



DISTRICT OF COLUMBIA TRANSIT IMPROVEMENTS ALTERNATIVES ANALYSIS

QUALITY ASSURANCE PROGRAM

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DISTRICT OF COLUMBIA DEPARTMENT OF TRANSPORTATION
WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY



DC'S TRANSIT FUTURE
Quality Assurance Program

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1.0 QUALITY ASSURANCE ORGANIZATION

1.1 Project Overview

DC's Transit Future is considering a range of alternatives that would provide enhanced transit connections to support local mobility, accessibility, and economic development goals, and to connect healthy, vibrant communities. Initiation of DC's Transit Future is the result of several past studies that have been commissioned to identify potential solutions to the current transportation challenges that face the District of Columbia. DC's Transit Future will merge the recommendations from prior planning efforts as well as expand the criteria used to select the priority corridors for transit investment. Through a series of early public involvement efforts, additional mobility and community needs were identified. In order to better address the needs identified, this alternatives analysis has expanded the scope of previous studies and has examined the District's current transportation system as a whole.

Based on growth projections, the District's goals for economic development, and limitations of the current transit system, the following statement of transportation needs has been developed. This statement of needs provides the framework for the identification of corridors to be considered for more detailed analysis in the next steps of the project development process. The statement of needs addresses a number of key issues including: congestion, capacity/convenience/coverage, access to jobs, growth, mobility, and economic development.

The proposed evaluation framework for DC's Transit Future includes comparing alternatives against each other as well as against the New Starts Baseline and No Build Alternatives, based on evaluation criteria and measures identified for each of the project goals. The evaluation will consist of a multi-step screening process with more detailed analyses conducted on fewer numbers of alternatives, resulting in the identification of a Locally Preferred Alternative (LPA). The definition of alternatives will address issues of alignment, station locations and features, vehicle propulsion, facilities locations, transit priority, and fare payment.

1.2 Project Quality Management Overview

The DMJM Harris organization has a corporate Quality and Risk Management department (QRM) that oversees the ISO 9001:2000 certified Quality Management System. The corporate QRM department ensures implementation of the quality program on all projects throughout the company.

A Project Quality Assurance Manager will be assigned to the project. The Project Quality Assurance Manager's responsibilities typically include QA/QC procedure implementation, training, auditing, subconsultant QA program oversight, and oversight of the corrective action program. To ensure independence, as well as expeditious resolution of significant issues, the Project Quality Assurance Manager reports to the Corporate Vice President, Director of Quality and Risk Management. This direct reporting to an officer of the company ensures that significant issues are identified and addressed at the highest levels of the organization. This reporting mechanism also ensures that quality-related project items are appropriately addressed and provides a structure for feedback, which is integral to continual improvement on our projects and our overall Quality Management Program.

2.0 QUALITY ASSURANCE PROCEDURES

2.1 Quality Management System

The DMJM Harris Quality Management System is an ISO 9001:2000 certified quality program. The Quality Management System includes a quality management policy (Quality Program Manual) and a series of implementing procedures that are subdivided into key process sections.

All DMJM Harris staff performing tasks on the project will utilize the appropriate implementing procedure for the work being performed. Following is a listing of the Implementing Procedures included in the DMJM Harris Quality Management System:

Implementing Procedures

	Section 1 - Administrative Procedures
1-1 AP	Procedures
1-2 AP	Meetings and Teleconferences
1-3 AP	Document Control and Records Management
1-4 AP	Information Technology Protection
1-5 AP	Project Implementation Procedure
	Section 2 - Contract Control Procedures
2-1 CCP	Proposal Preparation (Reserved)
2-2 CCP	Contract Review, Execution and Approval
2-3 CCP	Oversight and Rating of Subconsultants
	Section 3 – Project Management Procedures
3-1 PMP	Contract Review and Project Kickoff Meeting
3-2 PMP	(Reserved)
3-3 PMP	Project Work Plan
3-4 PMP	Project Performance Reviews (Reserved)
3-5 PMP	Scope Change Management
3-6 PMP	Project Cost Controls (Reserved)
3-7 PMP	Project Close-out
	Section 4 - Engineering and Design Control Procedures
4-1 EP	Design
4-2 EP	Design Task Protocols
4-3 EP	Preparation and Review of Calculations
4-4 EP	Preparation and Review of Drawings
4-5 EP	Preparation and Review of Specifications
4-6 EP	Technical Studies and Reports
4-7 EP	Software Quality Assurance
	Section 5 - Construction Support Services Procedures
5-1 CSSP	Field Engineering
5-2 CSSP	Inspection Planning
5-3 CSSP	Inspection Activities
5-4 CSSP	Requests For Information (RFI)

5-5 CSSP	Project Calibration Program
5-6 CSSP	Field Data Collection
5-7 CSSP	Resident Engineer Logbook
	Section 6 - Quality Assurance Procedures
6-1 QAP	Quality Audit Program
6-2 QAP	Peer Reviews
6-3 QAP	Client Complaints
6-4 QAP	Corrective Action System
6-5 QAP	Reporting and Resolving Non-conformances
6-6 QAP	Client Quality Surveys

2.2 Project Specific Procedures

The purpose of the Quality Assurance and Quality Control (QA/QC) program is to assure that project planning, design, and documentation is performed in accordance with both local agency and federal guidance. This section describes an overall approach to quality assurance and the quality control procedures to be used for the project.

The DMJM Harris Project Manager will be responsible for providing overall direction to task managers on project approach and assumptions, and for ensuring consistency among project tasks and studies. Task leaders are then responsible for producing work products that meet that direction, as well as adhering to budget and schedule requirements. In addition, task leaders are responsible for ensuring that adequate time and budget are allocated for thorough product review. Quality control review is to be considered an integral part of document production. To ensure adherence to quality guidelines the designated QA/QC manager is responsible for maintaining standards and reviewing schedules, and for identifying the appropriate personnel to carry out document quality reviews. Documents are to be cleared by the QA/QC manager prior to being released to the client. The Senior Advisory Panel comprised of key consultant team staff may also be used to review documents for quality control as appropriate.

Quality Control reviews will be conducted on all deliverables before submittal to the client. The quality control review process begins with a submittal of the draft document to the QA/QC Manager. The QA/QC Manager then identifies appropriate review personnel and a review schedule for the draft work product. The designated reviewer will check the document for responsiveness to the work scope, project requirements, and other key considerations such as:

- Conformity with Accepted Practice
- Verification and Formatting of Calculations
- Identification of Data Sources
- Completeness
- Appropriate Level of Detail
- Consistency of Assumptions, Nomenclature, and Format
- Spelling and Legibility of Text
- Clarity of Presentation

The redlined draft document with comments/corrections is then returned to the task leader who will be responsible for making the necessary revisions. Where the task leader disagrees with the comments, the QA/QC Manager will review the comments and resolve the issue. When necessary the Senior Advisory Panel may be consulted to resolve the dispute.

After the revisions are made to the document the QA/QC Manager will determine if the document must be resubmitted for a second review. If revisions are determined to be minor, then the task leader will resubmit the revised document, labeled QC Approved Submittal for the QA/QC Manager along with the initial submittal. In revising the document the task manager will note that corrections have been made by using the track changes feature to indicate where edits and changes have been made. The original redlined submittal will also be highlighted in yellow to indicate that each of the redline comments have been addressed.

Once the corrections have been confirmed, the QA manager will return the QC Approved Submittal to the project manager and/or task leader, indicating that the document is approved for submittal to the RPCGB.

If it is determined that a second review is needed, then the task leader and project manager must make the necessary adjustments to the review schedule to allow for the second review. In the event of a second review, the initial submittal together with the revised document will be returned to the QA/QC Manager. The process for the second review will be the same as for the first review described above. Team responsibilities are described on the following page.

TEAM RESPONSIBILITIES – PROJECT WORK PRODUCTS

Senior Advisory Group (Selected Products)

- Overall Design Approach
- Conformity with Accepted Practice
- Identification of Significant Cost, Quality, Implementation Issues
- Comparison to National Projects
- Clarity of Information
- Conformance to Project Requirements
- Consistency with Project Objectives

Project Manager

- Consistency of Drawing Content and Format
- Consistency with Design Intent
- Consistency between Operating Plans And Facility Design
- Completeness, Correctness, Consistency And Appropriateness of All Content
- Management of Review Process
- Overall Design Approach
- Consistency with Other MIS Projects
- Incorporation of Review Comments
- Conformance to Project Objectives
- Overall Quality of Product
- Confirm Integration of Design Elements

Task Manager

- Design Details Appropriate and Adequate
- Consistency with Agency Practice
- Impacts Clearly Indicated For Evaluation
- Accuracy, Correctness and Integration
- Correct Nomenclature, Spelling, Legibility Of Text
- Verify Source of Data and Assumptions
- Consistency with Design Standards
- Incorporation of Review Comments
- Constructability and Cost-Effectiveness
- Organization of Drawing Package
- Check Calculations for Accuracy
- Verify Text and Drawing Consistency

Project Engineer/Planner

- Completeness, Accuracy and Correctness Of Drawing Details
- Consistency with Related Products
- Correct Nomenclature, Spelling, Legibility
- Dimensions Checked and Verified
- Calculations in Standard Format
- Conformance to Standards
- Clarity of Presentation, Grammar
- Appropriate Level of Detail
- Consistency of Content and Format
- Interfaces among Elements Identified
- Corrections Back Checked

Technician/Graphics/Word Processor/Project Administrator

- Page Numbers, Figure Numbers, Table Numbers Correct and Consistent
- Consistency of Format with Project Standards
- Consistency of Format with Graphic Standards
- Legends, Figure Numbers, Scale, Word
- Filing and Retrieval Standards Followed
- Orientation Correct and Complete
- Typed Text Consistent with Original
- Spell Check
- Quality of Binding, Covers, Copies
- Readability at Final Copied Scale
- Drawing Content Consistent w\ Draft
- Date Prepared, Source Indicated

3.0 SUB-CONSULTANT QUALITY ASSURANCE PROGRAM

A critical element of the QA Program is ensuring that each subconsultant has an approved QA Plan that is consistent with the project quality requirements, demonstrably effective, and practical to implement.

The project Quality Program has an extensive QA Program procedure for its subconsultants. This procedure requires the review and approval of each subconsultant's QA Plan, and includes a system for rating subconsultant performance. The prime consultant bases its selection and oversight of subconsultants on several factors, including the firm's experience with, and knowledge of, each subconsultant's performance; the complexity of the tasks that are to be performed; and client-specified requirements.

When a subconsultant's QA Plan is insufficient, or if no plan is available, the subconsultant will develop appropriate procedures and documentation. In many cases the forms and other portions of the prime consultant's plan are used as the basis for subconsultants' programs. The subconsultant's QA Plan must be kept up-to-date, and the subconsultant's employees must understand plan requirements. Additionally, each submission from a subconsultant must, as appropriate, contain evidence that the necessary reviews, as part of their approved program, have been conducted.

In addition to the subconsultants directly retained by the prime consultant, other subconsultants assigned to the team by the client, are welcomed and integrated into the project team. The prime consultant will work with these contractually assigned subconsultants to ensure that they meet the requirements of the subconsultant QA program. Recognizing that interdisciplinary coordination, design integration, and communication among the subconsultants is a critical quality issue, the prime consultant may choose to implement additional key quality actions for the entire project team to address and focus on project-specific requirements.