elimination, and prevention of recurrence.

Contract Documents – refers to the documents included in a contract or purchase order that detail the requirements, specifications, final design, and operating procedures of a procured product or service; contract documents are used to determine a product’s compliance or conformance with the contract agreement.

Corrective Action Plan - A plan or set of tasks that outline corrective measures planned or already taken to address external audit recommendations and related deficiencies or findings.

Corrective Action Request - A document requesting corrective action that is issued when activities are not meeting quality requirements. This action is taken to identify root causes of nonconforming processes or elements, and is aimed at eliminating the future recurrence of a problem of the same nature.

Deficiencies – Failures associated with internal controls required to meet the desired objective.

Design Input – Criteria, parameters, basis, or other design requirements upon which detailed design is based.

Design Output – Drawings, specifications, and other documents defining technical requirements of structures, systems, and components.
**Design Review** – Formal review of existing or proposed designs to detect and remedy design deficiencies that would affect fitness-for-use and environmental aspects of the product, process, or service, and/or the identification of potential improvements of performance, safety, and economic aspects.

**Discrepancies** – Variation between the actual state versus the required state of a process, service or asset.

**Engineer of Record** – The individual responsible for the development of Contract documents, and who, as a registered Professional Engineer endorses (signs and seals) the Record Drawings.

**Entrance Meeting** – Entrance meetings or discussions signify the beginning of an assessment, review, or audit, typically include department management and administrative staff involved, and are an opportunity to discuss the scope, available resources, and other concerns.

**Executive Management Team** – Senior WMATA managers (primarily titled “Chief” or “Assistant General Manager”) reporting directly to the General Manager and Chief Executive Officer (GM/CEO).

**Exit Meeting** – An Exit Meeting signifies the end of fieldwork phase of an assessment or review, and provides an opportunity for management to discuss the results with the Review Team prior to issuance of reports.

**External Audit** – Independent and objective review performed by a non-WMATA entity or oversight body that reports to a third party. This would include, but not limited to, actions taken by the Federal Transit Administration (FTA); Safety Oversight Board; Federal Emergency Management Agency (FEMA); Department of Homeland Security (DHS); Jurisdictional Reviews – Operating and Capital (District of Columbia, Maryland, and Virginia); Government Accountability Office (GAO); External Financial Auditors; External Payroll Auditors related to Labor Contracts; and consulting firms commissioned or contracted by WMATA management or the Board of Directors; or the National Transportation Safety Board (NTSB) (collectively “External Auditors”). The NTSB and WMATA’s Office of Inspector General (OIG) also conduct audits and investigations; however, resulting recommendations will be tracked and managed in the same manner.

**First Article Inspection** – A design verification of a given manufacturing process performed by both a supplier and purchaser to ensure the production process reliably produces what is specified.

**Inspection** – The act of observing, documenting, and reporting the work in progress to verify whether the practices, processes, and assets or parts comply with the procedures, work instructions, specifications, or contract requirements.

**Internal Corrective and Preventive Action (iCAPA)** – A formal written strategic plan to address issues of concern, required actions and recommendation resulting from internal reviews or quality assessments.

**Internal Review** – A type of internal assessment performed by QICO that comprehensively studies and observes functional areas of WMATA’s operations, and may span multiple departments with broad scopes.

**Maintenance** – The fixing, repairing, restoring, rehabilitating, and updating of the assets used to deliver service.

**Measure** – A pre-defined quality or safety & security criterion utilized during an internal review or quality assessment to score and categorize the results of said review or assessment. QICO has defined a set of Quality and Safety & Security Measures for this purpose.

**Non-compliance** – Failure to conform to management direction, documented rules and standards, or technical requirements.
Non-conforming Work – Work performed that does not meet the procedure, work instruction, specification, or contract requirements, and documented by a Non-conformance Report (NCR), requiring review of root-causes and approval for use-as-is or repair dispositions.

Objective Evidence – Any statement of fact, information, or record, either quantitative or qualitative, pertaining to a product, process, or service and based on observation, measurement, or test that can be verified.

Observation – A fact of evidence discovered during an audit and substantiated by objective evidence. Failure to act in response to an observation may result in a non-conformance.

Operations – The coordinated interaction of assets and personnel that result in the safe, reliable transportation of people.

Organization – Any entity or grouping of people performing activities that affect the operations of WMATA.

Owner – WMATA in general, or the WMATA department identified as having responsibility for completing a corrective action. This may also include WMATA’s designated agent or representative.

Owner’s Quality Oversight – The act of overseeing the implementation of a Quality Management Plan by WMATA or its representative.

Preventive Action – A proactive action implemented to ensure a potential non-conformity does not occur.

Procedure – A specified way to perform an activity.

Process – A set of interrelated resources and activities which transform inputs into outputs or outcomes.

Product – The outcome or result of coordinated business activities, which may comprise a tangible and discernible item, a service rendered, or a public facility.

Program – A group of related projects managed in a coordinated way to obtain efficiencies or benefits that would not be realized if the projects were managed individually.

Project – A temporary endeavor undertaken to achieve a specified, unique defined outcome in service, product, methods, systems, or assets.

Quality Assurance – All planned and systematic activities necessary to provide confidence to management that a product or service will satisfy given requirements for quality. In the WMATA QMS context, the Quality Assurance function is performed independently from departments directly performing the work.

Quality Assessment – A type of internal assessment performed by QICO to evaluate conformance to the procedures and actions documented in Quality Management Plans, as well as success towards achieving quality targets. Quality Assessments are focused on determining the existence and effectiveness of quality management standards and practices in day-to-day departmental operations.

Quality Assurance Inspection – The practice of verifying that the appropriate QC processes are followed consistently, through an independent auditing and confirmation program.

Quality Control – The process by which factors involved in the creation and delivery of assets and services are verified against specifications and requirements. In the WMATA QMS context, Quality Control is the responsibility of the process owner (the department directly performing work).
Quality Control Inspection – Activities which provide a means to control and measure characteristics as they relate to established requirements. This includes techniques and activities that sustain the Quality of an item to satisfy given needs and use of such techniques and activities.

Quality Management System – A system of processes and procedures as defined and identified in the QMSP, comprised of policies, objectives and management plans developed to document requirements for assets, parts, and services.

Quality Record – Any documents generated by the Quality Organizations that provides objective evidence of fulfillment of contractual requirements or documents the inspection and testing provided in confirmation of work activities.

Review – See “Internal Review” above.

Service – The provision of an intangible benefit, which is usually a significant element of a tangible product.

Surveillance - The unannounced act of monitoring or observing specific acts or activities to verify conformance to the specified requirements.

Recommendation – A recommended action during an assessment or review, substantiated by objective evidence, suggesting an improvement to a particular operation of the Project.

Risk – An uncertain event or condition that, if it occurs has a positive or negative effect on the organization’s objectives and operations (both threats and opportunities).

Risk Rating – Is assessed on the combination of the probability of occurrence of risk and the severity of the risk.

Reject – Disposition indicating the item is unsuitable for its intended purpose and economically or physically incapable of being reworked or repaired.

Rework – Disposition that indicates the deficiency can be brought into conformance with the original requirements through reassembling, reprocessing, reinstallation, or completion of the required operations. It is also an action to restore nonconforming work to bring it into compliance.

Root Cause Analysis – Process to identify the primary cause of a non-conformance which, if corrected, will prevent reoccurrences of non-conformance, failures, or unacceptable deviations.

Testing – Subjecting an item to a set of physical, chemical, environmental, or operating conditions to verify the item meets requirements.

Traceability – The ability to track the history, application, or location of an element, by means of recorded identifications.

Validation – Confirmation by examination and provision of objective evidence that the particular requirements for a specific intended use are fulfilled.

Verification – The act of reviewing, inspecting, testing, checking, assessing, or otherwise establishing and documenting whether items, processes, services, or documents, conform to specified requirements.

Work – the act of producing and installing the product or service to be furnished and provided by WMATA or its contractors including, design, engineering, construction, supply of vehicles and related systems, utility adjustments, financing services, operations, maintenance, other work of reconstruction, or reinstatement.
**Working Drawings** – An accurate measured, detailed, and scale drawing that serves as a guide to workers for constructing or manufacturing permanent or temporary elements of the project.
4.4 FTA QMS CROSSWALK

The WMATA QMSP was developed following the overall framework specified in the FTA publication, FTA-PA-5194-12.1, *Quality Management System Guidelines*, with various modifications to tailor the QMS to WMATA’s specific context and nomenclature. The following table is provided as a quick reference indicating which sections of the WMATA QMSP correspond to the essential elements as specified in the FTA guide on the following page.

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<th>#</th>
<th>FTA QMS Element</th>
<th>WMATA QMSP Section Reference(s)</th>
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<td>5</td>
<td>Purchasing</td>
<td>Section 3.3 and Purchasing Procedure (WMATA-INCP-1.05.XX*)</td>
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<td>6</td>
<td>Product Identification and Traceability</td>
<td>Section 3.4 and Identification and Traceability of Assets and Material Procedure (WMATA-INCP-1.06.XX*)</td>
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<td>7</td>
<td>Process Control</td>
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<td>Section 3.6 and Inspection, Testing and Status Procedure (WMATA-INCP-1.08.XX*)</td>
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<td>Section 3.7 and Inspection, Measuring, and Test Equipment Procedure (WMATA-INCP-1.09.XX*)</td>
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<td>Quality Records</td>
<td>Section 3.10 and Quality Records Procedure (WMATA-INCP-1.12.XX*)</td>
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<td>Quality Audits</td>
<td>Sections 2.4.2, 3.11 and Internal Reviews and Quality Assessments Procedure (WMATA-INCP-1.13.XX*)</td>
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<tr>
<td>15</td>
<td>Training</td>
<td>Sections 2.3.6, 3.12 and Training Procedure (WMATA-INCP-1.14.XX*)</td>
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</table>

* where "XX" denotes the current document revision
4.5 QMS PROCEDURES

These top level core QMS Procedures are strategic level documents (refer to Section 2.2.3 QMS Hierarchy), and by virtue of association with the QMSP, they, too, are considered approved by the GM, the Chief of INCP, and the Managing Director of QiCO, and do not require their additional signatures for approval.

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<td>WMATA-INCP-1.02.XX*</td>
<td>Documented Quality Management System Procedure</td>
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<td>WMATA-INCP-1.03.XX*</td>
<td>Design Control Procedure</td>
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<td>WMATA-INCP-1.04.XX*</td>
<td>Document Control Procedure</td>
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<td>Purchasing Procedure</td>
<td>Approved</td>
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<tr>
<td>WMATA-INCP-1.06.XX*</td>
<td>Identification and Traceability of Assets and Material Procedure</td>
<td>Approved</td>
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<td>WMATA-INCP-1.07.XX*</td>
<td>Process Control Procedure</td>
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<td>WMATA-INCP-1.08.XX*</td>
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<td>WMATA-INCP-1.09.XX*</td>
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<td>WMATA-INCP-1.11.XX*</td>
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<td>WMATA-INCP-1.13.XX*</td>
<td>Internal Reviews and Quality Assessment Procedure</td>
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<td>WMATA-INCP-1.14.XX*</td>
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<td>WMATA-INCP-1.15.XX*</td>
<td>Customer Focus Procedure</td>
<td>Approved</td>
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* where “XX” denotes the current document revision
4.6 QMP TEMPLATE

See attached
Quality Management Plan

[Name of Department or Project]

Revision [#]

[Date of Last Revision]
REVISION HISTORY

<table>
<thead>
<tr>
<th>Revision No.</th>
<th>Revision Date</th>
<th>Description of Changes</th>
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<td>Add section/location of revision(s), if not the initial release</td>
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</tbody>
</table>

QUALITY MANAGEMENT PLAN ADOPTION

Original QMP Prepared by:

[Name]  
Title (Acronym)  
Date

Current Revision Prepared and Submitted by:

[Name]  
Title (Acronym)  
Date

Accountable Executive (Chief Level) Authorization:

[Name]  
Title (Acronym)  
Date

QICO Review and Concurrence

[Name]  
Managing Director, Quality Assurance, Internal Compliance & Oversight (QICO)  
Date
INTRODUCTION

What is this document?

This Quality Management Plan defines the acceptable level of quality, and describes how the organization ensures the level of quality in its deliverables and work processes. This document has been created as a roadmap to centrally document the various materials, organizational structures, and processes that together comprise the Quality Management practices of the [Department or Project Name]. The framework of the document reflects alignment with the Core Quality Management Standards identified and described in the WMATA Quality Management System Plan (QMSP).

Rather than being a very large and unwieldy document containing every single relevant document and piece of information, the Quality Management Plan is intended to provide verifiable summaries and references to demonstrate that all applicable standards are in place.

QMP Content

While there are 15 Core QMS Standards identified in the WMATA QMSP, not all standards are necessarily applicable to every department or project. As such, not all standards are necessarily addressed in this QMP. For additional information on QMPs and their relation to the QMSP framework, please reference Section 2.3 of the WMATA QMSP.

This QMP template’s prompts and questions are answered using one or more of the following, as appropriate and applicable to the context:

- Tables
- Hyperlinks to documents/content on the WMATA intranet or enterprise systems
- Descriptions of where documents/content are stored and may be retrieved
- Text/paragraph answers
- Graphics
- Any combination of the above.

Staff from the Office of Quality Assurance, Internal Compliance & Oversight (QICO) assigned to support, monitor, and provide guidance in the development and implementation of this QMP, are available to provide ongoing assistance in determining the appropriate format in which to document compliance with the standards.
ACRONYMS & DEFINITIONS

**Acronyms [add to and delete, as appropriate]**

<table>
<thead>
<tr>
<th>Acronym</th>
<th>Definition</th>
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</thead>
<tbody>
<tr>
<td>APTA</td>
<td>American Public Transportation Association</td>
</tr>
<tr>
<td>ASTM</td>
<td>Association for Testing Materials</td>
</tr>
<tr>
<td>CFR</td>
<td>Code of Federal Regulations</td>
</tr>
<tr>
<td>DHS</td>
<td>Department of Homeland Security</td>
</tr>
<tr>
<td>DOT</td>
<td>United States Department of Transportation</td>
</tr>
<tr>
<td>DQP</td>
<td>Design Quality Plans</td>
</tr>
<tr>
<td>EMT</td>
<td>Executive Management Team</td>
</tr>
<tr>
<td>FEMA</td>
<td>Federal Emergency Management Agency</td>
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<tr>
<td>FTA</td>
<td>Federal Transit Administration</td>
</tr>
<tr>
<td>GAO</td>
<td>Government Accountability Office</td>
</tr>
<tr>
<td>ISO</td>
<td>International Organization for Standardization</td>
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<tr>
<td>MARC</td>
<td>Management Audits, Risk and Compliance</td>
</tr>
<tr>
<td>MOA</td>
<td>Memoranda of Agreement</td>
</tr>
<tr>
<td>NTSB</td>
<td>National Transportation Safety Board</td>
</tr>
<tr>
<td>OAP</td>
<td>Operations Administrative Policy</td>
</tr>
<tr>
<td>OIG</td>
<td>Office of Inspector General</td>
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<tr>
<td>OQO</td>
<td>Owner’s Quality Oversight</td>
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<td>QA</td>
<td>Quality Assurance</td>
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<td>Quality Control</td>
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<td>QICO</td>
<td>Quality Assurance, Internal Compliance and Oversight</td>
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<td>Quality Management Plans</td>
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<td>QMSP</td>
<td>Quality Management System Plan</td>
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<td>SAFE</td>
<td>Office of System Safety and Environmental Management</td>
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<td>SEPP</td>
<td>Security Emergency Preparedness Plan</td>
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<tr>
<td>SOP</td>
<td>Standard Operating Procedures</td>
</tr>
<tr>
<td>SSPP</td>
<td>System Safety Program Plan</td>
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<tr>
<td>TOC</td>
<td>Tri-State Oversight Committee</td>
</tr>
<tr>
<td>WMATA</td>
<td>Washington Metropolitan Area Transit Authority</td>
</tr>
</tbody>
</table>
Definitions [add to and delete, as appropriate; refer to QMSP definition section]

Assessment – See “Quality Assessment” below.

Assessment Finding or Issue – Record of evidence that a criterion for audit, assessment, or review is being met (compliance/conformance) or that is not being met (non-compliance/non-conformance).

Assets – An item, part, system, assembly, vehicle or thing that has potential or actual value to WMATA in maintaining its system in providing reliable service to the public, including but not limited to rolling stock, track, structures, systems, facilities, stations, major equipment, etc.

Audit – One time or periodic, independent, and documented review and verification of activities, records and processes to determine their conformity to requirements.

Authority – Washington Metropolitan Area Transit Authority (WMATA)

Calibration – a comparison of two instruments, measuring devices, or standards, one of which is known to be accurate. Calibration is performed to detect, correlate, eliminate, and report by adjustments any variation in accuracy of the instrument or measuring device.

Closeout – The process of completing the actions required under a corrective action plan.

Compliance – An affirmative indication or judgment that a product or service has met the requirements of the relevant specification, contract, or regulation.

Conformance – An affirmative indication or judgment that a product or service has met the requirements of the relevant specifications, contract, or regulation.

Core QMS Standards – The 15 distinct categories of characteristics, requirements, and best practices whose development and implementation are essential to WMATA’s adoption of a Quality Management System that aligns with industry practices.

Corrective Action – Problem remediation, root cause identification, elimination, and prevention of recurrence.

Contract Documents – refers to the documents included in a contract or purchase order that detail the requirements, specifications, final design, and operating procedures of a procured product or service; contract documents are used to determine a product’s compliance or conformance with the contract agreement.

Corrective Action Plan – A plan or set of tasks that outline corrective measures planned or already taken to address external audit recommendations and related deficiencies or findings.

Corrective Action Request – A document requesting corrective action that is issued when activities are not meeting quality requirements. This action is taken to identify root causes of nonconforming processes or elements, and is aimed at eliminating the future recurrence of a problem of the same nature.

Deficiencies – Failures associated with internal controls required to meet the desired objective.

Design Input – Criteria, parameters, basis, or other design requirements upon which detailed design is based.

Design Output – Drawings, specifications, and other documents defining technical requirements of structures, systems, and components.
1 ORGANIZATION & MANAGEMENT RESPONSIBILITY

1.1 Department Scope
[Briefly define the mission, scope, and responsibilities of the department]

1.2 Organization of Functions
[Provide materials or link to an updated functional organization chart demonstrating the reporting relationship of all functional areas under the Accountable Executive for this department/project, down to the lowest managerial level.]

1.3 Management Responsibility
[Identify the managers responsible for Quality Management practices throughout the department/project; a table format would be ideal]
2 DESIGN CONTROL

For Departmental QMPs

[Provide materials or link to the processes for managing and tracking changes to the design or configuration of operating assets under the custody of the department.]

For Project QMPs

[Provide materials or link to the Design Quality Plan, including description of the design review processes in conformance with the standards described in Section 3.1 of the WMATA QMSP.]
3 DOCUMENT CONTROL

3.1 Documents Subject to Controls
[Identify controlled documents, where they are stored, and how they are made available for viewing and dissemination.]

3.2 Document Control Processes and Responsibilities
[Identify the designated custodian/owner of controlled documents.]
[Provide materials or link to the processes governing revision and approval of controlled documents.]
[Identify who determines what a controlled document is]
[Ensure that the process includes how controlled documents are initiated, revised, reviewed, stored, tracked, officially released, etc.]
4 PURCHASING

For Department QMPs:

[Identify the types of tangible items and services that the department procures. E.g. vehicle parts, bulk materials, construction services, consulting services.]

[Identify who is responsible for initiating and assuring what types of purchases, and who is responsible for development of specifications/scopes of work.]

[Describe the process by which the qualification of vendors and their ability to successfully deliver/perform is managed and incorporated into the Purchasing process.]

For Project QMPs, if non-WMATA-administered procurement is utilized for lower-tier goods and services:

Address all the above, plus:

[Describe the organizational framework and procedures used to execute the procurement of goods and services in support of project delivery.]
5 IDENTIFICATION & TRACEABILITY OF ASSETS & MATERIAL

5.1 Applicable Assets & Material

[What types of assets and material must be individually identified and tracked for quality purposes?]

5.2 Tracking Systems and Management

[How is the location and status of such assets and material tracked? E.g. describe the numbering system, use of physical labels, use of asset management system, etc.]

[Who is responsible for the accurate identification & traceability of these assets & material]?
6  PROCESS CONTROL

6.1  Controlled Processes

[Identify the tasks performed by the department that are controlled processes.]

6.2  Process Systems and Management

[Identify the owners of processes or groups of processes. The process owners are those responsible for monitoring and updating as needed.]

[Identify where process documents are stored and how are updates disseminated.]
7 INSPECTION, TESTING, & STATUS

For Department QMPs:

[Identify the assets, types of assets, or groups assets subject to Inspection & Testing.]

[Identify who performs Inspection and Testing, and the cycles on which they are performed.]

[Identify who is responsible for establishing Inspection & Testing procedures and cycles.]

[Identify who is accountable for the timely and compliant completion of inspection and testing.]

[Identify where standards and instructions are stored, and who is responsible for this.]

[Describe how the status of inspection/testing activities is tracked and verified.]

For Project QMPs:

[Document how milestones/deliverables are evaluated via inspection, testing, etc. as appropriate prior to acceptance of deliverables.]
8 INSPECTION, MEASURING, & TEST EQUIPMENT

[What equipment does the department have (or will the project utilize) subject to calibration requirements per QMSP-SOP-003? If a large volume of individual pieces of equipment, specify the types of equipment.]

[What are the calibration standards used for each type of equipment? Reference WMATA, OEM, or other documents that establish standards and procedures.]

[Identify procedures that ensure compliance with QMSP-SOP-003, particularly with verifying that only calibrated equipment is available for use and that any “Out of Cal” equipment is removed from service.]

[Who is responsible assuring compliance?]
9 NON-CONFORMANCE

[Describe how work items or assets that do not conform to requirements are identified.]

[How are identified Non-Conformances tracked? E.g. in an asset management system, in a tracking spreadsheet, whiteboard, etc.]

[What processes and controls are in place to ensure non-conforming work items are not released into service or in production?]
10 CORRECTIVE & PREVENTIVE ACTIONS

[Identify the process and responsibility for assigning one or more accountable parties to develop and execute Corrective Action Plans.]

[How is dissemination and training addressed for any procedures, instructions, or practices that are modified, added, or removed as part of Correction Action Plan implementation?]  

[Identify current active Corrective Action Plans and their corresponding responsible parties.]
11 QUALITY RECORDS

[Identify the types of quality records generated by the department/projects, which may include any of the types identified in QMSP Section 3.11.]

[Provide materials or link to the governing processes, procedures, and parties responsible for maintenance, accuracy, and availability of the above types of quality records.]
12 INTERNAL REVIEWS, QUALITY ASSESSMENTS, AND INTERNAL AUDITS

Applicable if the department/project conducts its own internal audits in addition to the Internal Reviews and Quality Assessments performed by Offices in the WMATA Internal Compliance branch:

[Identify the organization and practices of any other internal audit and review functions deployed by the department. For these purposes, Internal audit functions are defined as reporting to the same Executive (Chief) but operating independently from the functions that they audit.]
13 TRAINING

[Describe the process or system by which skillset requirements are established, staff are evaluated against requirements, and training is scheduled and provided to address gaps. This process or system should include description of the responsibilities of appropriate levels of management.]

[Describe the processes by which training is typically provided, and by whom. (e.g. in-house, contracted)]

[Describe the process by which training program effectiveness is evaluated.]

[Describe where and how records of training, qualification, and certification are maintained, and by whom.]
14 CUSTOMER FOCUS

Who are the primary customers of the department? (Internal and/or External)

What factors drive the satisfaction of the customer, and how would the customer define “Quality”?

How are the answers to the previous question established? E.g. Rider surveys, senior management directives, peer discussions, etc.