DULLES CORRIDOR METRORAIL PROJECT

EXTENSION TO WIEHLE AVENUE

Project Management Plan

Submitted to
Federal Transit Administration

For
Construction

Submitted by
Metropolitan Washington Airports Authority
In cooperation with
Washington Metropolitan Area Transit Authority
And
Virginia Department of Transportation
Virginia Department of Rail and Public Transportation
Fairfax County
Loudoun County

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QA   Quality Assurance
QC   Quality Control
RAIL  Rail Service
RFI   Request for Information
ROD   Record of Decision
ROW   Right-of-Way
RAMP  Real Estate Acquisition Management Plan
SCC   Standard Cost Categories
SCIL  Safety/Security Certifiable Items List
SCMP  System Safety/Security Certification Management Plan
SCRC  Safety and Security Certification Review Committee (WMATA)
SCWG  Safety/Security Certification Working Group
SSMP  Safety and Security Management Plan
STR   Senior Technical Representative
TAB   Technical Advisory Budget
TEAM  Transportation Electronic Award Management
TMP   Transportation Management Plan
TOC   Tri-State Oversight Committee
VDOT  Virginia Department of Transportation
WBS   Work Breakdown Structure
WFCY  West Falls Church Yard
WMATA Washington Metropolitan Area Transit Authority
1.0 Executive Summary

The Metropolitan Washington Airports Authority (the Airports Authority) has prepared this Project Management Plan (PMP) for the Construction stage of Phase 1 of the Locally Preferred Alternative (LPA), the Dulles Corridor Metrorail Project – Extension to Wiehle Avenue (the Project). The PMP establishes how the Project is to be managed, executed, monitored, and controlled, leading up to and following the execution of a Full Funding Grant Agreement (FFGA) with the Federal Transit Administration (FTA) under the Section 5309 New Starts program. The PMP has been prepared in accordance with FTA’s Project and Construction Management Guidelines, 2003 Update and 49 CFR Part 633.25, Contents of a Project Management Plan, and ensures that the Project is completed in accordance with the requirements of FTA Circular C5010.1C – Grant Management guidelines and related project management oversight requirements and practices of the Section 5309 New Starts program.

The development and implementation of an effective PMP is essential to the success of any large capital project, particularly for highly complex undertakings like the Project. The PMP will be effectively implemented by the Airports Authority Project staff, using their extensive experience with transit and Design-Build projects to manage and control the efforts of the Design-Build contractor (Dulles Transit Partners [DTP]), the Washington Metropolitan Area Transit Authority (WMATA), and other agencies and stakeholders. The management approach described in the PMP is also designed to ensure that the Project is completed in accordance with WMATA standards, so that the Project can be successfully accepted into the 103-mile WMATA Metrorail system.

The PMP is a dynamic document that will be reviewed annually and updated as required. To date, the FTA has accepted five versions of the PMP for this Project reflecting previous stages of Project development. The previous version of the PMP (Version 5.0, January 2008) documented that, as the Project sponsor, the Airports Authority, rather than the Commonwealth of Virginia (the Commonwealth), is responsible for management of the Final Design and Construction of the Project and focused on Final Design activities following the FTA’s approval to enter Final Design.

While Final Design and Construction will overlap for a period of time during this Design-Build Project, this version of the PMP (Version 6.0) focuses mainly on the Construction stage of the Project. It defines management responsibilities; roles of Project staff; and interactions among and between Project staff, consultants, and other agencies and organizations. It also specifies the general procedures and management tools that will be used to ensure effective Project control and successful Project completion. As described below, this version of the PMP responds to FTA comments and incorporates recommendations of the Project Management Oversight Contractor (PMOC) made to previous versions. This PMP also fulfills the FTA’s requirements for funding under the New Starts program (49 CFR Part 633 – Project Management Oversight). This PMP is written to comply with all of these requirements and to provide the foundation for the design, construction, and implementation of the Project. The PMP, the associated plans, and the Project Management Procedures will continue to be updated as the Project progresses and reaches key schedule milestones, and the Airports Authority will continue to use these documents as tools to manage and construct the Project. The next version of the PMP (Version 7.0) will address the Commissioning and Testing stages of the Project.

This PMP for the Construction stage was developed based on the following guiding principles:

- Establishment and maintenance of a single authority with overall responsibility for completion of design, coordination with other agencies, and control of DTP to ensure a quality product is delivered on schedule and within budget in as safe a manner as possible
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• Assurance that the Project technical scope and schedule are “locked down” to avoid unnecessary changes
• Thorough review and constant updating of risks and uncertainties to the program for “scope creep,” schedule slippage, and cost increases—aggressive risk assessment and change management is paramount to success
• Effective communication with affected communities and agencies to ensure minimal impact to the existing local transportation network, the local commercial economy, and the social fabric of the community
• Transparency regarding the procedures whereby DTP completes the work and accounts for progression through the life of the contract
• Ongoing compliance and communication with FTA Project Management Oversight requirements and best practices in accordance with the Section 5309 New Starts program and specific terms and conditions within the executed FFGA

In addition, Version 6.0 of the PMP specifically addresses previous comments raised by the FTA on project management and control procedures. These include:
• specific experience of Airports Authority staff and the entire Project team on delivery of major transit capital projects, specifically funded through the FTA Section 5309 New Starts program
• success in delivering major capital projects under the Public-Private Transportation Act of 1995 (PPTA) and the specific application of a Design-Build delivery method for the Project
• integration between the Airports Authority and WMATA on effective and efficient design and construction of the Project in preparation for final transfer to WMATA for operations and maintenance; and
• ongoing management and control of Project schedule and costs.

This PMP also describes the Airports Authority’s development of:
• an adequate grant recipient staff organization, complete with well-defined reporting relationships, a statement of functional relationships, job descriptions, and job qualifications;
• a project management organization and management structure necessary to complete Final Design and Construction;
• a budget covering the project management organization and Final Design and Construction activities;
• an implementation schedule for the entire Project, including Design and Construction stages;
• a document control procedure and record-keeping system;
• quality assurance/quality control (QA/QC) functions, procedures, and responsibilities for Final Design, Construction, system installation, and integration of systems components;
• monthly progress reports that include a Project budget and schedule for the FTA and senior management; and
• Financial Status Reports, metrics (cost and schedule progress), and demand recovery plans.

Project Background

The Airports Authority, as grantee, in cooperation with WMATA, proposes to implement a 23.1-mile Metrorail extension in the Dulles Corridor of Northern Virginia. Due to the length of the proposed route,
1.0 Executive Summary

The LPA was divided into two phases. The first phase, the Extension to Wiehle Avenue, is 11.6 miles long and runs from the existing WMATA Metrorail Orange Line, just east of the West Falls Church station, to a station to be constructed in the Dulles International Airport Access Highway (DIAAH) at Wiehle Avenue. The second phase is the Extension to Dulles Airport/Route 772.

The Airports Authority is the Final Design grant recipient and will assume operational and management control of the Dulles Toll Road (DTR). With control of both the DTR and the Project, the Airports Authority intends to fund, design, and construct both phases of the LPA.

The Project is being executed through a Design-Build approach, which offers a number of cost and schedule advantages over a traditional Design-Bid-Build approach. The Design-Build approach is described in Section 3.6 of this PMP.

The Design-Build contract, which was executed in June 2007, was amended in July 2008 to reflect the updated Project schedule. The amendment also includes several provisions designed to allocate Project risk between the Airports Authority and DTP. DTP will contribute $25 million to the $200 million Capital Reserve Account (CAPRA), which was required by the FTA as a precondition to an FFGA. The draws from the CAPRA will be shared by the parties, regardless of the cause of the draw. The other non-federal funding sources used for the CAPRA are discussed in the Project’s Financial Plan. In addition, the amendment revises the early completion incentive clause to provide an incentive for an additional five months to be shaved from the construction period.

Below is a summarized chronology for the Project.

- June 10, 2004 – The FTA approves the Virginia Department of Rail and Public Transportation’s (DRPT) entry into Preliminary Engineering (PE) in accordance with requirements of the New Starts program.
- June 11, 2004 – Pursuant to the PPTA, DRPT and DTP enter into the Comprehensive Agreement to Develop the Dulles Corridor Rapid Transit Project (the Comprehensive Agreement). In accordance with that agreement, DTP performs certain development work and PE work related to the Project.
- March 24, 2006 – The Airports Authority and the Commonwealth sign a Memorandum of Understanding (MOU) setting forth the parties’ mutual desire to execute an agreement transferring management and control of both the Project and the DTR to the Airports Authority, and for the Airports Authority to assume the Commonwealth’s role in financing and accomplishing the design and construction of both phases of the LPA.
- November 17, 2006 – The FTA issues an amended Record of Decision (ROD) on the Project in accordance with National Environmental Policy Act (NEPA) requirements.
- November 30, 2006 – The FTA certifies the Airports Authority as being eligible to receive FTA funds for the implementation of a public transportation project.
- December 29, 2006 – The Virginia Department of Transportation (VDOT) and the Airports Authority enter into a Master Transfer Agreement and the Dulles Toll Road Permit and Operating Agreement pursuant to which VDOT agrees to provide the Airports Authority a permit to operate the DTR and collect toll revenues in consideration for the Airports Authority’s obligation to fund and cause the Project to be constructed.
- March 28, 2007 – DRPT, the Airports Authority, and DTP enter into an MOU memorializing their agreement regarding the substantive terms of a Design-Build contract to be entered into by DTP.
1.0 Executive Summary

- June 19, 2007 – The Airports Authority signs a Design-Build contract with DTP.
- June 28, 2007 – DRPT and the Airports Authority sign the Assignment and Assumption Agreement that transfers and assigns from DRPT to the Airports Authority all of DRPT’s right, title, and interest in the Comprehensive Agreement, including entering into the Design-Build contract with DTP. At the same time, DTP consents to the assignment of the Comprehensive Agreement.
- July 19, 2007 – The Airports Authority, Fairfax County, and Loudoun County sign the Agreement to Fund the Capital Cost of Construction of Project.
- July 19, 2007 – The Airports Authority and Fairfax County enter into a Cooperative Agreement that describes the relationships between the Airports Authority and Fairfax County and the duties and rights of each party to the other.
- September 11, 2007 – The Airports Authority signs a Cooperative Agreement with VDOT that delineates the roles and responsibilities of each agency in completing the timely implementation of the Project.
- September 14, 2007 – The Airports Authority and WMATA sign a Cooperative Agreement that defines the scope of technical support to be provided by WMATA, and the appropriate method of reimbursement for these services.
- January 7, 2008 – In anticipation of an FTA approval for the Project to proceed with Construction, early utility relocation by Washington Gas Company is initiated under a task order from the Airports Authority.
- May 12, 2008 – The FTA approves the Project to enter into Final Design in accordance with requirements of the New Starts program. The approval similarly approves the acquisition of property and utility relocations required for the Project.
- May 28, 2008 – Additional mobilization for utility relocation is authorized by the Airports Authority under task orders.
- July 25, 2008 – The Airports Authority and DTP execute an amendment to the Design-Build contract that shares additional risk with DTP and provides for a DTP contribution to the CAPRA.
- August 29, 2008 – Initial application for an FFGA and related documentation is submitted.

Approach
The Airports Authority has developed this PMP drawing on its own experience managing large capital projects, while ensuring that project management and controls are put in place to specifically address FTA requirements and practices, the Section 5309 New Starts Project Management Oversight requirements, and the specific terms and conditions of the executed FFGA. The Airports Authority Project team’s experience includes work on both airport and transit projects and enables the Airports Authority to effectively manage the Project without impeding the ability of DTP to complete the Project on time and within budget. The Airports Authority recognizes the need to implement the Metrorail extension in accordance with a Design-Build contract, and also to comply with WMATA design and operating requirements for integration into its existing regional transit system while continuing to fully comply with FTA oversight and reporting requirements.

The Airports Authority’s Project team is made up of Airports Authority staff and a consultant team that functions as an extension to Airports Authority staff, providing additional technical and program management support services.
1.0 Executive Summary

The Airports Authority recognizes that one of the key elements to effective program management is the early establishment of technical scope coupled with an aggressive approach toward change management. Scope growth and changes to scope during construction on major public transportation projects are the primary risks to schedule and budget. Establishing a well-defined scope and aggressively resisting “scope creep” are essential elements to controlling cost and schedule, especially in a Design-Build environment. To achieve success on this Project, the Airports Authority and its Project team have adopted an overarching mentality of design to budget, effective change management, and schedule adherence. To achieve these goals, the PMP is focused on identifying and managing this Project’s challenges and opportunities, including the following.

- The Airports Authority has a comprehensive understanding of the Project requirements, ranging from compliance with environmental and code requirements to WMATA design criteria to Virginia PPTA guidelines.

- The Airports Authority has negotiated a Design-Build contract with DTP. Cooperative Agreements with WMATA, DRPT, VDOT, Fairfax County, and Loudoun County are in place so that all Project roles and responsibilities are appropriately assigned and managed.

- The Airports Authority and WMATA will work closely together throughout the Project to ensure that WMATA requirements are met in the Project’s design and construction, to ensure successful integration with WMATA’s existing systems, and to minimize the risk of delays in start-up of revenue service. The interface between the Airports Authority and WMATA is described in Section 4.4 of the PMP.

- The Airports Authority has worked with the FTA, DTP, and the Project partners to define scope, processes, and division of responsibilities in supporting documents, such as the Real Estate Acquisition Management Plan (RAMP), the Permitting Plan, and the Utilities Report.

- The contract provisions and agreements between the Airports Authority and DTP and between the Airports Authority and the other Project partners emphasize a burden of proof that will be enforced to severely limit the types of events or conditions eligible for a change. This applies to the Design-Build contract as well as to the enforcement of betterments with Project partners and third parties, such as utilities.

- The Airports Authority has assembled a Project staff that includes key personnel with extensive experience in large transit projects and has established a set of Airports Authority Project Management Procedures for managing the Project.

- The Airports Authority has organized this staff and provided the necessary tools in the Design-Build contract and Cooperative Agreements to enable it to effectively manage all aspects of the Project.

- The Airports Authority will promote, encourage, and support safety as a priority during construction of the Project, with specific regard to the eventual operational and safety requirements of the rail system and the short-term interface with the public during construction.

- The Airports Authority is committed to managing to the budgets established by the partner agencies, including its own. This effort will continue for all stages of the Project.

- The Airports Authority will be proactive in its approach to addressing the concerns of stakeholders and others affected by the implementation of the Project, especially the day-to-day interfaces with the public.

- The Airports Authority put several provisions in the Design-Build contract that require DTP to assume schedule responsibility and to adhere to the adopted baseline schedule for the Project. The joint monthly update review meetings and reconciliation will be viewed as a continuous effort to
enforce adherence to the adopted schedule. The Project partners, including WMATA, have also pre-established interface points built into the master project schedule and codified in the Cooperative Agreements that they will be held responsible for meeting to ensure success in the overall implementation of the Project.

- The Airports Authority will proactively monitor and administer the performance of the work to secure the specified quality.
- The Airports Authority will monitor Project construction performance to ensure that the required efficient rate of progress is maintained to support the planned review service date and will respond appropriately to implement cost and schedule mitigation measures evaluated as beneficial to the overall Project.
- The Airports Authority will coordinate and administer necessary interfaces with Project stakeholders and third parties to ensure timely and complementary interaction.
- The Airports Authority will maintain a work schedule agreed to by the FTA and the Airports Authority that ensures that scheduled milestones are met and performance goals are achieved.

The following sections of this PMP provide detailed descriptions of important aspects of the Airports Authority’s plan and processes for management of the Project. The PMP presents **Project Organization and Staffing**, includes a **Project Description**, addresses **Program and Project Management Responsibilities**, and provides detailed **Management and Project Controls**. The PMP then provides more specific information addressing the following areas:

- Labor Relations and Policy
- Risk Assessment
- Environmental Analysis and Mitigation
- Procurement and Contract Administration
- Design Program
- Real Estate Acquisition
- Community Relations
- Construction Management
- Intergovernmental and Utility Agreements
- Conflict Resolution
- Safety Certification
- Planning for Operations Start-Up
- General Joint Development Program

Supplementing this PMP are other project management plans, including the Airports Authority Quality Program Plan and the Airports Authority Safety and Security Management Plan (SSMP). These plans, described in further detail in Sections 5.2 and 16.0 of this PMP, respectively, provide additional guidance and requirements related to QA/QC and safety and security that are to be applied during the course of the Project to ensure that quality, safety, and security objectives are achieved and that related requirements met.
2.0 Project Organization and Staffing

This section discusses the overall approach for managing the design and implementation of the Project. It also outlines how the participating agencies and entities are organized and staffed. As implementation of the Project proceeds from Final Design through Construction and Start-Up, the organization will evolve to maximize the efficient use of personnel and will adjust to the changing workload. The Airports Authority will update the PMP prior to each stage to reflect changes in the organization and management policies and procedures.

2.1 Project Management Structure

The management structure draws on the strengths and capabilities of each organization to implement the Project in a timely and cost-effective manner. This section summarizes the roles of the principal participants involved in Final Design and Construction.

Figure 2-1 identifies the Project participants and their roles on the Project. These roles are described in more detail in the following paragraphs. Information regarding the respective organizational structure of each participating organization is provided in Sections 2.3 through 2.8. Their responsibilities are described more fully in Section 4.0.

Figure 2-1. Project Functional Organization
2.0 Project Organization and Staffing

- **Project Sponsor and Grantee – The Airports Authority.** As the Project sponsor and grantee, the Airports Authority is the direct point of contact for the FTA and will be the agency that is ultimately responsible for the success of the Project. In Final Design and Construction, the Airports Authority will be the federal grant applicant and recipient and will have direct responsibility for the day-to-day management of the Design-Build contract, the Final Design scope of work, the baseline schedule, the design and construction budget, and all other associated Project management tasks. To assist in fulfilling its role, the Airports Authority has entered into Cooperative Agreements with WMATA, DRPT, VDOT, and Fairfax County. The Airports Authority has also retained a consultant team, led by Jacobs Carter Burgess, to function as an extension to Airports Authority staff, providing technical and program management support services. The Airports Authority has applied a similar management approach to control project costs and schedule over the agency’s 20-year history of very large construction projects. Project management consulting plays an integral role in the management of the Airports Authority’s ongoing $7.2 billion capital project program.

- **Technical Support – WMATA.** As the ultimate owner of the Project, WMATA has been involved with the Project from the start of the PE/NEPA stage up through the Pre-Final Design stage. WMATA’s involvement will not change in the stages yet to come, which include Final Design, Construction, Safety Certification, and Pre-Revenue Start-Up. WMATA will provide staff support as technical advisor to the Airports Authority and will assist with design reviews, testing, and start-up acceptance. WMATA will manage the interface with the existing WMATA system in accordance with schedule requirements established in the Master Project Baseline Schedule. WMATA’s specific roles and responsibilities are described more fully in Sections 2.4 and 4.4.

- **System Acceptance – WMATA.** After all construction, testing, and start-up-related activities have been closed out, the Airports Authority will transfer the Project’s line, facilities, and systems to WMATA for operation, maintenance, and ultimate ownership. Upon completion of the Project’s system safety and security certification process and WMATA’s acceptance of the Project into the Adopted Regional System (ARS), in accordance with WMATA Compact procedures, WMATA will operate and maintain the new rail line as an integrated element of the full Metrorail system.

- **Technical Support and ROW – VDOT and DRPT.** VDOT will provide technical support to the Airports Authority in the areas of real estate acquisition, environmental reviews, roadway improvements, maintenance of traffic (MOT), Intelligent Transportation Systems, and design and constructability reviews. In addition, much of the Project ROW in Tysons Corner (along Routes 123 and 7) is part of the state highway system, and easements will be provided to the Project by permit. DRPT will provide technical support to the Project and will assist in coordinating with other Commonwealth agencies, as needed.

- **Design-Build Contractor – DTP.** DTP will serve as the prime Design-Build contractor and will perform the scope of services required for Final Design and Construction. Additionally, DTP will continue to provide selected management support services to the Airports Authority, including real estate acquisition support, public involvement, and technical coordination for utility agreements and relocations and permitting.

- **Local Funding Partner – Fairfax County.** Fairfax County will serve as a technical advisor in the areas of station access, land use coordination, and county permits and approvals.
The Project organization recognizes the responsibility of the Airports Authority as the FTA-designated recipient for federal transit funds. The Airports Authority President, Chief Operating Officer, and Board of Directors are ultimately accountable to the FTA for the expenditure of federal funds for the Project. As a recipient of federal transportation grants, the Airports Authority will be subject to the oversight requirements of the FTA, particularly as they relate to budgeting, local share of funding or resources, contracting and procurement procedures, environmental protection, QA/QC, labor relations, Equal Employment Opportunity (EEO) requirements, Americans with Disabilities Act (ADA) requirements, ethics, documentation and record retention, accounting, and auditing.

2.2 Partnering

The Airports Authority, DTP, and other Project partners are committed to working together effectively to implement the Project on time and under budget. The Airports Authority is enhancing its management procedures with the use of partnering.

Partnering is a long-term commitment between two or more organizations to achieve specific objectives by maximizing the effectiveness and cooperation of each participant’s resources. Partnering often requires changing traditional management relationships to a shared culture without regard to organizational boundaries. The relationship is based on trust; dedication to common goals; and an understanding of each other’s individual constraints, expectations, and values. Expected benefits include improved efficiency and cost effectiveness, increased opportunity for innovation, and continuous improvement of quality products and services, all of which are underlying goals for Project participants. Participants in previous partnering agreements in the construction industry frequently report that synergy has resulted from the parties’ integrated efforts. Such synergy is a natural outcome when two or more organizations are working toward common goals. To reach this goal, DRPT, WMATA, and DTP developed a partnering charter to establish commitment of all Project participants through the PE stage. The partnering program included a number of partnering sessions and follow-up activities that focused on effective communications, resolution of issues, and clarification of roles and responsibilities. The charter has been adapted by the Airports Authority, WMATA, and DTP to address the requirements of the Final Design and Construction stages of the Project (Figure 2-2). Upcoming meetings with the partnering facilitator used during PE will focus on the changes in management personnel and policy since the first partnering sessions. These meetings will also begin to address the special partnering challenges that can be expected during the final design and construction of any project.
2.0 Project Organization and Staffing

Figure 2-2. Final Design Project Charter

Final Design and Construction Phases Project Charter

We are committed to developing and delivering a safe, buildable, and affordable final design. We will accomplish this by achieving the following goals.

SCHEDULE
- Develop an integrated Master Project Schedule
- Identify and meet schedule milestones
- Assess schedule risks and select early procurement activities
- Manage external influences

TIMELY DECISIONS
- Identify and communicate about issues early on
- Maintain ongoing formalized communication forums to continually identify and address issues
- Maximize informal communications
- Encourage appropriate ad hoc decision making
- Take advantage of co-location and get the right people together to make a decision
- Make decisions and get concurrence on Value Engineering recommendations and basis of design early
- Resolve technical interfaces with external stakeholders early

HIGH-QUALITY DESIGN
- Meet or exceed WMATA design standards, operational performance, and reliability
- Develop cost-effective design considering lifecycle costs, operability, constructability, sustainability, and public experience
- Integrate safety and security requirements

WITHIN BUDGET
- Complete final design and construction activities within budget
- Explore project elements for Value Engineering consideration
- Manage external influences on scope and budget
- Manage and control non-construction costs

PARTNERING
- Initiate partnering programs to advance communication between Project partners
- Regularly conduct continuing follow-up sessions

POSITIVE PUBLIC IMAGE
- Maintain a united team
- Speak with one voice
- Strive to meet public expectations
- Demand and provide latest and most accurate information

COLLABORATIVE TEAM
- Ensure understanding of agreement and coordination of design-build procurement process
- Communicate effectively with partners
- Commit to project covenants
- Resolve issues in a timely manner and at the appropriate level
- Focus on accomplishing the project objectives while respecting organizational roles
2.0 Project Organization and Staffing

2.3 Metropolitan Washington Airports Authority Organization

The Airports Authority is a public body corporate and politic created by enactment of the Virginia Act and the District Act, with the consent of Congress pursuant to the Federal Act, as amended, with the powers and authority set forth in the Virginia Act and the District Act and with full legal right, power, and authority to own, operate, improve, and maintain the metropolitan Washington airports; to enter into the amended Federal Lease; and to carry out and perform its obligations under the Federal Lease, the Master Indenture, other finance documents, and other contracts entered into in connection with the Airports Authority’s operation and responsibilities. The Airports Authority is also empowered to make and enter into all contracts and agreements necessary or incidental to the performance of its duties, including, but not limited to, contracts with the federal government, with states, with agencies and governmental subdivisions of Virginia, and with other appropriate public and private entities.

The Airports Authority operates Washington Dulles International Airport (Dulles Airport) and Ronald Reagan Washington National Airport (National Airport). The Airports Authority currently leases Dulles Airport and the DIAAH from the U.S. Government under the terms outlined in the Metropolitan Washington Airports Act of 1986, as subsequently amended (the current lease expires in 2067). In addition to operating Dulles Airport and National Airport, the Airports Authority is responsible for capital improvements at both airports, the DIAAH, and the Dulles Connector Road.

2.3.1 Agency Organization

The Airports Authority’s current organization consists of more than 1,000 employees in a structure that includes central administration, airports management and operations, and police and fire departments. The agency organization is shown in Figure 2-3.
2.3.2 Past Experience Managing Federal and Local Grants

The Airports Authority is a current recipient of U.S. Department of Transportation grants from the Federal Aviation Administration (FAA). Since its formation in 1987, the Airports Authority has been awarded a total of approximately $356.0 million in grants from the FAA, including $36.9 million as the first year’s funding of a 10-year, $200.0 million award that was approved on February 21, 2006, under the FAA’s Letter of Intent process. The Airports Authority received $26.7 million in FAA Airport Improvement Program grants in 2007.

The Airports Authority receives, on a cost-reimbursement basis, grants from the U.S. Government and the Commonwealth for certain operating and capital construction programs. As a recipient of federal and state financial assistance, the Airports Authority is responsible for maintaining an internal control structure that ensures compliance with all laws and regulations related to these programs. Total federal and state grant expenditures for the years ended December 31, 2007 and 2006 were $33.8 million and $55.8 million, respectively.

The Airports Authority also manages other grants received from agencies within the U.S. Department of Homeland Security and the U.S. Department of Justice for various security and public safety programs, e.g., the State Homeland Security Program and the Homeland Security Grant Program, conducted on a stand-alone basis or in conjunction with local and federal law enforcement agencies. Grants are also received annually from the Commonwealth’s Department of Aviation and are expended on projects in
accordance with the Commonwealth’s Aviation Grant Program requirements. All grant expenditures are subject to financial and compliance audits by the grantors as well as during the Airports Authority’s annual OMB A-133 Single Audit process.

In addition to grant programs, the Airports Authority manages a federally regulated Passenger Facility Charges (PFC) program. This program allows airports to collect passenger fees and expend them on federally approved passenger-specific projects. PFCs are remitted to the Airports Authority directly from the airlines based on passenger enplanements, and collections and expenditures are reported to the FAA on a quarterly basis. The program began in 1994; since that time the Airports Authority has submitted and gained approval of four series of PFC applications, with amendments, covering both airports, in the amount of $1.5 billion. For the years ended December 31, 2007 and 2006, the Airports Authority earned PFCs of $36.8 million and $37.2 million for National Airport, respectively, and $46.0 million and $44.2 million for Dulles Airports, respectively. As an FAA grantee, the Airports Authority must meet financial capacity and capability standards established by the FAA. The Airports Authority is in compliance with standards that would apply to both FAA and FTA grantees of capital construction projects. For example, the Airports Authority is required to hire a firm of independent certified public accountants each year to conduct an audit of the financial statements of the Airports Authority in accordance with auditing standards generally accepted in the United States of America and to meet the requirements of the Federal Single Audit Act of 1984 (pursuant to OMB Circular A-133).

2.3.3 Project Management Organization

The Airports Authority project management organization for the Project, shown in Figure 2-4, depicts the key roles and relationships of the Airports Authority staff, departments, consultants, and WMATA working on the Project during Final Design and Construction. Through a combination of direct and indirect reporting arrangements, the Airports Authority intends to take advantage of the depth of their existing organization and provide the skills necessary to successfully manage the Project. Responsibility for adherence to the Project budget and schedule is assigned to a specific individual at both the Airports Authority and DTP for each element of Final Design and Construction. For a full description of these assignments, refer to the letter and enclosure sent to Ms. Letitia Thompson on February 26, 2008.

During Final Design and Construction of the Project, the Airports Authority will provide expertise in numerous fields, including engineering, construction, finance, legal issues, and communications, along with staff and consultant support, to ensure that all relevant issues are identified and addressed. The Airports Authority will also provide property and a share of the non-federal funding for the development of the Project. On November 3, 2006, the Airports Authority issued a Request for Qualifications to identify a firm to provide technical and program management support services, reporting directly to the Project Director. The Airports Authority entered into a contract with Jacobs Carter Burgess for project management support services (PMSS) on the Project. On behalf of the Airports Authority, the PMSS team will provide transit engineering and construction expertise as needed, augmenting the Airports Authority’s existing project management staff. The PMSS team is flexibly tailored to meet changing demands of the Project as it proceeds through Final Design to Construction and into Start-Up.
Figure 2-4. Airports Authority Project Management Organization
The responsibilities of the Airports Authority project management organization are described below. The positions have been filled by new hires and former DRPT Project staff. Remaining vacancies will be filled within the next three months in compliance with provisions described in the May 12, 2008, letter from FTA Administrator James Simpson. In addition, the Airports Authority has brought Mercator Advisors, LLC on board to provide selective financial advisory services in connection with the Project and the DTR.

All Project staff report up to the Airports Authority Project Director, who is the single point of management responsibility for all Project activities. The legal, communications, procurement, QA/QC, safety, and financial accounting oversight functions have parallel off-Project reporting structures to ensure independence and objectivity. A summary of the Airports Authority’s project management staff and their qualifications is included in Appendix C. Below are descriptions of the key Airports Authority staff positions working on the Project.

### Executive Project Director (4th Quarter 2008)

The Executive Project Director is responsible for overall management, direction, control, and coordination of functions required to deliver the completed Metrorail system to WMATA, the ultimate owner and operator. The Executive Project Director oversees all Project activities and directs the Project Director, who is responsible for day-to-day management of engineering and construction functions, including the Project staff, the Design-Build contractor, and agency staffs assigned to support the Project.

The Executive Project Director is responsible for ensuring that the requirements of the Cooperative Agreements with each of the Project partners, including WMATA, are implemented. Additionally, the Executive Project Director will work with Project partners to resolve interagency issues that may not have been anticipated in the Cooperative Agreements. The Executive Project Director is responsible for ensuring that issues related to scope, schedule, and budget are resolved on a timely basis in accordance with the dispute resolution procedures outlined in each agreement. The Executive Project Director is also responsible for ensuring that WMATA is fully engaged in all areas of design and construction and that WMATA standards and applicable requirements are met to ensure successful and timely start-up, testing, and pre-revenue operations, and acceptance of the Project into the Metrorail system. A direct communications/support relationship will be established between WMATA’s General Manager and the Executive Project Director.

The duties of the Executive Project Director also include representing the Project and the Airports Authority at public and industry meetings and forums and approving technical and non-technical matters not delegated to the Project Director that are critical to execution of the Project.

The Executive Project Director reports to the Airports Authority’s Vice President for Engineering and the Chief Executive Officer. On behalf of the Airports Authority, the Executive Project Director coordinates with high-level officials at the FTA, the Commonwealth, WMATA, and Fairfax and Loudoun counties.

### Project Director

The Project Director is responsible for successful completion of the Project. The Project Director’s focus is to provide project management direction, control, integration, and coordination functions to the inter-agency and interdisciplinary team managing the Project. More specifically, the Project Director is responsible for the overall management and direction of the delivery of services and functions, such as engineering design and Project development, construction budget and schedule control, risk management, Project contingency management, and dispute resolution. The Project Director is also responsible for...
2.0  Project Organization and Staffing

managing Final Design grant and FFGA compliance. Other duties of the Project Director include overall management of meeting FTA reporting requirements, environmental mitigation requirements, real estate acquisition, execution of cooperative agreements, grant administration, and management and updating of the PMP. The Project Director is also responsible for the preparation and distribution of monthly reports on the Project’s progress, schedule, and cost for the Airports Authority Board and Project stakeholders.

The Project Director serves as the Airports Authority’s Contracting Officer’s Technical Representative (COTR) for the Design-Build contract and the Comprehensive Agreement. As such, the Project Director is directly responsible for DTP’s performance under the Design-Build contract and Comprehensive Agreement, including Design, Construction, Utility Relocations, and property acquisition support activities. As COTR for the DTP contracts, the Project Director is also responsible for approving all invoices and for maintaining the overall Project budget. The Project Director will direct the activities of the Contract Administration Officer (CAO) in any negotiations of changes to this contract and will coordinate with the Office of General Counsel and the Contracting Officer (CO), as required. The Project Director is also the COTR for contracts with WMATA and the PMSS team, and holds similar responsibilities for schedule and budget adherence for these contracts.

The Project Director has assembled a team of experts on transit design, construction, and operations to complement existing Airports Authority staff to provide advice and counsel on complex issues and opportunities for increased safety, quality, efficiency, and cost savings.

The Project Director is directly supported by a team composed of the Deputy Director of Project Development, the Deputy Director of Design, the Deputy Director of Construction, the Manager of Risk Management and Project Controls, the Manager of Project Administration, the Manager of Project QA/QC and Safety, and the CAO. The PMSS team reports directly to the Project Director. Reporting indirectly to the Project Director are the Manager of Rail Communications and the Deputy Director of Project Finance.

**Deputy Director of Project Development**

The Deputy Director of Project Development is responsible for overseeing all Project development activities related to the implementation of the Project, including FTA reporting requirements, environmental planning, mitigation monitoring, agency coordination, cooperative agreements, permitting, and coordination with the regional transportation management efforts. Specific duties include:

- managing real estate acquisition;
- ensuring environmental compliance;
- monitoring the acquisition of necessary permits;
- monitoring safety and environmental compliance;
- monitoring the performance, schedule, and budget of the PMSS team related to Project development activities, and making payment recommendations for PMSS invoices to the Project Director;
- managing mitigation compliance during design and construction;
- managing coordination with local, state, and federal agencies;
- managing the Project’s Before and After Study;
- overseeing the development and execution of Project agreements;
- coordinating the Project with the regional transportation management plan (TMP) being implemented by VDOT and Fairfax County;
2.0 Project Organization and Staffing

- coordinating with other active VDOT and county projects to address any cumulative impacts and identified opportunities for coordinated closures, activities, and communication; and
- overseeing coordination related to property acquisition with property owners, tenants, local jurisdictions, and various Commonwealth and federal agencies.

Deputy Director of Design

The Deputy Director of Design provides continuous administrative and management direction of Project design, including necessary reporting. Specific duties include:

- overseeing the management of design for both LPA phases;
- ensuring conformity to grant agreements, applicable statutes, codes, ordinances, and safety standards;
- maintaining the Project work schedule agreed to by the FTA and the Airports Authority and constantly monitoring grant activities to ensure that schedules are met and other performance goals are achieved;
- providing, directly or by contract, adequate technical inspection and supervision by qualified professionals of all design work in progress;
- keeping design expenditures within the approved Project budget;
- monitoring the performance, schedule, and budget of the PMSS team related to design activities, and making payment recommendations for PMSS invoices to the Project Director;
- ensuring compliance with FTA requirements on the part of agencies, consultants, contractors, and subcontractors working under approved third party contracts or cooperative agreements;
- processing variances from WMATA, the Airports Authority, and VDOT design criteria, monitoring safety compliance, monitoring environmental compliance, and Value Engineering; and
- overseeing the successful implementation of the cooperative agreements as they related to design activities.

Deputy Director of Construction

The Deputy Director of Construction provides continuous management and technical policy oversight of Project construction. Specific duties include:

- overseeing all Project construction and technical inspection;
- adhering to the Project’s construction budget and schedule;
- ensuring compliance with reporting, regulatory and FTA requirements;
- ensuring that the Airports Authority and Project policies and systems related to the Project’s construction are implemented;
- reviewing and approving environmental permit applications and other submissions for permits that are the responsibility of the owner as defined by the Design-Build contract;
- serving as the COTR for all Design and Utility Relocation contracts with individual construction companies and ensuring that Utility Relocation activities are performed within the Project budget;
- approving all invoices related to Utility Relocation activities by utility companies;
- supporting the development of utility agreements and ensuring that the agreements meet all Airports Authority policies and requirements;
2.0 Project Organization and Staffing

- monitoring the performance, schedule, and budget of the PMSS team related to Utility Relocation and Construction activities, and making payment recommendations to the Project Director for PMSS invoices;
- serving as COTR for the VDOT contract and ensuring that VDOT activities are performed within the Project’s schedule and budget;
- coordinating all construction-related issues both within and outside the Project;
- approving technical changes up to the amount delegated by the CO and COTR for the DTP contracts;
- monitoring the acquisition of necessary permits; and
- monitoring safety and environmental compliance in Construction activities.

The Deputy Director of Construction works closely with the QA/QC and Safety Manager to ensure that contract construction quality requirements and safety goals are achieved.

Deputy Director of Project Finance

The Deputy Director of Project Finance is primarily responsible for developing the detailed financial plan for the Project and managing the Project’s capital funding program. This position is responsible for preparation of all financial documentation necessary to support negotiation and execution of an FFGA. The Deputy Director of Project Finance will coordinate extensively with other agencies to determine the preferred financing approach, manage capital funding for the Project during construction, and work with local funding partners on Project-related financial issues. This position is responsible for the day-to-day management of DTP’s and WMATA’s support for these activities, focusing on budget and schedule adherence. This position will report to the Airports Authority’s Vice President of Finance and will have an indirect reporting relationship to the Project Director. Specific duties include:

- overseeing preparation and implementation of the Project’s financial plan;
- managing the Project’s participation in the New Starts program, including the Annual Report on New Starts submittal;
- developing and executing Project funding agreements;
- coordinating with Project COs to ensure changes in design and construction contracts are incorporated in Project cash flow requirements;
- coordinating with the Airports Authority Financial Management Division on Project finance and accounting support;
- coordinating with funding partners to identify funding requirements and support debt issuances, as needed;
- ensuring that all invoices are coded correctly within the Project’s Chart of Accounts;
- managing the work of Airports Authority’s financial advisor(s) and subcontractors needed to assist with the development of the financial plan;
- managing capital funding sources to ensure funding matches the construction draw-down schedule;
- coordinating with funding partners and bond counsel to support development of a conduit financing entity;
- supporting the Airports Authority Deputy Chief Finance Officer on the development of DTR operating agreements and/or toll rate setting to support Project funding requirements; and
2.0 Project Organization and Staffing

- managing compliance with all applicable FTA regulations and requirements for financial reporting.

Senior Project Manager for Design

The Senior Project Manager for Design provides support to the Deputy Director of Design. This position will primarily focus on coordination with WMATA and all other affected agencies and municipalities during Final Design to improve communication between the agencies and the Project and to coordinate activities by the Project and other local projects in order to take advantage of opportunities for joint mitigations and to avoid conflicts and schedule delays. The Senior Project Manager for Design will manage the interactions with VDOT, DRPT, Fairfax County, and the Commonwealth to ensure that all interface work is performed to the necessary minimum and in accordance with the dates of the Design-Build contract. This position also supports reporting, technical inspection, FTA requirement compliance, regulatory compliance, Airports Authority Safety and Security Policy compliance, property inventory maintenance, Final Design Grant Agreement compliance, the Deputy Director of Design in monitoring schedule and budget adherence for design activities, and variance processing.

Manager of Risk Management and Project Controls

Reporting to the Project Director, the Manager of Risk Management and Project Controls oversees the PMSS team in the preparation of schedules and cost control methodologies for all stages of development, permitting, design, budget and schedule adherence, engineering, procurement, and construction. Specific duties include:

- directing the work of the PMSS project controls team, including the monitoring of cost and schedule, and control of Project documents;
- monitoring risk management on the Project, focusing primarily on controlling costs, maintaining schedule, and managing Project contingency;
- managing Project contingency and event-driven contingency, including identifying and quantifying costs to mitigate Project risks;
- directing the analysis on variances in cost and schedule performance against the plan;
- communicating the reasons for the issuance of variance and proposed mitigation plans to the Project Director; and
- addressing FTA regulatory compliance issues.

Manager of Project Administration (4th Quarter 2008)

Reporting to the Project Director, the Manager of Project Administration is responsible for the oversight of all Project administration, including utility agreements; real estate acquisition disbursements; Design-Build contract change orders; and procurement of materials, equipment, and services in accordance with approved requisitions and specifications. The Manager of Project Administration is responsible for accounting for Project property and maintaining property inventory records that contain all of the required elements. This position is also responsible for daily operational control of all contractual issues pertaining to administration of contracts and subcontracts.

The Manager of Project Administration will support the Project Director on staffing and personnel issues. This position is also responsible for the administrative interface between the Project office and the Airports Authority headquarters staff and will assist other managers in the processing, review, and approval of Project invoices, and with financial reporting.
Manager of Project QA/QC and Safety
The Manager of Project QA/QC and Safety has the responsibility and authority to implement Airports Authority policies on QA and on Project safety and security. To ensure the independence of these two important functions, the Manager of Project QA/QC and Safety reports directly to the Project Director and has an indirect reporting relationship with the Airports Authority’s Vice President of Engineering. This position oversees the review and monitoring of DTP’s QA/QC Plan and implementing procedures and DTP’s System Safety/Security Certification Management Plan (SCMP). In addition, the Manager of Project QA/QC and Safety is responsible for monitoring safety and environmental compliance.

The Manager of Project QA/QC and Safety has developed the Airports Authority Quality Program Plan and SSMP for the Project.

Project QA/QC Supervisor
The Project QA/QC Supervisor assists the Manager of Project QA/QC and Safety in implementing and maintaining the Quality Program Plan and will review DTP’s QA/QC Plan and implementing procedures. In addition, oversight of the Project’s quality program implementation will be performed in the form of audits, surveillances, and reviews as specified by the Quality Program Plan and Airports Authority Project Management Procedures.

Project Safety Supervisor
The Project Safety Supervisor assists the Manager of Project QA/QC and Safety in implementing and maintaining the SSMP and in reviewing DTP’s SCMP; DTP’s Environmental, Safety and Health Plan; and DTP’s procedures related to system safety and security and construction safety. Oversight of the Project’s system safety and security and construction safety programs will be performed in the form of audits, surveillance, and reviews as defined by the SSMP and the Airports Authority Project management procedures.

Contracting Officer
The CO is responsible for the full range of pre- and post-award contracting functions for the Project’s construction and architect/engineering contracts, including the review of solicitation packages, planning, soliciting, evaluating, awarding, and administering moderate to large dollar value construction; architect/engineering, consultant, supply, and service contracts; and leasing and maintenance agreements. The CO will supervise a team of Airports Authority contract specialists and procurement technicians as well as DTP contract specialists. The CO is the delegated contracting authority for an unlimited dollar amount. To maintain independence, the CO will report to the Airports Authority’s Vice President of Business Administration, and will have an indirect reporting relationship with the Project Director.

This position is responsible for compliance with applicable FTA regulations and for monitoring adherence to Project budget and schedule.

Contract Administration Officer
The CAO supports the CO for the Design-Build contract and the PMSS contract. The CAO will monitor compliance of all aspects of these contracts and will provide support on any negotiations of changes to these contracts. The CAO will also coordinate with the Office of General Counsel and the CO, as required and in compliance with the review procedures. This position reports to the CO, who will report to Airports Authority senior management directly, and will have an awareness of the obligations of the Airports Authority in the Design-Build contract and adherence to the contract by the contract team. This
position will ensure that changes to the contract are incorporated according to the Airports Authority’s processes. This position provides support on compliance with applicable FTA regulations and on monitoring adherence to Project budget and schedule.

Manager of Rail Communications
The Manager of Rail Communications is responsible for implementing and managing the Project’s communications, marketing, and outreach plan developed by DTP. This includes establishing two-way communication with the media, the public, and the business community; setting and ensuring a consistent message; and managing the Project communications and research efforts of DTP and other consultants and partners. The Manager of Rail Communications reports directly to the Airports Authority’s communications office and indirectly to the Project Director. In strict coordination with the Airports Authority’s established policies and protocols, the Manager of Rail Communications will be responsible for:

- coordinating the Project with operating businesses, residents, religious institutions, medical facilities, emergency response teams, and economic development interests along the alignment;
- managing and implementing the Arts-in-Transit program;
- providing marketing support; and
- conducting periodic public meetings and other events to keep the general public and commercial business interests appraised of the schedule and construction logistics as they affect the community as a whole or focused on specific areas immediately affected by construction operations.

Grants Administrator
The Grants Administrator is responsible for administration and management of FTA grants in compliance with the grant agreements and applicable FTA circulars and regulations. Using the Transportation Electronic Award Management (TEAM) system to manage the grants after award, the Grants Administrator will request and withdraw federal cash only in amounts and at times needed to make payments that are immediately due and payable. The Grants Administrator reports directly to the Airports Authority Vice President of Finance. The Grants Administrator will submit quarterly narrative/milestone and financial status reports in TEAM.

Senior Project Manager for Construction (4th Quarter 2008)
The Senior Project Manager for Construction position is being considered for the Construction stage of the Project. The Senior Project Manager for Construction would report to the Deputy Director of Construction. This position is expected to support the Deputy Director of Construction in all areas of responsibility. At a point closer to the initiation of construction, an evaluation will be made as to the need for this support position.

Office of the General Counsel
The Airports Authority’s Office of General Counsel provides support to the Project in the negotiation, preparation, and review of interagency agreements, utility force account agreements, Design-Build contract amendments, and subcontractor agreements. The Airports Authority’s Associate General Counsel has established a presence in the Project office to assist with these and other legal issues related to the Project on a full-time basis.
2.0 Project Organization and Staffing

Human Resources Management

The Airports Authority’s Human Resources Department has been providing support to the Project and has directed the recruiting efforts for the Project since the Airports Authority became the Project sponsor. The Airports Authority’s Human Resources Department will continue to provide support to the Airports Authority Project staff and to the Project itself whenever there is a need to retrain, supplement, or replace Airports Authority Project staff. This will be done in recognition of the importance of maintaining a Project team capable of efficiently managing the Project through its various stages despite any personnel changes that may occur over the life of the Project.

2.3.4 Project Management Support Services

A multi-firm PMSS team, led by Jacobs Carter Burgess, augments and provides support to the Airports Authority’s organization. The PMSS team will provide program management, design support, and construction oversight services for the implementation of the Project. This requires considerable on-site representation. The PMSS team will report to the Airports Authority’s Project Director and will provide assistance to the Airports Authority. The PMSS team is the liaison with WMATA’s on-site technical staff for review of design documents, management of all deviations from WMATA design criteria or standard drawings, evaluation of potential value engineering options, and improvement of design details to reduce future operating and maintenance costs, and to ensure that all testing and acceptance procedures and certifications are complete and comprehensive in order to ensure the acceptance of the Project into WMATA’s existing system. The PMSS team supports the Project Director, the Deputy Director of Design, and the Deputy Director of Construction in reviewing invoices, making payment recommendations, tracking all Project costs, monitoring contractor performance, and reporting on Project cost and schedule.

The PMSS team has a full range of technical and managerial professional disciplines and capabilities associated with major facilities programs and has demonstrated its ability to successfully provide project management services on large transit projects. The PMSS organization chart (Figure 2-5) depicts the key roles and relationships of the PMSS staff. The Notice to Proceed (NTP) was given to the PMSS team on August 1, 2007. A summary of the PMSS’s management staff and their qualifications is included in Appendix C.

The recruitment for vacant staff positions uses internal and external resources as well as agency services. Jacobs Carter Burgess conducts its recruitment through its formal internal process under the control of its Human Resources group. The PMSS sub-consultants are expected to recruit within their own organizations to ensure that new hires are satisfactorily integrated into each firm’s discipline and corporate culture. However, there is a sharing of information among all members of the PMSS team to maintain as much local participation as possible and to reduce relocation costs.

Ongoing training is provided for all staff. This is accomplished by an online university training program provided through Jacobs Carter Burgess for its staff. Employees are encouraged to participate in this online university as well as to enroll in external training and certification classes as required and necessary for their position. Office and site safety training, including OSHA safety training for all managers and field personnel, is provided by both Jacobs Carter Burgess and the Airports Authority.

The PMSS team supplements and complements the Airports Authority Office of Engineering staff by providing support services for the implementation of the Project in various types of activities described in the following sections.
Figure 2-5. Project Management Support Services Organization

Dulles Corridor Metrorail Project Management Organization

Executive Project Director
- C. Carroll

Deputy Project Director
- E. Yoo

Project Manager
- D. Kim

Deputy Project Manager
- J. Gunster

Deputy Director Project Development
- J. Van Zee

Manager of Risk Management and Project Controls
- G. Darold

Manager QA/QC & Safety Management
- J. O’Toole

Manager of Program Management
- W. Spicher

Deputy Director Construction
- K. Volbrecht

Deputy Director Design
- N. Nau

Deputy Director Construction
- K. Volbrecht

Deputy Director Design
- N. Nau

Senior Project Manager
- A. Sorokin

Senior Project Manager
- J. Mitchell

Manager Rail Communications
- M. McMaster

Diversity Officer
- T. Daniel

Project Management Support Services Organization

Executive Project Director

Deputy Project Director

Project Manager

Deputy Project Manager

Deputy Director Project Development

Manager of Risk Management and Project Controls

Manager QA/QC & Safety Management

Manager of Program Management

Manager Rail Communications

Diversity Officer

Date: September 20, 2008

Legend:
- JCB Full-Time Employee
- Other Full-Time Employee

Project Management Plan

Dulles Corridor Metrorail Project

Extension to Wiehle Avenue

September 2008

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2.0 Project Organization and Staffing

Project Management and Administration

Reporting to the Airports Authority’s Project Director, the PMSS team provides part of the Project management staff to assist the Airports Authority in overseeing all aspects of the Project’s Design, Construction, Commissioning and Testing, and acceptance into WMATA’s ARS. The PMSS team assists the Airports Authority in the interface with and oversight of the activities of DTP, WMATA, VDOT, and Fairfax County, and includes strict enforcement of the applicable contract or Cooperative Agreement. The PMSS Project Manager and staff have developed monitoring and reporting policies and procedures for the Project that are fully compliant with those required by the Airports Authority and the FTA. All PMSS activities comply with issued and approved Airports Authority’s Project procedures.

The PMSS team Project management staff also assists the Airports Authority in the implementation of the QA program developed by the Airports Authority for the Project. The Project’s QA plans and procedures have been implemented within each of the functional areas of the PMSS organization.

The PMSS team supplies office support staff functions, including accounting, human resources, contract management, and Project coordination for the Airports Authority.

The PMSS team also assists the Airports Authority in addressing the contractual aspects of the Design-Build contract, including invoicing, financial reporting, and support. Should the Airports Authority require additional consulting or construction contracts with parties other than DTP, the PMSS staff will assist the Airports Authority in procuring and managing those contracts.

To implement the PMSS tasks, the PMSS team is organized along functional lines, with senior managers reporting directly to the PMSS Project Manager, as described in greater detail below. This organization allows for a direct one-to-one relationship with the Airports Authority’s Project Management staff in the same functional roles and paralleling of DTP’s staffing plan for the execution of the Project in accordance with the various and concurrent construction operations areas.

The IT group will be responsible for designing, installing, and maintaining the computer systems and Internet network within the Project office; writing programs that create the “handshake” between the central computer server/network and the Electronic Document Control group that manages the distribution, warehousing, and retrieval of all Project documents; and assisting DTP in linking the systems with the field offices. The group will also support and train users on the hardware and software necessary to provide the project management functions described above.

Project Controls

At the direction of the Airports Authority’s Manager of Risk Management and Project Controls, the PMSS team provides the Project Controls staff required for the Project. Project Control activities and tasks include the development and updating of the Project Master Schedule that will integrate the activities of DTP, WMATA, VDOT, the FTA, Fairfax County, and other agencies and organizations whose actions affect the Project. The Project Controls group will also provide cost estimating services; set up the Project’s job accounting system; prepare financial reports and trends, as required by the Airports Authority and the FTA; review and approve payment requests from DTP, WMATA, and VDOT; develop and distribute the Project’s monthly progress reports; manage the cost aspect of the Allowance and Commodity Indices; and provide change order/claims management services for the Design-Build contract.
2.0 Project Organization and Staffing

The Project Controls group will conduct the evaluation of Project risk and will initiate development and implementation of a Risk Management Plan. The FTA conducts its own risk assessment as part of its oversight of the Project and will work with the Airports Authority to develop a mutually agreed upon Project Execution Plan that contains a description of the required contingency and risk management process. The Project Controls group will conduct initial and continuing identification of Project risk through periodic assessments, management of risk containment, and determination and implementation of risk mitigation measures.

Planning Oversight
As support to Airports Authority staff, the PMSS team provides:

- assistance to the Airports Authority relative to its management of real estate acquisitions and easements, and environmental site assessments (the PMSS Manager of Real Estate Acquisition, Ms. Pam Peckham, will direct this support);
- assistance to the Airports Authority in interacting with the FTA;
- assistance to the Airports Authority in interacting with DTP, VDOT, and Fairfax County in support of VDOT’s efforts to develop and implement a regional TMP;
- assistance to the Airports Authority in the administration of the cooperative agreements; and
- assistance to the Airports Authority in the coordination of environmental compliance.

Design and Engineering Oversight
DTP is responsible for preparing the Final Design and Construction documents for the civil, structural, architectural, mechanical/electrical/plumbing, and systems design required for the Project. DTP is required to present the Project’s designs as they are completed in formal design reviews. On behalf of the Airports Authority, the PMSS team is leading the design review task by providing the necessary technical expertise to determine that completed designs are fully compliant with the requirements of the contract, which include WMATA’s design criteria and the standards and criteria of the other Project participants, e.g., VDOT and Fairfax County; FTA requirements; and industry “best practices.” The PMSS team includes staff with expertise in every technical discipline required on site (or at the entity’s home office in the case of specialized expertise that is needed only occasionally). As completed and presented by DTP, the PMSS team distributes the design documents to all cognizant organizations, categorizes and logs all design review comments, and tracks the comments through to resolution. Other tasks conducted by the PMSS team on behalf of the Airports Authority during the Design stage of the Project include:

- coordinating the interface designs between scope items being provided by DTP and those being provided by WMATA and others;
- reviewing and providing recommendations on any DTP-proposed changes to the required design standards;
- participating in the development of the technical specifications and in the selection of subcontractors for each of the contract Allowance Items;
- evaluating and providing recommendations on any “Value Engineering” proposals;
- actively pursuing modifications in design that could lead to significant cost savings and performance enhancements, specifically for those components identified as Allowance Items in the Design-Build contract;
- tracking the resolution of all comments issued during the permitting process and ensuring that these comments and corrections are incorporated by DTP into the issued-for-construction design documents;
2.0 Project Organization and Staffing

- providing timely responses to DTP’s Requests for Information (RFIs) made to the Airports Authority and reviewing RFIs between DTP and its subcontractors/suppliers;
- reviewing and recommending either approval or rejection of any of DTP’s requests for substitutions or the use of “or equal” materials or equipment;
- reviewing and recommending acceptance of record documents prepared by DTP;
- providing assistance to the Airports Authority in interacting with key Project participants/stakeholders, including VDOT, DRPT, Fairfax County, and the Commonwealth, to ensure that all interface work is performed to the necessary minimums and in accordance with the need dates of the Design-Build contract; and
- monitoring Project team performance, particularly in the area of design submittal review and supplementing the team with additional staff as required.

Construction Oversight

Commencing with the preparation of the Final Design documents and extending throughout the Construction stage of the Project, the PMSS team will, on behalf of the Airports Authority, monitor all aspects of DTP’s construction program for the aerial guideway structures, tunnels, at-grade guideway sections, passenger stations, civil and roadway modifications and improvements, West Falls Church Yard (WFCY) and shop expansions, and other elements of the Project.

PMSS team participation in construction activities includes obtaining those permits that are the Airports Authority’s responsibility; providing assistance in obtaining those permits that are DTP’s responsibility; and reviewing and accepting, on behalf of the Airports Authority, DTP’s construction work plans and procedures to include QA and control plans, MOT plans, construction survey plans, construction safety and security plans, demolition plans, and, as applicable for work on the ARS, DTP’s site-specific work plans. The PMSS team is coordinating with DTP and the Manager of Project QA/QC and Safety to identify construction hold-and-witness points and to ensure the appropriate inspections and approvals are completed. The PMSS team is also monitoring DTP’s full compliance with the applicable codes, all environmental requirements, and any other conditions of the permitting agency.

In addition to the tasks summarized above, for portions of the work that are to be executed on a time and materials basis, such as utility relocations, the PMSS team will review and approve, on behalf of the Airports Authority, all documentation of costs, including material invoices, labor hours/costs, and equipment costs. The PMSS Deputy Manager of Construction Oversight has been assigned to support the PMSS Construction Oversight Manager in the Utility Relocations work to control the budget, scope, and schedule, and to ensure that utility work is performed to the minimums necessary and in support of the needs of the construction work. He also has been assigned the responsibility of managing regulatory approval requirements and permitting.

On behalf of the Airports Authority, the PMSS team reviews and participates in the approval of construction submittals and RFIs; monitors DTP’s timely completion of the Project’s record documentation; and is responsible for conducting joint inspections with DTP, WMATA, VDOT, and/or Fairfax County for the initial preparation of punchlists and in verifying the completion of all punchlist work.

Systems Oversight

The PMSS Systems Oversight group is assisting the Airports Authority in assessing contract compliance of all of the Project’s system elements assigned to the Design-Build contract, including the train control system, the traction power system, and the communications systems, and the integration of these systems with each other and with the existing WMATA Metrorail equipment. Additionally, on behalf of the
Airports Authority, the PMSS Systems Oversight group is monitoring the procurement and interface design for those system components being provided by WMATA. The PMSS Systems Oversight Manager has been assigned solely to the WMATA work so that WMATA status is known at all times and so that WMATA is held accountable for performing to the needs of the Project. He is supported by a team of specialists who are each assigned a specific area of the WMATA work according to his/her area of expertise. These include the areas of communications, train control and signaling, automatic fare collection (AFC), traction power, cathodic protection, systems testing and integration, rolling stock, systems safety and security, and commissioning.

The PMSS Systems Oversight group is leading the reviews of system performance requirements, design submittals prepared by DTP, and resolution of all issues resulting from these reviews. The PMSS team is also reviewing and, on behalf of the Airports Authority, accepting other key contract submittals, including the System Interface Plan; the System Acceptance Plan; and the procedures for and results of all post-installation, integration, and performance demonstration tests. The group is also monitoring DTP’s full compliance with the Project’s SSMP and SCMP.

The PMSS Systems Oversight group functions as the primary point for coordination and interface between the elements of the Project being supplied by DTP and those being provided by WMATA. This coordination and interface responsibility includes monitoring the timeliness, accuracy, and completeness of interface data between DTP and WMATA; monitoring WMATA’s work plan and schedule for completing elements of its work; and participating in all commissioning activities at WMATA’s Operations Control Center.

Comparable to the progress of civil/structural elements of the Project, the PMSS team, on behalf of the Airports Authority, reviews and participates in the approval of system submittals and RFIs; monitors DTP’s timely completion of the Project’s record documentation; and is responsible for conducting joint inspections with DTP, WMATA, VDOT, and/or Fairfax County for the initial preparation of punchlists and in verifying the completion of all punchlist work.

Business Diversity Monitoring

The Diversity Officer will monitor and support DTP’s and the PMSS team’s compliance with the Airports Authority’s EEO and Disadvantaged Business Enterprise (DBE) programs. Implementation of the DBE program is accorded the same priority as compliance with all other legal obligations incurred by the Airports Authority.

The Diversity Officer will monitor DTP’s DBE program and will assist its manager as warranted with the administration of the subcontracting plan, encouraging and promoting the utilization of DBEs in the performance of the work. Appropriate subcontracting opportunities for DBEs will be established based on the items of work and timeframes for performance of the work. These subcontracting opportunities will be compared with the DBE’s qualifications, availability, and prior work experience. Once specific opportunities for DBE participation are identified, guidelines will be implemented to encourage and promote interest in the Project for qualified DBE firms. DTP and the Diversity Officer will, throughout the life of the Project, maintain records sufficient to document and demonstrate the good faith efforts used to identify opportunities and proactively source and award subcontracts to qualified DBE firms.

The Diversity Officer will secure and prepare reasonable documentation from DTP and the PMSS team to verify and report on the DBE participation in the Project, including but not limited to the Airports Authority’s required forms.
Working in concert with DTP, the Diversity Officer will reach out to and consult with DBE design and construction firms regarding potential subcontracting opportunities. The Diversity Officer will be current on the Project status and schedule, attending design and construction progress meetings, pre-bid meetings, and planning meetings for Allowance Items and smaller subcontracting opportunities. The Diversity Officer will perform Project site visits and will offer assistance to and formally inquire of DBEs working on the Project to ensure compliance with the Project’s EEO and DBE goals, timeliness of periodic progress payments, and other administrative aspects of the diversity program and awarded subcontracts. The Diversity Officer will advise the Airports Authority regarding the status, concerns, issues, challenges, and achievements of the Project’s DBE efforts on a monthly basis.

**Community Relations**
The PMSS team is assisting the Airports Authority with the implementation of a community outreach program for the Project. Components of the community relations task include the maintenance of a Project Internet site, participation in public meetings and other forums to keep the public informed of Project events and progress, and coordination of the “Art-in-Transit” element of the Project.

**Specialized Expertise**
Specialty consultant support is available to support the Airports Authority as needed in the following areas:

- Expert review of specific structural, geotechnical, and constructability issues
- Technical issues related to design criteria, specifications, and standards in several disciplines
- Review of safety and security issues
- QA issues relative to Design-Build construction
- System testing and integration support

**Project Team Roles and Responsibilities**
Table 2-1 identifies the roles and responsibilities assigned to the key staff from the Airports Authority and the PMSS team to ensure successful completion of the Project.
### Table 2-1. Airports Authority Project Team Responsibilities Matrix

| Role                                                                 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 |
|----------------------------------------------------------------------|---|---|---|---|---|---|---|---|---|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|
| Executive Project Director (4th Quarter 2008)                      |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| Project Director (S. Carnaggio)                                    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   | X  |   |   |   |   |   |   |   |   |   |   |   |   |
| DD of Project Development (J. Van Zee)                            |   |   |   | X |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| DD of Design (N. Hau)                                             |   | X | X | X |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| DD of Construction (K. Voelrecht)                                 |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| DD Project Finance (J. Mitchell)                                  |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| Manager of QA/QC & Safety (J. Christensen)                        |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| Manager of Project Administration (4th Quarter 2008)               |   |   |   | X |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| DARTIC Supervisor (T. Bell)                                       |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| Safety Supervisor (R. Gilbert)                                    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| Contracting Officer (R. Carey)                                    |   |   |   | X |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| Contract Administration Officer (W. Thiel)                         |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| Manager of Risk Management/Project Controls (L. Daniels)          |   |   |   | X |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| Manager, Rail Communications (M. Mcdallin)                         |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| Senior Project Manager, Construction (4th Quarter 2008)           |   | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X |
| Senior Project Manager, Design (Alan Kotroboh)                    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| Project Manager (J. Salee)                                        |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| QA Specialist (S. Henke)                                          |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| Diversity Officer (S. Davis)                                     |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| Deputy Project Manager (L. Uremer)                                |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| Community Relations Support (Commonwealth Consultants/APCO)       |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| Project Controls Manager (W. Croxford)                            |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| Planning Oversight Manager (S. Miller)                            |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| Design & Engineering Oversight Manager (C. Robertson)             |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| Construction Oversight Manager (K. Whiston)                       |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| Construction Oversight Deputy Manager (L. Fairley)                |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| Systems Oversight Manager (P. Cantinelli)                         |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| Real Estate Acquisition Manager (P. Picholas)                     |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| Project Administration & Program Logistics (D. Olgren)            |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| Environmental Compliance (D. Clark)                               |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |

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2.4 Washington Metropolitan Area Transit Authority Organization

WMATA is a government agency created under a compact agreement between state and local jurisdictions of Virginia, Maryland, and the District of Columbia. It is governed by a Board of six members and six alternative members appointed by the elected officials in the compact jurisdictions. The General Manager is hired by and reports to the Board. The Executive Project Director for the Project has a direct communications/support relationship with WMATA’s General Manager. The WMATA agency organization chart is shown in Figure 2-6.

The Airports Authority and WMATA have entered into a Cooperative Agreement (discussed further in Section 14.0) that defines WMATA’s role as technical advisor during Final Design and Construction and for related support activities for the Project. It also establishes that WMATA is the ultimate owner and operator of the Project. The organization chart for WMATA includes the Department of Operational Services, where the technical advisor function resides. In addition to fulfilling the role of technical advisor, WMATA is responsible for several deliverables: railcars, the communication link to central control, making the necessary upgrades to central control, supply of non-revenue vehicles, updating the system signage, supply and installation of the fare collection equipment, and Art-in-Transit. The role of technical advisor and the responsibility for deliverables are discussed in the following sections.

* The Office of Engineering and Capital Projects (ENCP) resides in the Operational Services Department. The Office of Major Capital Projects (MCAP) resides in the ENCP. See Figure 2-7.

Figure 2-6. Washington Metropolitan Area Transit Authority – Agency Organization
2.0 Project Organization and Staffing

2.4.1 WMATA as Technical Advisor

As the ultimate owner of the Project, WMATA has been involved with the Project from the start of the PE/NEPA stage up through the pre-Final Design stage. WMATA’s involvement will not change in the stages yet to come, including Final Design, Construction, Safety Certification, and Pre-Revenue Start-Up. In accordance with the Cooperative Agreement between WMATA and the Airports Authority, WMATA will function as technical advisor to the Project during the Final Design and Construction stages and will also participate in the Project design reviews at 60% and 100% of Final Design to ensure compliance with WMATA’s design, operating, and maintenance criteria and standards.

Final Design

During the Final Design stage, WMATA will:

- review and comment on designs of transit-related elements;
- review and comment on transit-related Request for Proposal packages for those identified as allowances;
- review and comment on transit-related shop drawings, catalogue cuts, etc., for those items deemed safety-critical to the Project;
- participate in all transit-related design review meetings, comments review meetings, and coordination meetings and workshops;
- coordinate the provision of all technical interface information for the WMATA deliverables and the equipment, systems, and hardware/software provided by the Airports Authority; and
- review the proposed listing for spare parts, special tools, test equipment, operation and maintenance manuals, and training.

Each of these items is performed to ensure compliance with WMATA’s design, operating, and maintenance criteria and standards.

The structure of ENCP is shown in Figure 2-7. The ENCP is headed by David W. Couch. The two offices within ENCP that have a role in the Project are Engineering Support Services (ENSS) and MCAP. The directors for these offices are Colin Myers and John Thomas, respectively. Figure 2-8 shows how the Project will be structured within MCAP.

The primary responsibility for the design review activities lies with ENSS. However, the personnel responsible for design reviews are shown in Figure 2-8 within MCAP in a matrix management arrangement. ENSS provides the technical expertise and MCAP provides the administrative support by distributing design submittals, collecting and collating comments, and then returning those comments to the Airports Authority.
2.0 Project Organization and Staffing

Figure 2-7. Washington Metropolitan Area Transit Authority – ENCP Organization

David Couch
Managing Director

C. Myers
Chief Engineer,
ENSS

Joint Development
and Adjacent
Construction

Infrastructure
Renewal
Program

Compliance

J. Thomas
Director, MCAP
Figure 2-8. Washington Metropolitan Area Transit Authority – MCAP Organization

2.0 Project Organization and Staffing
2.0 Project Organization and Staffing

Construction

During the Construction stage, WMATA will use four of its most experienced project managers in a QA role. One will be assigned to each of the following:

- K-Line Tie-In
- West Falls Church Yard
- Stations
- Line, Track, and Systems

The project managers will interact on a daily basis with Airports Authority construction oversight and QA/QC personnel to ensure that the systems and facilities will meet WMATA’s criteria and standards. The project managers, and other WMATA personnel when necessary, will witness all safety certification critical tests performed during the Construction stage. The project managers assigned to K-Line tie-in and WFCY activities will also be responsible for coordination of construction on and access to WMATA’s property.

Safety Certification

An SCMP was prepared for the Project during the PE stage with support from WMATA. The SCMP addresses the requirements of the WMATA Safety and Security Certification Program Plan and the FTA Handbook for Transit Safety and Security Certification. The primary interface by WMATA for safety and security-related issues is the Project Safety/Security Certification Working Group (SCWG). WMATA is an active participant on the SCWG, including representatives from System Safety and Risk Management, Metro Transit Police, and Engineering Services design and construction staffs. Administration and maintenance of the SCMP, including hazard and vulnerability identification and resolution for the Project, is accomplished through the SCWG. The SCWG is also responsible for reviewing and recommending solutions to hazards and vulnerabilities on the existing Metrorail system that may be applicable to the Project.

The WMATA SCWG representatives are responsible for overseeing the certification effort on behalf of the WMATA Safety and Security Certification Review Committee (SCRC). The WMATA Project representatives report on certification progress and SCWG activities to the respective departmental members of the SCRC. The SCWG representatives are also responsible for making a recommendation to the SCRC when it is appropriate for the Project to enter into the Pre-Revenue stage.

The SCRC is responsible for reviewing certification reports and all related documentation. Upon acceptance of the report findings by the SCRC, WMATA will initiate Pre-Revenue stage activities. Once the Project is in the Pre-Revenue stage, the SCRC is responsible for all certification activities. The SCRC is also responsible for overseeing all certification activities in accordance with the WMATA Safety and Security Certification Program Plan. Once the appropriate level of certification is achieved, the SCRC will forward a recommendation to enter revenue service to the WMATA Safety and Security Executive Committee.

Each stage of the safety and security certification program, from Design through Start-Up and Revenue Testing, will be periodically audited by WMATA Project representatives to ensure that the Safety and Security Certification Program Plan is being properly implemented and effective. The audit findings will be reported to the SCRC and included in the WMATA Annual Internal Safety Audit Report to the Tri-State Oversight Committee (TOC).
Additionally, WMATA will conduct walk-through inspections of facilities, passenger stations, yards, trackway, traction power substations, and signal and communications houses to determine that safety, security, and fire-life safety requirements have been incorporated in the overall Project. Because of the unique, safety-critical nature of the automatic train control (ATC) system and its compatibility with the current operating system, the ATC system will undergo a separate safety certification process than that performed by the Airports Authority. The certification process will be implemented in accordance with the WMATA Safety and Security Certification Program Plan.

The Airports Authority will prepare a Safety/Security Certification Report for WMATA approval. The report will outline the certification process during the Design, Construction, System Testing, and Start-Up/Integration stages of the Project. The report will include the completed safety-security certifiable items list (SCIL) and references to all related files and copies of the signed Certificates of Compliance. The report will also include a statement that the line segment may now be readied for the Pre-Revenue stage of the Project.

Pre-Revenue Stage

The Pre-Revenue stage of the Project will be the responsibility of WMATA. The Pre-Revenue stage will be safety and security-certified in accordance with the WMATA Safety and Security Certification Program Plan. At the conclusion of the Pre-Revenue stage of the Project, WMATA will prepare a Final Safety and Security Certification Report and submit it to the Safety and Security Executive Committee for approval. The approved report will be transmitted to the TOC under the signature of the WMATA General Manager. The TOC may also conduct its own independent operational readiness review of the new line segment. WMATA will be responsible for coordinating all TOC activities.

During the Pre-Revenue stage of the Project, operating procedures and plans will be tested for effectiveness under simulated operating conditions for normal, abnormal, and emergency situations. Emergency drills will also be held at selected sites and coordinated by System Safety and Risk Management, Department of Operations (OPER), and Metro Transit Police, and will involve external emergency response agencies that may respond to an incident on the rail extension. The drills will verify the adequacy of WMATA emergency response plans and procedures and will ensure that outside emergency response personnel are prepared to adequately respond to emergencies on the new alignment.

In addition, a final “walk-through inspection” of completed facilities and systems will be performed.

At the conclusion of the Pre-Revenue stage, a Certificate of Conformance will be prepared and submitted to the SCRC for approval and a recommendation that a Certification of System Compliance be issued.

2.4.2 WMATA Deliverables

WMATA is responsible for several deliverables: railcars, the communication link to central control, making the necessary upgrades to central control, supply of non-revenue vehicles, updating the system signage, supply and installation of the fare collection equipment, and Art-in-Transit. Successful delivery of these items will be accomplished via the preparation of the necessary contract packaging, procuring a contractor, and managing the contractor through completion of the contract. The Department of Rail Service (RAIL) is responsible for delivery of the railcars, with cost reporting related to the railcars provided to the Airports Authority through MCAP.
2.4.3 WMATA Internal Interfaces

The WMATA team assigned to the Project will occasionally draw from other WMATA departments, including the safety and security, operations, planning and engineering, and finance and administration departments, as the Project progresses.

2.5 Virginia Department of Rail and Public Transportation

As a state agency reporting to Virginia’s Secretary of Transportation, DRPT works closely with VDOT, which is responsible for highways, and with other transportation agencies responsible for aviation and ports. Each of DRPT’s three primary areas of activity (rail, public transportation, and commuter services) focuses on the movement of people and goods throughout Virginia.

The continuing role of DRPT in the Project is clarified in the Assignment and Assumption Agreement. DRPT has assigned a Project coordinator to support the Airports Authority in the implementation of the Project. Mr. Michael Harris is the Acting Project Coordinator for DRPT. Mr. Harris is responsible for managing coordination with all DRPT offices and functions required to complete the Project and for assisting the Airports Authority in the administration of the obligations assumed by the Airports Authority from DRPT.

2.6 Virginia Department of Transportation

VDOT is responsible for building, maintaining, and operating the state’s roads, bridges, and tunnels. It also provides, through the Commonwealth Transportation Board (CTB), funding for airports, seaports, rail, and public transportation. The CTB guides the department’s work, much like a board of directors. Virginia is divided into nine districts: Bristol, Culpeper, Fredericksburg, Hampton Roads, Lynchburg, Northern Virginia, Richmond, Salem, and Staunton. The Project falls within the Northern Virginia District.

Figure 2-9 shows VDOT’s reporting relationships.
Figure 2-10 shows VDOT's Northern Virginia District reporting relationships as they pertain to the Project. Reporting to Mr. Salehi, Mr. Ronaldo T. Nicholson is the Northern Virginia District Program Manager in charge of mega-projects. Currently, the Project is one of six Northern Virginia’s mega-projects.

Mr. Peter Vigliotti is the full-time VDOT Coordinator to the Project and will report to Mr. Nicholson, former Project Director for the Woodrow Wilson Bridge project. The VDOT Coordinator is the contact point for all matters between VDOT and the Project. At present, four General Engineering Consultant (GEC) employees are assigned to assist Mr. Vigliotti on-site. He will bring other VDOT and/or GEC employees, officials, or officers into the Project as appropriate for specific issues or events, and will be
2.0 Project Organization and Staffing

responsible for obtaining all Commonwealth approvals and permits necessary for the Project. VDOT will also provide support, advice, and expertise for real estate acquisition and utility relocations. During Construction, VDOT will designate qualified inspection personnel to monitor and inspect its existing or future facilities during construction. These personnel will also review and audit inspection test results and other construction-related documentation. The VDOT Coordinator will arrange to have local VDOT employees perform these tasks on an as-needed basis.

Mr. Vigliotti addresses and coordinates design and construction activities that affect VDOT’s facilities during Final Design and Construction of the Project. He also has VDOT permitting authority. Mr. Vigliotti is located in the Project office to facilitate direct involvement in Project activities, but reports to the Northern Virginia District Administrator through Mr. Nicholson.

2.7 Dulles Transit Partners Project Development and Design-Build Organization

DTP is the Design-Build contractor that was selected by the Commonwealth under the PPTA to develop, perform design services, and execute the Project under a Design-Build contract.

DTP completed the PE work through a joint venture, Dulles Transit Engineers (DTE), which was composed of an integrated team from both Washington Group International and Bechtel Infrastructure. The DTE organization was arranged in a manner consistent with the preferred “packaging” approach, with separate project engineers being responsible for specific areas of scope for Line and Track, Systems, Stations and Facilities, and Maintenance and Support Facilities. DTP will perform Final Design in a similar manner. The specific scope areas are shown on the organization charts. In addition to the specific scope areas, engineering and architectural disciplines provide matrix support for their areas of expertise.
The following figures reflect DTP’s Project Management, Engineering, and Construction Management team. DTP’s overall Project Management organization is shown in Figure 2-11. Figure 2-12 provides additional details of the Engineering portion of the project management organization, and Figure 2-13 provides additional details of the DTP Construction portion of the project management organization.

Figure 2-11. Dulles Transit Partners – Project Management Organization
2.0 Project Organization and Staffing

Figure 2-12. Dulles Transit Partners – Engineering Organization
Below are descriptions of the responsibilities of key members of the DTP project management organization depicted in Figures 2-11, 2-12, and 2-13.

**Project Executive Director**
The Project Executive Director develops and manages DTP’s obligations for the Design-Build Project and is the primary point of contact for the Airports Authority. The Project Executive Director has overall program responsibility for DTP. The Project Director, the Deputy Project Director Services, and the Project Manager Design-Build, whose responsibilities are described below, report to the Project Executive Director. The DTP System Safety and Security Manager; the Project Quality Manager, the Environmental, Safety, and Health (ES&H) Manager (responsible for environmental compliance and for personnel safety on the Project); the Public Affairs Manager; and the Prime Contracts Manager also report to the Project Executive Director.

**Project Director**
The Project Director conducts and coordinates, through assigned managers, the Utility Relocations work, property identification, negotiation, and real estate acquisition.
2.0 Project Organization and Staffing

Deputy Project Director Services
The Deputy Project Director Services is responsible for providing technical services for DTP’s Design-Build, Utility Relocations, and ongoing development work. Reporting to the Deputy Project Director Services is the Human Resources Manager, the Accounting/Business Manager, the Project Controls Manager, the Acquisitions Manager, and the Project Administrative Manager.

Project Manager Design-Build
The Project Manager Design-Build is responsible for managing DTP’s design, construction, and start-up testing work on the Project. Reporting to this manager are the Deputy Project Manager-Design and the Deputy Project Manager-Construction, whose responsibilities are described below. Also reporting to the Project Manager Design-Build is the Start-Up Manager, who will be responsible for all testing after completion of construction.

Project Quality Manager
The Project Quality Manager develops and maintains the DTP QA/QC Plan and procedures, instructions, practices, and related documents that define DTP’s requirements to achieve required levels of quality on the Project. The Project Quality Manager is also responsible for verification of the proper implementation and effectiveness of the DTP QA/QC Plan and related procedures and for the conduct of QC inspections. The Construction QC Manager reports to the Project Quality Manager.

System Safety and Security Manager
The DTP System Safety and Security Manager is responsible for implementing the DTP SCMP. He implements the requirements of this program, chairs the SCWG, evaluates potential hazards and vulnerabilities identified during the course of work, and prepares the final Safety/Security Certification Report and Certificate for signature of the DTP Project Executive Director at the completion of the Project.

Deputy Project Manager-Design
The Deputy Project Manager-Design manages the engineering and architectural design process, including coordination and integration of all design disciplines and systems to deliver a final design of drawings and specifications that meet the Project design criteria. The organization that supports this manager in conducting this work is shown in Figure 2-12. The design work is managed and conducted by project engineers in the areas of Civil, Tunnel and Aerial Structures, Systems, and Stations and Facilities. Providing support to the design activities are the Manager of Engineering Coordination and Configuration Control and five discipline Engineering Group Supervisors. The Engineering Group Supervisors provide discipline support in terms of technical expertise and manpower to the design activities being conducted by the five project engineers and their assigned assistant project engineers.

Deputy Project Manager-Construction
The Deputy Project Manager-Construction is responsible for the organization and direction of construction and related activities for the entire Project. The organization that supports this manager is shown in Figure 2-13. The Project Superintendent reports directly to the Deputy Project Manager-Construction and is responsible for managing the ongoing direct hire construction activities. Reporting to the Project Superintendent are the Manager of Electrical and Systems; the Manager of Track, Grade, and Tunnel; the Manager of Aerial Structures; and the Manager of Stations. Each of these managers is in turn supported by superintendents, field engineers, and subcontractors.
The Deputy Project Manager-Construction also has a staff of managers and supervisors in the areas of MOT and permits coordination, labor relations, engineering coordination, and utility field coordination to provide support to the Project.

**Construction Subcontracts Manager**

The Construction Subcontracts Manager is responsible for the administration and performance of all construction subcontracts and reports directly to the Deputy Project Manager-Construction. Reporting to the Construction Subcontracts Manager are the Senior Technical Representatives (STRs) and the Subcontract Administrators who are assigned to individual construction subcontracts. The STRs are responsible for overall administration of the contract; the Subcontract Administrators are responsible for all contractual and commercial aspects.

**Project Field Engineer**

The Project Field Engineer is responsible for all construction engineering aspects of the work and reports directly to the Deputy Project Manager-Construction. The Project Field Engineer is the primary construction interface with the Project Engineers. Reporting to the Project Field Engineer are the Assistant Project Field Engineers, the Lead Field Engineers, Field Engineers, Office Engineers, the Materials Test Lab Coordinator, and the Survey Manager.

### 2.8 Fairfax County

The Project will be built entirely within Fairfax County. Fairfax County staff will play an active role on the project management organization team in advancing Final Design and Construction and in expediting necessary county approvals. Fairfax County’s involvement will be in four primary areas:

- Project Coordination and Design Reviews
- Land Use and Construction Permitting Approvals
- Property Dedication and Use, and Construction
- Traffic Maintenance

Mr. Richard Stevens is Fairfax County’s Coordinator to the Project. He has been integrated into the Project office and has regular interaction with the Airports Authority Project team.

Mr. Stevens is the contact point for all matters between the county and the Project. He brings other county employees, officials, and/or officers into the Project as appropriate for specific issues or events. He is responsible for obtaining all county approvals and permits necessary for the Project.
3.0 Project Description

This section describes the LPA, outlines the purpose of the PMP, discusses the project management approach, and summarizes the Project’s schedule and budget. Section 3.0 also focuses on tasks related to Final Design and Construction, although the overall management approach and mechanisms will be carried forward through Commissioning and Testing and Start-Up of Revenue Service. This PMP will be updated as the Project progresses and reaches key schedule milestones.

3.1 Locally Preferred Alternative

The LPA, shown in Figure 3-1 below, was the subject of the FTA’s November 17, 2006, amended ROD. The LPA is a 23.1-mile-long Metrorail extension that is being constructed in two phases: the Wiehle Avenue Extension and the further extension from Wiehle Avenue through Dulles Airport to the terminus at Route 772 on the Dulles Greenway Toll Road. Physical construction of the Project’s line, stations, and facilities will include a junction with the existing Metrorail Orange Line under the Haycock Road Bridge in the median of I-66.

![Figure 3-1. Locally Preferred Alternative Map](image-url)
The Project’s July 2004 Final General Plans (plan and profile drawings), as subsequently modified by PE, show the following:

- Proposed Metrorail alignment
- Location of the 11 stations
- Service and Inspection Yard at site number 15 on Dulles Airport property
- Location and type of special trackwork of the alignment, including pocket tracks, a maintenance track east of the Herndon-Monroe station, double crossovers, single crossovers, the yard lead to the WFCY, the yard leads to yard site number 15, and tail tracks west of the Route 772 station
- Location of traction power substations, tie-breaker stations, and storm water management facilities
- Addition of storage tracks and maintenance facilities to the existing WFCY
- Location of four portals of two main underground sections, one in Tysons Corner and the other on Dulles Airport property
- Revision of alignment and elevation through Tysons Corner
- Realignment of the DIAAH at stations
- Realignment of the Dulles Greenway Toll Road at two stations and at the yard leads for yard site number 15

The new Dulles Corridor service will operate as a separate Metrorail line between the Route 772 station and the Stadium-Armory station in Washington, D.C. (identified as a dashed grey line on Figure 3-2 below). This new line will also provide additional service for current users of the Orange Line (between the East Falls Church and Stadium-Armory stations) and the Blue Line (between the Rosslyn and Stadium-Armory stations).

**Figure 3-2. Washington Metropolitan Area Transit Authority Metrorail System Map with Locally Preferred Alternative**

*(new service shown as a dashed line from the Route 772 station to the Stadium-Armory station)*
3.0 Project Description

3.2 Phased Construction of the Locally Preferred Alternative

Based on FTA guidance and the availability of funding, the Airports Authority will develop the LPA in two major phases. The Project addressed in this PMP is the initial 11.6 miles of the LPA from the current Orange Line to Wiehle Avenue in Reston. It will include five stations, improvements to an existing WMATA Service and Inspection Yard at West Falls Church, and tail tracks outbound of the interim terminus at Wiehle Avenue. Phase 2 of the LPA will complete construction between Wiehle Avenue and Route 772 in Loudoun County and will add six stations and a new Service and Inspection Yard on Dulles Airport property.

The Project is currently scheduled to begin revenue service in December 2013 at a capital cost of $3.044 billion. This figure is in year-of-expenditure dollars and includes $2.632 billion in Final Design and Construction costs and $412 million in financing costs through 2013.

Implementation of Metrorail along the Dulles Corridor will result in a significant increase in transit ridership in the Washington, D.C. metropolitan area. By 2030, there will be approximately 5.7 million new rail trips annually and 19,700 new rail trips daily in the region. Implementation of the Project will result in Metrorail increasing Dulles Corridor capacity (person throughput) by 60%. This will offset travel demand in the corridor, which is expected to grow 61% by 2030.

3.3 Project Overview

The Dulles Corridor is home to several of the Washington metropolitan region’s most dynamic activity centers, including Tysons Corner, the Reston-Herndon area, Dulles Airport, and the rapidly growing residential and commercial activity centers in eastern Loudoun County. The purpose of the Project is to provide high-quality, high-capacity transit service in the Dulles Corridor. New fixed-guideway transit in the corridor will result in travel time savings between the corridor and the region’s core, expand the reach of the existing regional rail system, offer a viable alternative to automobile travel, assist in meeting the region’s air quality goals, serve diverse populations in the region, and support future transit-oriented development.

The Project will extend from the existing Metrorail Orange Line near the West Falls Church station to Wiehle Avenue in Reston, providing direct service to Tysons Corner. It will include five new stations (Tysons East, Tysons Central 123, Tysons Central 7, Tysons West, and Wiehle Avenue), improvements to the existing WMATA Service and Inspection Yard at the West Falls Church station, and tail tracks outbound of the interim terminus station at Wiehle Avenue. The new Dulles Corridor service will operate as a separate Metrorail line between the Wiehle Avenue station and the Stadium-Armory station in Washington, D.C. This new line will also provide additional service for current users of the Orange Line (between the East Falls Church and Stadium-Armory stations) and the Blue Line (between the Rosslyn and Stadium-Armory stations).

3.4 Project Status

The Project’s Draft Environmental Impact Statement (EIS) was completed in June 2002 and the LPA was approved in December 2002. A Supplemental Draft EIS, published in October 2003, focused on changes to the Project’s scope and alignment in response to public comments on the Draft EIS, and assessed potential environmental effects associated with phased construction of the LPA. The Supplemental Draft EIS public hearing process (including responses to comments on the Supplemental Draft EIS) and the proposed LPA were approved by the CTB on March 18, 2004, and the WMATA Board of Directors on April 15, 2004.
On June 10, 2004, the FTA approved DRPT’s entry into PE.

On June 11, 2004, pursuant to the PPTA of 1995, DRPT and DTP entered into the Comprehensive Agreement. Following a mobilization period, PE for the Project began on October 20, 2004. The Notice of Availability for the Final EIS was published in the Federal Register on December 23, 2004. A ROD was issued by the FTA on March 2, 2005, and a separate ROD was issued by the FAA on April 13, 2005.

Based on design refinements to the Project following the completion of the 50% PE plans, DRPT, in coordination with the FTA, prepared an EA to analyze the environmental effects of the proposed changes. The EA found no significant changes in the environmental effects of the proposed changes over those presented in the Final EIS. The Draft EA was circulated to regulatory agencies and the public on February 24, 2006. A public hearing was held on March 28, 2006, and the comment period for the EA closed on April 11, 2006.

On March 24, 2006, the Airports Authority and the Commonwealth signed an MOU setting forth the parties’ mutual desire to execute an agreement transferring management and control of both the Project and the DTR from DRPT to the Airports Authority.

Supplemental PE activities were conducted to further advance certain elements of the Project prior to Final Design. This advanced engineering effort was required to support applications for land use permits, to determine pricing for utility relocations, to support design coordination, and to provide information needed to support engineering for utility relocations. These activities included:

- Traffic operational analysis
- Coordination with the proposed Beltway High Occupancy Toll (HOT) Lanes project
- Evaluation of alternatives for the Tysons Central 123 station design
- Additional civil, roadway, and streetscape design
- Utility coordination support
- ROW coordination support
- WFCY improvements

On November 17, 2006, the FTA issued an amended ROD on the EA.

On November 30, 2006, the FTA certified the Airports Authority as being eligible to receive FTA funds for the implementation of a public transportation project.

On December 29, 2006, the Airports Authority and VDOT entered into a Master Transfer Agreement and the Dulles Toll Road Permit and Operating Agreement pursuant to which VDOT agreed to provide the Airports Authority a permit to operate the DTR and collect toll revenues in consideration for the Airports Authority’s obligation to fund and cause the Project to be constructed.

On March 28, 2007, DRPT, the Airports Authority, and DTP entered into an MOU memorializing their agreement regarding the substantive terms of a Design-Build contract to be entered into by DTP.

On June 19, 2007, the Airports Authority signed a Design-Build contract with DTP.
On June 28, 2007, DRPT and the Airports Authority signed the Assignment and Assumption Agreement that transfers and assigns from DRPT to the Airports Authority all of DRPT’s right, title, and interest in the Comprehensive Agreement, including entering into the Design-Build contract with DTP, effective on June 28, 2007. At the same time, DTP consented to the assignment of the Comprehensive Agreement.

Following completion of the FTA’s risk assessment process, the Project adopted several value engineering concepts and made several modifications to the Project scope in order to provide a more cost-efficient Project that retains the core functionality. The engineering and design work currently under way is incorporating these scope reductions into both the design documents and the scope of the Allowance Items described in Exhibit 14 of the Design-Build contract.

The Airports Authority submitted the application to enter Final Design for the FTA’s approval on September 21, 2007.

On January 7, 2008, Utility Relocations activities began with the relocation of a natural gas pipeline by the utility company along Route 7 between the DTR and Route 123. This distribution line impinges on the planned early relocation of the power and communication ductbanks in the area.

The FTA approved Entry into Final Design on May 12, 2008, and subsequently awarded a Section 5309 grant for Final Design. The Airports Authority expects to submit the Final FFGA package to the FTA in October 2008 and anticipates execution of the FFGA by the FTA in February 2009.

The Airports Authority provides updates on the status of the Project on a monthly basis to the FTA’s PMOC prior to the monthly meetings held between the Airports Authority and the PMOC.

### 3.5 Project Management Documents

The Airports Authority will be responsible for the maintenance and distribution of the PMP, as well as coordination of review, approval, and distribution of revised and new PMP documents. All master file copies (hard and electronic copies) of the PMP, referenced procedures, manuals, and plans will be maintained in the Project’s document control system. The maintenance and distribution of the PMP and subsequent revisions will be in accordance with the Document Control procedures.

The PMP will be reviewed on an annual basis and updated as required. Parties requesting revisions to the PMP will provide a brief description of the change, a reason for the change, and the urgency of the change, and will identify other documents affected by the change to the Project Director. The Project Director will determine whether the requested change is valid and will distribute the proposed change to the appropriate Project staff for review and comment. The Airports Authority will incorporate the approved revisions into the PMP and will distribute the revised document to the PMP holders.

The Airports Authority will rely on several primary plans and procedures as it manages this Project. The relative hierarchy between these plans and reports that will be used to implement the requirements of this PMP is shown in Figure 3-3. The PMP establishes the framework for administering this complex undertaking in accordance with the requirements of the FTA. Throughout all of these plans there is a focus on implementing the Project in a safe and secure manner, attaining the desired quality, and adhering to the budget and schedule.
The PMP outlines the general management approach and provides guidelines for the orderly interaction of the multiple agencies and organizations involved in the Project. The plans and reports that support the PMP, including the SSMP, the Quality Program Plan, the Communications and Outreach Plan, the RAMP, the Financial Plan, and the Project Management Procedures, define the scope, processes, and division of responsibilities for these critical elements at a greater level of detail to facilitate Project management and execution. Short descriptions of each of these documents are listed below.

- The SSMP documents the Airports Authority’s policies on safety and security and defines the roles and responsibilities of the Airports Authority, WMATA, and DTP in implementing, monitoring, and complying with applicable safety and security requirements during the course of the Project.

- The Quality Program Plan specifies all activities and procedures necessary to verify, audit, and evaluate quality for the Project and is intended to serve as an overarching program around which other organizations involved in the implementation of the Project will design their QA/QC program plans.

- The purposes of the Communications and Outreach Plan are to create and maintain effective two-way communications with the community, to build trust and goodwill, to identify needs and concerns early, and to mitigate the impact of those concerns on the Project’s cost and schedule.

- The RAMP describes the organizational structure, coordination requirements, procedures to be employed, and specific real estate acquisition strategies to support the Project.
3.0 Project Description

- The Financial Plan describes the Project’s sources and uses of capital funds and documents the non-federal financial commitment and the funding sources to be used by WMATA in operating and maintaining the Project as part of the WMATA system.

- The Project Management Procedures define the methods that personnel assigned to the Airports Authority Project organization, including Airports Authority and PMSS staff, conduct and document work on the Project. These methods are listed in Appendix A.

DTP has also prepared several project management plans that document the procedures it will use to manage the Project. Figure 3-4 shows the Primary Plans and Procedures for DTP, including the relative hierarchy that will be used to implement the requirements of its PMP. Short descriptions of each of these documents are listed below.

- DTP’s PMP establishes the framework for managing, administering, and implementing the Design-Build scope of work for the Project.

- The DTP SCMP describes the safety and security certification process that DTP will implement during the Project.

- The DTP Project Quality Management System Manual describes and defines the QA/QC requirements to be applied to this Project by DTP. It references the DTP plans, procedures, and instructions that are used to implement the manual.

- The DTP Systems Integration Plan describes and documents the tools that DTP’s engineering organization will use to ensure that the interfaces are fully compatible with and will enable the successful integration of all elements of the Project into the existing ARS (the WMATA Metrorail system).

- The DTP Construction Safety, Health and Security Program plan describes the management program, work practices, and field execution work processes with which DTP employees, subcontractors, visitors, and owner must comply during execution of the work on the Project to protect the environment and to ensure the safety of employees and the general public.

- The DTP System Acceptance Plan sets forth the specific acceptance activities that are necessary for DTP to demonstrate that the System Project, both the fixed facilities and the System elements, are compliant with the requirements of the contract. This plan includes a Compliance Verification Matrix that identifies the specific requirements of the contract and the method(s) used for verification of each. The Acceptance Plan will be closely aligned with the Project’s Quality Program Plan.

- The purpose of the DTP Customer Service Plan is to coordinate planned outages; develop contingency plans for unplanned outages; and establish a framework for coordination among utilities, DTP, the Airports Authority, and property owners to minimize disruption to utility customers’ service during Utility Relocations work.

- The DTP Operations and Maintenance Training Program/Plan will include techniques and plans to provide training to WMATA operations and maintenance staff, primarily on systems (for example, train control and traction power) and possibly station equipment. DTP is contractually obligated to provide training to WMATA on the above-mentioned topics. This plan will be developed in the future.

- The DTP Permitting Plan describes the permitting processes, applicable permits, roles and responsibilities, and schedule durations to enable sustaining permitting requirements as an integrated part of the Project schedule.
3.0 Project Description

- The DTP Utilities Report describes the intended approach for utility relocations in which the Project leads the coordination of the relocation design activities for each affected utility company.
- The DTP Procedures and Instructions define the methods that DTP personnel conduct and document work on the Project.

Figure 3-4. Hierarchy of Dulles Transit Partners’ Project Documents

3.6 Design-Build Approach

The Project will be performed using a Design-Build Project Delivery System in which there will be a combination of DTP self-performed work, major equipment suppliers providing both design and manufacture of project components, and work performed by subcontractors under contract to DTP. This format places a major responsibility on DTP for managing not only its own work but that of suppliers and subcontractors. Pursuit of the work in this format has allowed the Airports Authority to award and determine a probable cost for the Project prior to completion of the design and to shift a substantial amount of responsibility to DTP. It has further afforded the Airports Authority the opportunity to establish a level of construction management designed to oversee the day-to-day construction effort independently from the production pressures that often influence the performance of the work when frontline QC efforts are influenced by production demands. The Airports Authority is assembling a construction management staff and organizing its efforts to provide independent oversight and coordination efforts to ensure the completed segments of the work are implemented in a timely manner, efficiently, and in accordance with the Project’s quality standards and design criteria.
Project Schedule

The control of the risk associated with the attainment of the Project’s time completion goals is accomplished through a comprehensive program of planning and scheduling. Work is carefully planned, and schedules, representing the work plan, are produced. The purpose of the schedule is to communicate the work plan effectively to those who will execute it and to form the basis for schedule performance analysis and reporting. This reporting will advise all participants as to whether the Project is being accomplished in accordance with the plan (on, ahead of, or behind schedule) and to advise of any changes to the plan.

The Project schedule has been prepared in stages during the development of the Project. An Initial Baseline Schedule was prepared and attached to the Design-Build contract with DTP. Subsequently, schedules by WMATA, VDOT, and the Airports Authority were attached to the logic in the Initial Baseline Schedule to form the Initial Project Master Schedule. The purpose of this schedule was to guide and prioritize the Project’s activities during the development of the Final Baseline Master Schedule, particularly with regard to criticality of activities. A proposed Final Baseline Schedule will be submitted with the FFGA package, which sets the DTP Substantial Completion date at July 31, 2013. This is based on the assumption that the necessary approvals will be received by March 2, 2009, to allow fabrication, construction, and commissioning activities to start.

The proposed Final Baseline Schedule contains more than 10,000 activities and addresses every aspect of the Project, including Design, Design Approvals, Property Acquisition, Utility Relocations, Procurement of Materials, Equipment and Subcontracts, Fabrication, Installation, and Commissioning and Testing through final completion and revenue operations. It is anticipated that additional detail will be included as part of the ongoing planning process, particularly with regard to the input from the Allowance Items subcontracts and final start-up and commissioning planning with WMATA.

Various levels of schedules will be produced for the Project. They range from a Level 1 Summary Schedule for use in the public involvement program to a detailed Level 3 critical path schedule for project management and control purposes. Table 3-1 presents the milestone schedule for Project development through revenue service. The Project’s Target Revenue Service date is December 4, 2013. The period from December 4, 2013 to December 1, 2014 is forecast as the time required for FFGA close-out activities. This results in the Revenue Operations date of December 1, 2014.
### Table 3-1. Project Implementation Schedule: Major Milestones

<table>
<thead>
<tr>
<th>Milestone</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Initiate PE</td>
<td>October 24, 2004</td>
</tr>
<tr>
<td>Complete PE</td>
<td>April 25, 2006</td>
</tr>
<tr>
<td>Submit Request to enter Final Design</td>
<td>April 28, 2006</td>
</tr>
<tr>
<td>Amended ROD</td>
<td>November 17, 2006</td>
</tr>
<tr>
<td>Airports Authority certified as FTA Grantee</td>
<td>November 30, 2006</td>
</tr>
<tr>
<td>Master Transfer Agreement and Dulles Toll Road Permit and Operating Agreement signed</td>
<td>December 29, 2006</td>
</tr>
<tr>
<td>Design-Build contract signed</td>
<td>June 19, 2007</td>
</tr>
<tr>
<td>Assignment and Assumption Agreement executed</td>
<td>June 28, 2007</td>
</tr>
<tr>
<td>Airports Authority/Fairfax County Cooperative Agreement signed</td>
<td>July 19, 2007</td>
</tr>
<tr>
<td>Airports Authority/VDOT Cooperative Agreement signed</td>
<td>September 11, 2007</td>
</tr>
<tr>
<td>Project Funding Agreement signed</td>
<td>September 11, 2007</td>
</tr>
<tr>
<td>Airports Authority/WMATA Cooperative Agreement signed</td>
<td>September 14, 2007</td>
</tr>
<tr>
<td>Final Design application submitted</td>
<td>September 21, 2007</td>
</tr>
<tr>
<td>Final Design approved by the FTA</td>
<td>May 12, 2008</td>
</tr>
<tr>
<td>Submit FFGA application</td>
<td>October 22, 2008</td>
</tr>
<tr>
<td>Execute FFGA</td>
<td>February 28, 2009</td>
</tr>
<tr>
<td>Begin Construction (detail in Table 2-3)</td>
<td>March 3, 2009</td>
</tr>
<tr>
<td>Start-Up/Testing</td>
<td>September 26, 2012</td>
</tr>
<tr>
<td>Safety and Security Certification</td>
<td>July 31, 2013</td>
</tr>
<tr>
<td>Pre-Revenue Operations</td>
<td>September 6, 2013 – December 4, 2013</td>
</tr>
<tr>
<td>Target Revenue Service</td>
<td>December 4, 2013</td>
</tr>
<tr>
<td>FFGA Close-Out Activities</td>
<td>December 4, 2013 – December 1, 2014</td>
</tr>
<tr>
<td>Revenue Operation Date</td>
<td>December 1, 2014</td>
</tr>
</tbody>
</table>

The completion dates for Final Design and Construction are organized by Operation Area (Figure 3-5 is a map of the Operation Areas) and presented in Table 3-2. As indicated in Table 3-2, there will be overlaps between Final Design and Construction activities consistent with the Design-Build contract format being employed on the Project.
Figure 3-5. Project Alignment by Operation Area
Given the Project’s Design-Build approach, it is normal and desirable that Construction will commence before Final Design is complete. Utility Relocations is considered the front-end portion of the construction work. The Utility Relocations design is essentially complete, and field work of Utility Relocations has begun in accordance with the FTA’s approval to proceed with Final Design and Utility Relocations. Although included in the Design-Build schedule, the cost of the Utility Relocations work is not part of the firm fixed price component of the Design-Build contract. The Utility Relocations work is being executed under a Cost Reimbursable/Time and Materials agreement. All interfacing points between Utility Relocations and the Design-Build Construction are defined in the Baseline Master Schedule.

The Level 1 Summary version of the Baseline Master Schedule used for progress and other reporting is directly linked to the detailed schedule networks by the scheduling software. This schedule, along with the Project’s budget, will be coordinated using a Work Breakdown Structure (WBS) that includes the FTA’s Standard Cost Category (SCC) codes embedded within it. The Airports Authority shall oversee the other Project participants’ schedule progress in accordance with Project schedule review procedure (PM-5.02), Article 13 and Division 1 - Section 01322 of the Design-Build contract.
3.8 Project Budget

The total Project budget is $2.916 billion. This figure includes $2.632 billion in Final Design and Construction costs (including approximately $100 million spent on PE, Supplemental PE, and Development activities) and $283.8 million in financing costs through 2013. A line-item budget is shown in Table 3-3 below. The Project budget reflects the outcome of the Airports Authority’s negotiations for a firm fixed price contract with DTP.

The Airports Authority is committed to managing to the budgets established by the partner agencies, including its own. It is the objective of the Project to avoid, if possible, and to minimize, if necessary, the use of the Project budget contingency. As stated, this effort will continue for all stages of the Project. Project Management Procedure PM-5.07, Contingency Control Procedure, defines the process the Airports Authority will follow to manage and control the use of Project budget contingency.

3.8.1 Financial Plan

The Financial Plan for the Project describes the overall sources and uses of funds, including realistic financial projections, and incorporates the detailed financial information regarding the Project’s funding sources. The plan includes updated results of the toll revenue and traffic study and revised funding strategies developed with regard to WMATA’s state of good repair need, and demonstrates the commitment of all non-federal funds, including the CAPRA. The plan was prepared by the Airports Authority in accordance with the FTA’s Guidance for Transit Financial Plans (June 2004). The Preliminary Financial Plan was submitted to the FTA on September 14, 2007. The final Financial Plan was submitted to the FTA on August 15, 2008.

A quarterly Financial Status Report will be prepared in accordance with the Common Rule (49 CFR Part 18) that requires accurate, current, and complete disclosure of the financial results associated with the Final Design grant and FFGA. All financial information will be provided on an accrual basis. The financial and cost information, including commitments, will be provided through the PRISM cost reporting system. Accounting information, including accounts payable and accounts receivable, are maintained by the Airports Authority’s Office of Finance.

Quarterly Financial Status Reports will also be provided to the FTA through the TEAM system. The Financial Status Reports will identify the total outlays, share of outlays, total unliquidated obligations and encumbrances, and the federal share of unliquidated obligations. All essential financial information relating to the scope and purpose of the grant will be completely and clearly displayed in the reports. In addition, the Project Director and Vice President for Engineering will provide regular monthly financial reports to senior management and the Airports Authority Board of Directors.

In the event of cost increases that are not covered by DTP under the terms of the Design-Build contract or the CAPRA, the terms of the Airports Authority’s funding agreements with Fairfax County and Loudoun County dictate how these costs will be shared among the non-federal funding partners. The Airports Authority’s main source of funding for the Project is proceeds from bonds secured by DTR revenues. Based on current revenue projections, the Airports Authority has the ability to support additional project costs by modifying the debt structure or, if necessary, increasing toll revenue through toll increases. The financial plan includes additional information about the capacity of the non-federal funding sources.
### 3.0 Project Description

#### Table 3-3. Project Budget

*(in thousands of year-of-expenditure dollars)*

<table>
<thead>
<tr>
<th></th>
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<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>10 GUIDEWAY &amp; TRACK ELEMENTS (route miles)</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>5,506</td>
<td>100,101</td>
<td>253,246</td>
<td>233,689</td>
<td>72,963</td>
<td>994</td>
<td>666,500</td>
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<tr>
<td>20 STATIONS, STOPS, TERMINALS, INTERMODAL (number)</td>
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<td>-</td>
<td>-</td>
<td>-</td>
<td>14,180</td>
<td>46,277</td>
<td>79,238</td>
<td>114,648</td>
<td>56,330</td>
<td>6,352</td>
<td>317,024</td>
</tr>
<tr>
<td>30 SUPPORT FACILITIES: YARDS, SHOPS, ADMIN. BLDGS</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>1,203</td>
<td>18,411</td>
<td>25,594</td>
<td>6,581</td>
<td>-</td>
<td>-</td>
<td>51,790</td>
</tr>
<tr>
<td>40 SITEWORK &amp; SPECIAL CONDITIONS</td>
<td>-</td>
<td>-</td>
<td>2,197</td>
<td>62,181</td>
<td>76,315</td>
<td>51,471</td>
<td>29,637</td>
<td>9,492</td>
<td>1,666</td>
<td>232,961</td>
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<tr>
<td>50 SYSTEMS</td>
<td>-</td>
<td>-</td>
<td>41</td>
<td>25,192</td>
<td>47,954</td>
<td>50,494</td>
<td>110,770</td>
<td>41,959</td>
<td>1,746</td>
<td>278,158</td>
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<td>60 ROW, LAND, EXISTING IMPROVEMENTS</td>
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<td>-</td>
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<td>15,906</td>
<td>17,287</td>
<td>8,798</td>
<td>2,125</td>
<td>393</td>
<td>-</td>
<td>-</td>
<td>45,953</td>
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<tr>
<td>70 VEHICLES (number)</td>
<td>-</td>
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<td>474</td>
<td>3,878</td>
<td>20,093</td>
<td>29,835</td>
<td>23,754</td>
<td>111,109</td>
<td>22,485</td>
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<tr>
<td>80 PROFESSIONAL SERVICES (applies to Cats. 10-50)</td>
<td>6,740</td>
<td>31,121</td>
<td>15,723</td>
<td>71,227</td>
<td>104,499</td>
<td>125,514</td>
<td>136,599</td>
<td>100,320</td>
<td>71,972</td>
<td>34,761</td>
<td>698,471</td>
</tr>
<tr>
<td>90 UNALLOCATED CONTINGENCY</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>6,961</td>
<td>12,975</td>
<td>23,517</td>
<td>38,267</td>
<td>32,015</td>
<td>16,265</td>
<td>130,000</td>
<td></td>
</tr>
<tr>
<td>100 FINANCE CHARGES</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>14,304</td>
<td>50,036</td>
<td>56,786</td>
<td>72,588</td>
<td>90,086</td>
<td>283,800</td>
<td></td>
</tr>
<tr>
<td><strong>Total Project Cost (10 - 100)</strong></td>
<td>6,740</td>
<td>31,121</td>
<td>15,723</td>
<td>75,383</td>
<td>238,304</td>
<td>462,024</td>
<td>701,645</td>
<td>735,590</td>
<td>475,402</td>
<td>174,356</td>
<td>2,916,287</td>
</tr>
</tbody>
</table>
3.8.2 WMATA Costs

Both the Airports Authority and WMATA are committed to keeping costs within the Project budget and have established a cooperative process for monitoring and tracking Project expenditures. This process is documented in the WMATA/Airports Authority Cooperative Agreement, dated September 14, 2007. WMATA will provide annual budgets (Technical Advisory Budgets [TABs]) to the Airports Authority for review and approval. WMATA will also monitor and document its expenditures and report them to the Airports Authority. In any period in which there is a planned versus actual overrun of 5% or greater, WMATA will prepare and propose a recovery plan that is subject to approval by the Airports Authority. The Airports Authority must also approve the overrun. WMATA will also advise the Airports Authority of any use of contingency that is subject to action by the Airports Authority. The Airports Authority is not obligated to make available or obligate funds until WMATA has met the conditions contained in the Cooperative Agreement relating to funding, including a satisfactory accounting of its expenditures in accordance with the TABs. In addition to the process outlined in the Cooperative Agreement, the Airports Authority and WMATA will regularly address potential changes to capital costs through the biweekly coordination meetings between WMATA and Airports Authority staff, as well as through periodic executive-level meetings.

3.9 Before and After Study

The FTA requires its grantees to develop a plan for the collection and analysis of information leading to the identification of the impacts of the Project and the accuracy of the forecasts that were prepared during Project planning and development. The analysis, called the Before and After Study, has two distinct and important purposes: to expand insight into the costs and impacts of major transit investments, and to improve the technical methods and procedures used in the planning and development of those investments.

On July 11, 2008, the Airports Authority submitted a proposed methodology for the Before and After Study to the FTA. The proposed methodology is included in Appendix B. Based on FTA input, the Airports Authority submitted a Before and After Study Plan to the FTA on August 29, 2008. This plan described the methodologies and assumptions pertaining to the development of Project scope, transit service levels, capital costs, operating and maintenance costs, and ridership patterns and revenues that will be used for the Before and After Study. The FTA approved the Before and After Study Plan on September 17, 2008.

The data inventory, originally prepared to support the Project’s NEPA review and to meet the FTA’s New Starts program requirements, is continually updated and archived for use in the analyses. For key Project planning and development milestones, this documentation provides a history of the Project’s evolution, summarizes key assumptions, and presents detailed findings for each of the areas that will be considered in the Before and After Study.

3.10 Legal Authority

On November 30, 2006, the FTA released its determination that the Airports Authority “has or will have the legal, financial and technical capacity to carry out the program, including the safety and security aspects of the Project,” a determination that the FTA is required to make pursuant to 49 U.S.C. § 5309(c)(1)(B)(i) in order for an applicant to be considered eligible to receive funding from the FTA.
3.11 Project Implementation under the Public-Private Transportation Act

The Virginia PPTA authorizes the Commonwealth, its local governments, or other public agencies to enter into agreements allowing private entities to develop, design, construct, maintain, and/or operate transportation facilities, if determined that private involvement would provide the facilities in a timely and cost-effective manner. The PPTA permits private entities to submit unsolicited proposals as well as proposals solicited by public entities.

In December 1998, Raytheon Engineers and Constructors (now Washington Group International) submitted an unsolicited conceptual proposal to DRPT for the development, design, and construction of a Bus Rapid Transit system phasing into an extension of the Metrorail system in the Dulles Corridor. Notice of receipt of the proposal was published by DRPT as required by statute. A competing proposal was submitted by the Tysons-Dulles Corridor Group (composed of Bechtel Infrastructure Corporation and West*Group Management, LLC). The competing proposals from Raytheon and the Tysons-Dulles Corridor Group were forwarded to the Initial Review Committee, which recommended to the CTB that the Raytheon proposal be advanced to the Detailed Proposal stage. With the concurrence of the Commonwealth, Raytheon added Bechtel and West*Group Management to its team and renamed the team Dulles Transit Partners, LLC.

On March 26, 2002, the Commonwealth requested, in a letter dated April 2, 2002, a detailed proposal from DTP. On May 31, 2002, DTP responded to the request by submitting a detailed proposal that proposed to undertake a variety of development activities, PE, and construction of the LPA, as approved by the CTB.

Following a 45-day period for affected local jurisdictions (the Airports Authority, Fairfax County, Loudoun County, and the Town of Herndon) to review and comment on the detailed proposal, the Commonwealth convened the Advisory Panel to review the proposal and make a recommendation to the DRPT Director. After several months of review and evaluation, on December 5, 2002, the Advisory Panel submitted a detailed letter to the DRPT Director recommending that DRPT advance into negotiations with DTP.

The DRPT Director accepted the Advisory Panel’s recommendation and initiated negotiations on March 18, 2003. On June 11, 2004, DRPT and DTP executed the Comprehensive Agreement in accordance with the Commonwealth’s PPTA, and on July 22, 2004, DRPT issued a NTP to DTP for the Development scope of work and to begin mobilization for PE. The Comprehensive Agreement specifies that the Project shall be developed, designed, permitted, financed, acquired, constructed, equipped, and insured, and that the Project will be developed in stages. Under the terms of the Comprehensive Agreement, the PE scope of work was to be completed by a joint venture of Bechtel Infrastructure Corporation and Washington Group International, known as Dulles Transit Engineers. DTE operated as a sub-consultant to DTP, which was ultimately responsible for performance of both the PE and Development scopes of work.
4.0 **Program and Project Management Responsibilities**

This section describes the management roles and responsibilities of the principal Project participants during Final Design and Construction.

4.1 **Management Structure**

The proposed management structure for the Project during Final Design and Construction is presented in Figure 3-4. The roles and responsibilities of the Project participants during Final Design and Construction are also provided below.

4.2 **Project Office**

At the initiation of PE, DRPT established a Project Office in the Concourse Building on Spring Hill Road near Route 7 in Tysons Corner. The Airports Authority will continue to have its Project offices in this building, with managers and key Project staff from the agency and the DTP team also located there. Day-to-day management of Project activities are directed from this building. Facilities suitable for conducting administration, management, coordination, and oversight activities have been provided. Office and meeting spaces have been provided for representatives from other agencies involved in the Project on both a short-term and full-time basis. Construction-specific staff will be co-located in DTP’s field offices that are strategically located by construction Operation Areas for immediate access to the work area. The field construction staff will report to the Project office staff on a daily basis.

4.3 **Roles and Responsibilities**

A summary of the roles and responsibilities of each of the principal participants are shown in Table 4-1. This table considers any future additional NEPA-related activities, should the need arise during Final Design, Construction, and/or Commissioning stages of the Project.

<table>
<thead>
<tr>
<th>Role</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accept</td>
<td>Concur or resolve issue per the Disputes Clause of the applicable Cooperative Agreement</td>
</tr>
<tr>
<td>Approve</td>
<td>Accept before work can proceed</td>
</tr>
<tr>
<td>Conduct</td>
<td>Agency appointed or elected officials empowered to hold public hearing</td>
</tr>
<tr>
<td>Manage</td>
<td>Direct day-to-day task completion</td>
</tr>
<tr>
<td>Oversee</td>
<td>Monitor task completion</td>
</tr>
<tr>
<td>Participate</td>
<td>Take part in task completion</td>
</tr>
<tr>
<td>Perform</td>
<td>Conduct task as specified in procedure or contract documents</td>
</tr>
<tr>
<td>Prepare</td>
<td>Develop necessary documents</td>
</tr>
<tr>
<td>Review</td>
<td>Read or become familiar with a work item</td>
</tr>
<tr>
<td>Support</td>
<td>Respond to requested items and actions</td>
</tr>
</tbody>
</table>
### 4.0 Program and Project Management Responsibilities

#### Table 4-1. Roles and Responsibilities

<table>
<thead>
<tr>
<th>Task</th>
<th>FTA/PMOC</th>
<th>Airports Authority</th>
<th>WMATA</th>
<th>VDOT</th>
<th>Fairfax County</th>
<th>DTP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Notice of Intent NEPA Analysis</td>
<td>Approve</td>
<td>Prepare</td>
<td>Review Support</td>
<td>Review Support</td>
<td>Review Support</td>
<td>Support (as allowed under NEPA)</td>
</tr>
<tr>
<td>NEPA Public Hearing</td>
<td>Approve</td>
<td>Conduct</td>
<td>Support</td>
<td>Support</td>
<td>Support</td>
<td></td>
</tr>
<tr>
<td>FTA Amended ROD</td>
<td>Prepare</td>
<td>Approve</td>
<td>Support</td>
<td>Support</td>
<td>Review Support</td>
<td>Support</td>
</tr>
<tr>
<td>Project Management</td>
<td>Oversee</td>
<td>Manage</td>
<td>Review Support</td>
<td>Review Support</td>
<td>Review Support</td>
<td>Support</td>
</tr>
<tr>
<td>Design Development</td>
<td>Oversee</td>
<td>Participate Approve</td>
<td>Review Support</td>
<td>Review Support</td>
<td>Review Support</td>
<td>Review Approve Special Exceptions and 2232 applications</td>
</tr>
<tr>
<td>Design Review</td>
<td>Oversee</td>
<td>Participate Approve</td>
<td>Participate Review</td>
<td>Support Accept</td>
<td>Participate Review</td>
<td>Support Accept</td>
</tr>
<tr>
<td>WMATA and VDOT Criteria Deviations</td>
<td>Oversee</td>
<td>Manage Review</td>
<td>Approve</td>
<td></td>
<td></td>
<td>Prepare</td>
</tr>
<tr>
<td>Construction Management</td>
<td>Oversee</td>
<td>Participate Approve</td>
<td>Participate Review</td>
<td>Support Accept</td>
<td>Participate Review</td>
<td>Support</td>
</tr>
<tr>
<td>Construction QA/QC</td>
<td>Oversee</td>
<td>Participate Approve</td>
<td>Participate Review</td>
<td></td>
<td></td>
<td>Prepare Perform Manage</td>
</tr>
<tr>
<td>Integration Testing, Commissioning, and System Performance Demonstration</td>
<td>Oversee</td>
<td>Participate Approve</td>
<td>Support Participate Accept</td>
<td>Participate Review</td>
<td>Participate Review</td>
<td></td>
</tr>
<tr>
<td>System Safety/Security Certification</td>
<td>Oversee</td>
<td>Participate Approve</td>
<td>Participate Review</td>
<td></td>
<td></td>
<td>Prepare Perform Manage</td>
</tr>
<tr>
<td>Operational Readiness Testing and Commissioning</td>
<td>Oversee</td>
<td>Support</td>
<td>Perform Manage</td>
<td></td>
<td></td>
<td>Support</td>
</tr>
</tbody>
</table>

See Table 4-2 for a more detailed description of WMATA’s responsibilities.
4.0 Program and Project Management Responsibilities

4.3.1 Design Development

DTP is responsible for producing design plans and specifications that can be issued for construction. During design development, DTP is contractually obligated to prepare and submit to the Airports Authority design review packages at the 60% and 100% design stages. These submittals are provided to all pertinent Project participants for review and comment. As defined in Division 1 of the Design-Build contract, the Airports Authority dispositions each submittal as “Accepted,” “Accepted as Noted,” or “Not Accepted.” Any submittal dispositioned as “Not Accepted” must be revised by DTP and resubmitted. Although each of DTP’s submittals is thoroughly reviewed by the Airports Authority and the other Project participants, DTP is the Engineer-of-Record and is fully responsible for the technical content and accuracy of the design.

4.3.2 Design Review

DTP is responsible for ensuring that its design meets all applicable design criteria and codes. Depending on the specific facility, WMATA, VDOT, Fairfax County, and the Airports Authority design criteria will apply, as will the criteria of other various state and federal agencies. The Airports Authority reviews the design submittals and participates in formal design review meetings to be conducted by DTP. The Airports Authority solicits review comments from WMATA, VDOT, and other Project participants; provides its own review comments; consolidates the review comments from outside agency reviewers; and sends a fully conformed response to DTP. Once DTP has resolved the comments to the satisfaction of the Airports Authority, signed and sealed drawings will be issued for permit and, upon receipt of applicable construction permits, the design documents will be issued for construction. DTP and the Airports Authority have established the content of each design package via the approval of DTP’s Contract Data Requirements List. Timing for DTP’s submittal of each design package and for the Airports Authority’s review is tracked in the Project Master Schedule. DTP is responsible for obtaining all required construction permits for the work.

The Airports Authority’s review of design submittals for the contract Allowance Items will not only emphasize the technical compliance to the contract documents, but will also specifically evaluate the commercial and cost implications of the designs being presented. Both “over-the-shoulder” reviews and formal design reviews offer the forums to protect the Airports Authority against the introduction of elements or requirements into the designs that could result in exceeding the established budgets. These elements or requirements could take the form of “scope creep,” or technical/performance-based requirements that would limit completion. Airports Authority technical staff will work closely with Airports Authority project/cost control staff on all of the procurements for the Allowance Items.

4.3.3 VDOT or WMATA Criteria Deviations

Deviations from several WMATA or VDOT design criteria have already been processed by the Airports Authority, WMATA, VDOT, and DTP during PE. During Final Design, additional issues and/or deviations may arise as the design progresses. In cases where the criteria are obsolete or cannot be applied to the Project (e.g., changes in technology, standards, code requirements), the Airports Authority will work with either WMATA or VDOT to assist DTP in obtaining a specific variance or deviation for the Project. DTP has the responsibility to submit and obtain any deviations or variance for the Project. DTP will identify those criteria. The processing of the deviations will follow the procedures referenced in the Airports Authority Quality Program Plan.
4.0 Program and Project Management Responsibilities

4.3.4 Construction Management
DTP is responsible for managing the construction process in accordance with the approved quality plan, permit requirements, and other special provisions detailed in the contract. This process is more thoroughly discussed in Section 13.0 of the PMP. The Airports Authority will engage in a traditional construction oversight role for a Design-Build contract, providing quality and construction audits of all aspects of the work. Construction monitoring and oversight will secure design conformance, ensure the required quality, and provide empirical data to support contract administration.

4.3.5 Integration Testing, Commissioning, and System Performance Demonstration
DTP will be responsible for preparing, performing, and managing the integration testing and commissioning in accordance with the approved System Acceptance Plan defined in the contract documents. WMATA will provide test trains, operators, and supervisory personnel in accordance with the Airports Authority/WMATA Cooperative Agreement. In addition, WMATA will observe, support, and accept the testing and review the test reports. Completion of dynamic testing and the System Performance Demonstration is precedent to Substantial Completion of the Design-Build contract.

4.3.6 System Safety and Security Certification
DTP will be responsible for performing the analysis and documentation related to the System Safety and Security Certification. WMATA and Airports Authority staff will review the analysis and approve the certification documentation, with oversight provided by the FTA’s PMOC and the TOC. The Final Safety/Security Certification Report will be reviewed and accepted by WMATA and the Airports Authority. Contract Substantial Completion will be achieved when WMATA and the Airports Authority have agreed that the work is essentially complete, the work has been successfully and fully tested, and the work has been conducted in accordance with applicable safety and security criteria established by WMATA and other appropriate organizations. WMATA will be responsible at that time to implement safety/security certification follow-up procedures to ensure that safety/security-related requirements are maintained during pre-revenue and revenue operations.

4.3.7 Pre-Revenue Operations
After Substantial Completion of the Design-Build contract and other requirements defined in the Airports Authority/WMATA Cooperative Agreement have been met, care, custody, and control of the Project will be transferred to WMATA. At this time, WMATA will begin pre-revenue operational readiness activities to ensure that the entire Project is fully tested and properly integrated for start-up and is acceptable for incorporation into WMATA’s ARS prior to the start of revenue service.

4.4 Integrated Airports Authority/WMATA Project Management
The commonality of interests and purpose between the Airports Authority and WMATA necessitates an integrated team approach for the implementation of the Project. Therefore, it is to the mutual benefit of both authorities to collaborate to advance the Project and to resolve issues in a timely manner.

4.4.1 WMATA’s Role and Responsibilities
On September 14, 2007, the Airports Authority and WMATA signed a Cooperative Agreement identifying WMATA as the intended future owner and operator of the Project. The Cooperative Agreement between the Airports Authority and WMATA provides the foundation for an integrated team to implement the Project. WMATA’s role and responsibilities through the Final Design, Construction, Integration Testing and Commissioning, and Post-Substantial Completion stages of the Project are defined in the Cooperative Agreement and are summarized in Table 4-2.
4.0 Program and Project Management Responsibilities

The definitions of the roles and responsibilities used in Table 4-2 are:

- **Accept**: Concur or resolve issue per the Disputes Clause of the applicable Cooperative Agreement
- **Approve**: Accept before work can proceed
- **Comment**: Provide information regarding the suitability and/or appropriateness of a work item
- **Manage**: Direct day-to-day task completion
- **Participate**: Take part in task completion
- **Perform**: Conduct task as specified in procedure or contract documents
- **Prepare**: Develop necessary documents
- **Review**: Read or become familiar with a work item

**Table 4-2. WMATA’s Responsibilities**

<table>
<thead>
<tr>
<th>Task</th>
<th>WMATA</th>
</tr>
</thead>
<tbody>
<tr>
<td>DTP’s Design-Build Baseline Schedule</td>
<td>Review</td>
</tr>
<tr>
<td>Requests for changes/deviations to WMATA design criteria</td>
<td>Review and comment</td>
</tr>
<tr>
<td>Operating Financial Plan</td>
<td>Review and comment</td>
</tr>
<tr>
<td>Transit-related facility submittals required from DTP</td>
<td>Review and accept</td>
</tr>
<tr>
<td>Transit-related design review and coordination meetings and workshops during Final Design</td>
<td>Participate</td>
</tr>
<tr>
<td>Technical interface information for WMATA-provided equipment, systems, and hardware/software as required by DTP</td>
<td>Prepare</td>
</tr>
<tr>
<td>DTP’s listing of spare parts, special tools, test equipment, consumables, and personnel training</td>
<td>Review and accept</td>
</tr>
<tr>
<td>Right-of-Way Plans</td>
<td>Review and accept</td>
</tr>
<tr>
<td>Coordination, pre-activity and progress schedule update, meetings (Construction stage)</td>
<td>Participate</td>
</tr>
<tr>
<td>Periodic quality audit inspections of major construction elements</td>
<td>Participate</td>
</tr>
<tr>
<td>DTP’s QA/QC Program</td>
<td>Participate</td>
</tr>
<tr>
<td>DTP’s test/inspection plans and procedures for transit-related facilities</td>
<td>Review and comment, accept</td>
</tr>
<tr>
<td>Testing of the transit-related facilities and related equipment</td>
<td>Participate</td>
</tr>
<tr>
<td>DTP’s site-specific work plans for all work on WMATA property</td>
<td>Review and approve</td>
</tr>
<tr>
<td>Integration and System Performance Demonstration testing relating to transit-related facilities and related equipment</td>
<td>Manage and perform</td>
</tr>
<tr>
<td>Dynamic Testing Readiness Certificate</td>
<td>Review and approve</td>
</tr>
<tr>
<td>Provision of vehicles, operators, Operations Control Center staff, and all other support staff to support dynamic testing and the System Performance Demonstration</td>
<td>Manage and perform</td>
</tr>
<tr>
<td>DTP’s system safety and security submittals</td>
<td>Review and approve</td>
</tr>
<tr>
<td>DTP Substantial Completion Certificate</td>
<td>Review and accept</td>
</tr>
<tr>
<td>Design, fabrication, installation, and commissioning of the new railcars, ATC equipment, fiber optic communications system, Operations Control Center updates, Art-in-Transit, and non-revenue vehicles and equipment</td>
<td>Manage, prepare, perform</td>
</tr>
<tr>
<td>Operational Readiness Testing</td>
<td>Manage, prepare, perform</td>
</tr>
</tbody>
</table>
4.4.2 Implementation of Integration Project Management

A number of provisions of the Cooperative Agreement were incorporated specifically to ensure that WMATA’s interests are protected throughout the Design, Construction, Systems Integration, Systems Acceptance, and Warranty stages of the Project. The implementation of these provisions will ensure that WMATA is provided with a fully functioning extension that can be accepted into the ARS and one that WMATA can maintain and operate in an efficient manner that satisfies all requirements for safety and security. Key provisions of the Cooperative Agreement include the following.

- WMATA’s staff is fully integrated into the Project organization and interacts with the Project in both formal meetings and frequent informal discussions.
- WMATA’s staff is provided every design submittal and is part of the “over-the-shoulder” reviews for designs of its facilities.
- WMATA has approval rights throughout the design process for its facilities in terms of enforcing compliance of its design criteria and standard drawings.
- A well-established process for requesting deviations puts the burden on the designer to provide justification for any proposed deviations from WMATA design criteria and standard drawings.
- WMATA will participate by witnessing inspections and tests during the construction and commissioning of its facilities.
- A clearly defined process to quickly resolve disagreements between WMATA and the Airports Authority pertaining to any element of the Project is in place.

4.4.3 Airports Authority/WMATA Coordination Meetings and Communications

Building and merging an extension into an existing system like Metrorail is a highly complex undertaking with many overlapping consequences. An example of this overlap is the potential impact that a change to track design could have on the design of the power supply systems. Because of the complex and overlapping nature of this undertaking, great care is being taken to keep WMATA informed and involved throughout the design and construction of the Project. The Airports Authority’s Project staff understands this complexity and the necessity for complete coordination and communication between the agencies.

For continuity, WMATA has assigned and co-located management, administrative, and core technical staff members to work on the Project full-time with Airports Authority staff. In addition to the full-time Project staff, WMATA specialists, from a variety of engineering and operating disciplines, will be assigned to the Project as needed. The technical mix of staff will vary as the Project progresses through Design, Construction, Testing, and Certification. This flexible approach allows WMATA staff to be assigned to work on the Project only when needed, thereby conserving labor expenses and using the Project budget as efficiently as possible.

Meetings and other communications that take place between the Airports Authority and WMATA occur on a daily basis in both structured and impromptu formats. By having a permanent WMATA staff presence in the Project office, staff members of both agencies can walk into each other’s office at any time to discuss any issue at hand without having to schedule a formal meeting. This flexibility increases the level and quality of communication and results in the quick resolution of problems. In addition, there are both regularly scheduled and as-needed formal meetings. Examples of meetings currently being held include the following.

- **Biweekly Coordination Meeting.** This meeting takes place at 2:30pm every other Thursday and currently covers open design issues, but will address construction and commissioning issues as
the Project progresses. Other subjects covered during this meeting include QA/QC and safety certification, status of RFIs, WMATA project responsibilities, and various miscellaneous issues.

- **WMATA Access Standing Weekly Meeting.** The Airports Authority has a standing weekly meeting with DTP and WMATA to coordinate access onto the WMATA property for design of the tie-in to the existing WMATA line. In addition, the Airports Authority and members of WMATA’s Project team staff routinely go to WMATA’s Rail Operations and Safety Department offices to discuss and coordinate technical issues related to DTP’s access to WMATA’s property related to Final Design.

- **WMATA Weekly Track Rights Meeting.** The Airports Authority attends WMATA weekly track rights meetings to coordinate access for DTP onto the WMATA ROW.

- **Internal WMATA Major Projects Coordination Meeting.** The Airports Authority often attends internal WMATA Major Projects Coordination Meetings at WMATA’s Project team staff’s request to present major Project access details.

- The Airports Authority, WMATA, and DTP routinely meet on an as-needed basis to discuss and resolve comments on DTP’s design submittals as they are received.

- The Airports Authority and WMATA routinely meet to discuss and coordinate specific technical issues with the existing system as well as new technology to ensure that it will meet with WMATA design criteria requirements.

- The Airports regularly meets with WMATA’s Chief Engineer and his staff, both at the Project office and at WMATA’s headquarters in Washington, D.C. Major open issues are discussed at these meetings and assignments are made to those individuals who are familiar with the specific issues for resolution.
5.0 Management and Project Controls

A key element to the success of the Project is the establishment of effective Project controls. Some of the tools for managing elements critical to the success of the Project are discussed below. These tools will be further defined as the Project proceeds into Construction.

5.1 Technical and Scope Control

Management of scope control will be provided by the Airports Authority regular review of DTP’s design documents and diligent monitoring of potential deviations to the basis of design. Technical control will be achieved through Airports Authority review of the designs as they are completed as well as of system performance specifications to assess DTP’s compliance with the design criteria and standards and basis of design report.

5.2 Quality Assurance/Quality Control

The requirements for the QA/QC program to be applied to the Project are addressed in the Airports Authority Quality Program Plan. The Airports Authority Quality Program Plan requirements are applicable to Project participants, including the Airports Authority, DTP, and suppliers and subcontractors. This plan complies with the guidance contained in the FTA’s Quality Assurance and Quality Control Guidelines and the requirements of ISO 9001-1994, Quality Systems – Model for Quality Assurance in Design, Development, Production, Installation, and Servicing. DTP, along with applicable suppliers and subcontractors, has a Project Quality Management System Manual that addresses and complies with the requirements of the Airports Authority Quality Program Plan.

The Airports Authority’s Project QA/QC and Safety Manager, assisted by the Project QA/QC Supervisor, reports to the Airports Authority Project Director. The Airports Authority Project QA/QC and Safety Manager has been assigned the authority to ensure that a QA/QC system is established, implemented, and maintained during the course of the Project in accordance with the requirements of the Airports Authority Quality Program Plan. In matters related to quality, the Project QA/QC and Safety Manager has complete and ready access to the Airports Authority Project Director.

DTP has the primary responsibility for implementing a QA/QC program that meets the guidelines and requirements of the FTA and the Airports Authority Quality Program Plan. The Airports Authority will conduct oversight of DTP’s quality-related activities to ensure that requirements are met and that the DTP QA/QC program is effective.

The DTP Project Quality Management System Manual and implementing procedures and instructions define the processes, controls, checks, and inspections that are applied to the design, procurement, construction, installation, and testing activities. DTP has established a QA organization independent of the design and construction groups. This QA organization is led by the DTP Project Quality Manager, who reports to the DTP Project Executive Director. The DTP Project Quality Manager’s responsibilities include:

- development and maintenance of the DTP Project Quality Management System Manual and procedures, instructions, practices, and related documents that define DTP’s requirements to achieve the necessary levels of quality on the Project;
- conduct of QC inspections and tests related to procurement, construction, and installation activities;
• verification of the proper implementation and effectiveness of the DTP Project Quality Management System Manual and related procedures and instructions through the conduct of a comprehensive internal monitoring program that includes audits, surveillances, and reviews of quality-related work activities during design, procurement, construction, installation, and testing; and
• identification and recording of non-conformances and quality problems, the initiation of solutions to non-conformances and quality problems, the verification of effective implementation of solutions, and the initiation of action to prevent quality problems.

Work processes are required to be formalized and quality controls applied. These quality controls include checking, reviewing, examining, inspecting, testing, and supervising. DTP work processes and quality controls, audited and monitored by the DTP Project Quality Manager, are also rigorously observed and monitored by the Airports Authority. To implement the Project Quality Management System Manual requirements, DTP management is responsible for:

• selecting and assigning well-qualified professionals to perform Project tasks;
• assigning qualified individuals to oversee all elements of the work;
• ensuring that personnel performing quality-related activities have a clear understanding of their responsibilities; and
• properly documenting the work and QC processes.

The DTP Project Quality Management System Manual and implementing procedures and instructions, including revisions, require approval by the Airports Authority and must be in place prior to the start of work (e.g., design control procedures and instructions must be in place prior to the start of Final Design, and QC inspection procedures and instructions must be in place prior to the start of Construction).

The Airports Authority Quality Program Plan, and its implementing procedures and instructions, will be reviewed for effectiveness and adequacy by the Airports Authority on an ongoing basis during the course of the Project.

5.3 Schedule Control
Responsibility for planning and scheduling the Project, as well as for executing the Project in accordance with the plan, is shared among all Project participants. Each participating organization submits both its original baseline schedule and monthly updates of its schedule to the Airports Authority, who collects the information and assembles it into the Master Project Schedule. The Airports Authority maintains oversight of the entire Project plan and controls the content and quality of the schedule, without interference with the means and methods of the contributing participants, through the language in the respective contracts and agreements as well as in Section 01322 of Division 1 of the Project’s specifications entitled Contract Schedule and Progress Reporting.

The Master Project Schedule, including its input from DTP, WMATA, VDOT, Fairfax County, and utility companies, among others, is updated monthly (or more frequently if necessary) to reflect both progress and any changes in the work plan brought about by approved change orders or Project events that might require logic and other adjustments. The Airports Authority meets monthly with DTP to review its contribution to the Master Project Schedule. In these meetings, progress and changes are fully discussed. Progress discussions also include information sharing on schedule performance, delays during the period, issues affecting schedule, and critical and sub-critical paths. WMATA, and other contributing organiza-
5.0 Management and Project Controls

Schedule control is maintained through frequent and detailed schedule performance analysis. The intent of this analysis is to spot adverse schedule performance trends early enough to take effective action to mitigate any adverse effect. When work is ahead of schedule, it is important that this condition be made known to take advantage of the trend. A significant part of this performance analysis is critical path analysis, where the critical path and sub-critical paths of the Project are highlighted to ensure that their requirements are met as planned. Identification and control of these paths is critical to the successful completion of the Project, as the control path will provide an estimate of the completion date of the Project.

The Master Project Schedule permits the summarization or expansion of the various network elements by stage, work elements, locations, and responsible organization as identified in the WBS, as well as by SCC codes. It is the primary tool for assessing overall Project status and is a critical aid in identifying and managing the interfaces and interdependencies between DTP and the other Project participants.

The Master Project Schedule’s activities are not cost or resource loaded, as there is no requirement for earned value management systems. However, to effectively produce cash flow and cost performance information, the schedule’s activity dates are downloaded into PRISM, the cost management system, for cash flow and status measurement purposes. Once the (Cost) Control Accounts have been assigned both early and late schedule activity dates and expenditure curves, PRISM will calculate both early and late expenditure profiles for that Control Account. The PRISM system then applies the actual costs recorded for both period and cumulative and presents this information on the cost profile to demonstrate expenditure performance in relation to time. It should be noted that the Airports Authority has negotiated payment schedules that are tied to DTP’s detailed earned value systems for both design and construction progress measurement.

Schedule reviews and updates will be conducted on a monthly and as-needed basis to ensure adherence to the schedule requirements. Any schedule changes are to be analyzed to model “what-if” scenarios, to evaluate potential delays, or to develop workaround solutions. The schedule reviews will be performed according to the Airports Authority’s established procedure for review of Project schedules (Project Management Procedure 5.03).

5.4 Progress Payments

Progress payments for the firm fixed price portion of the Design-Build work require that work equaling the value of the payment requested is adequately documented by DTP. The Airports Authority has required that the monthly application for payment show the total value of work performed for each individual work activity completed during the monthly payment period by WBS, which includes SCC coding. The Project Controls group is responsible for evaluating and recommending progress payments for approval. Application for payment is required to include a monthly progress report, an approved updated schedule of values supported by DTP’s earned value tools, and a detailed Critical Path Method (CPM) schedule. Affidavits of Payment and Partial Lien Release have been provided. Progress payments are based on work accomplished as documented by DTP’s earned value systems. Level of effort activities, such as project and engineering management, are tied directly to the value calculated by the earned value systems wherever possible or to specific accomplishment of agreed upon payment milestones. The processing of Design-Build contract payments will be conducted according to the procedures listed in Project Management Procedure PM-5.05.
5.5 Cost Estimating

A comprehensive cost estimating service will be provided by in-house Project staff supplemented by professional estimators from contributing organizations. Cost estimates will be used to provide pre-approval independent checks of change order submittals, contracts and subcontracts, value engineering submittals, and any other commercial contractor submittals that have a cost component that requires acceptance by the Airports Authority. In addition to supporting the determination of cost relative to commercial matters, the Cost Estimating group will assist the cost engineering effort with quantity take-offs from drawings as part of the materials cost trending and forecasting, estimating to support in-house value engineering, and any other estimating task necessary to support the Project.

Cost estimating will be performed by professional cost estimators led by a Cost Control Manager supervising a Senior (Lead) Estimator and other estimators as required for the workload. One benefit of the cost estimating services being provided by the PMSS staff is that there are corporate estimating services available to supplement staff requirements when the workload warrants it. The Cost Estimating group falls under the Project Controls function in the Project’s organizational structure.

Cost estimating will be performed using the Heavy Construction Software Solutions Estimating System, populated with unit costs and other estimating data specifically developed for this Project and supplemented by Project cost information derived from contract proposals, change order submittals, invoices, and other administrative sources. The database will also receive an annual review by the Senior Estimator to validate the accuracy of the information. Items discovered during this review will be adjusted to improve the accuracy of the estimating system.

Cost estimates will be provided in one of three formats generally corresponding with the level of information available on which to base the estimate. These formats include rough order of magnitude (±30% or greater depending on the level of information), engineer’s estimate (±20%, but this is highly dependent on the detail and comprehensive nature of the scope definition and the quantities available), and definitive estimate. Definitive estimates generally carry an accuracy level of less than ±10% and are the preferred deliverable for cost recommendations to support procurement operations.

All estimates, regardless of type, will include as complete a description of the direct and indirect materials and labor operations for design, procurement, receipt, installation, and testing of the work as is appropriate, or it will include as complete an itemization of the assumed description as is available for the format of estimate. Quantities of materials, labor, and equipment hours will be carefully established from drawings and/or other available sources for the level of estimate required, and will be documented in the estimate. Where specific quantities are not available for estimator take-off, quantities may have to be assumed. Any quantity assumptions will be documented similar to other assumptions on which the estimate is based. Quantities will be taken off and organized to coincide with the way units and assemblies reside within the estimating system. Quantities will be displayed and made available.

The preparation of any estimate may be requested by event, such as a formal Request for Change or oral request from the Design or Construction Oversight Manager to support a commercial decision, or other Project communication. Regardless of the cause that generates the request for an estimate, the Lead Estimator will document the event and the date of the event, assign a responsible estimator, and establish a target date for its completion.

Before any estimate is prepared, the requesting party and responsible technical representatives will be clearly identified to the assigned estimator so that there will be no question as to who is responsible for...
any decisions or assumptions regarding the estimate. The requestor and responsible technical representa-
tive will participate in a scoping meeting to establish the basis and understandings on which the estimate
is to be based. The minutes of this meeting will be documented and published by the estimator. Once an
estimate has been authorized by any of the above requests, the estimating department will assign the next
available estimate number and track its completion progress on the Estimate Log. The Lead Estimator
will be responsible for keeping the Estimate Log current at all times and for issuing a monthly estimating
report describing estimating activities for the period.

Estimates will be presented in summary by major cost codes as appropriate. Codes will define Pay Items,
FTA SCC codes, and the CPM WBS code when possible and appropriate. All completed estimates will
contain the written approval of the PMSS Lead Estimator.

The Lead Estimator will have responsibility for overall oversight and coordination of the estimate
preparation process under the supervision of the Airports Authority’s PMSS Cost Control Manager. Once
the estimate has been reviewed and recommended to the PMSS Project Manager and the Airports
Authority’s Project Director for use, a copy of the estimate and any supporting work products will be kept
in the permanent Project records.

5.6 Cost Control and Job Accounting Systems

Cost control will be accomplished through careful identification, coding, tracking, trending, forecasting,
and reporting of Project costs. Approved budgets will be established at the outset of the Project and will
be kept current through the application of change orders throughout the course of the work. Cost control
is provided through the continuous monitoring of cost commitments as well as period and accumulated
cost performance. Cost commitments, in terms of awarded contracts, are compared with budget estimates,
generating revised cost Estimates at Completion reflecting any variances. As change orders are approved,
the revised commitment adjusts the current budget and the current Estimates at Completion accordingly.
In cases where contractual arrangements allow changes in quantities or unit costs to have the ability to
affect cost outcomes, period and accumulated cost expenditures are trended at frequent intervals,
generating cost performance analysis that, in turn, is used to estimate final Estimates at Completion costs.

Job accounting will be accomplished by the Airports Authority Accounting Department, using a
previously established Chart of Accounts and WBS. Correlation of actual costs between the Airports
Authority’s accounting system and the Project’s cost management system is done at the Organizational
Breakdown Structure level.

The Project cost will be managed using the PRISM Enterprise Cost System. As described above, the
system provides the ability to integrate the schedule information with cost information for the purpose of
developing and maintaining cash flows. As part of Project management, financial accounting, resource
management, and reporting, the system will provide the ability to manage all aspects of Project cost
information, including budgets, actual costs, and Estimates at Completion. Costs are assigned to Control
Accounts, which are further broken down into Cost Elements. The Control Accounts are coded with the
SCC codes that are identical to the ones that are embedded in the Project schedule’s WBS coding. Cost
Elements include such breakdowns as Direct Labor, Subcontracts, Permanent Materials, Other Indirects,
and Construction Equipment. There are currently approximately 190 Control Accounts further broken
into approximately 290 Cost Elements. It should be noted that this coding includes the separation of
federal versus non-federal costs for cost reporting segregation. The Control Accounts and Cost Elements
have been established to mirror DTP’s and WMATA’s Schedule of Values for efficient and seamless
input and update of monthly cost data.
5.0 Management and Project Controls

Budgets are established, approved, and entered into the PRISM Enterprise Cost System. As change order are approved, as described in Project Management Procedure PM-5.01, the baseline or original budgets will be supplemented, creating current budgets (see Section 5.7 below). Scope control is strictly maintained throughout the Project, as it is not the current plan to process cost trends and estimate at completion deviations from budget as the budget changes. Changes are funded from (or contribute to) contingency in accordance with Project Management Procedure PM-5.07.

Actual costs are collected monthly from the Airports Authority’s accounting system. In some cases, accruals will be used to capture period costs that have yet to be processed through the system to make every effort to correlate both the schedule’s progress information with the Project’s cost. Reconciliation with the Airports Authority’s accounting system is done periodically at the Organizational Breakdown Structure level.

Estimates at Completion are prepared regularly based on commitments, expenditure trends, or other cost engineering practices, such as quantity and unit rate sampling analysis. Similar to change orders, cost overruns and underruns of budget require project management approval to draw on project contingency. This provides project management with visibility to contingency utilization due to estimate at completion variances.

Monthly budgeted, actual, and at-completion costs are regularly analyzed for compliance with planned expenditures by a staff of four cost engineers. Each major portion of the Project is reviewed and reported on monthly, identifying all variances, cost trends, and areas of concern for management attention and corrective action. The combination of the PRISM system and the WBS coding gives significant ability to sort and view the Project’s costs in many different ways.

The contract with DTP contains a significant amount of cost described as Allowance Items. It is the intent of the contract to convert these items to the firm fixed price portion of the contract as the subcontracts are awarded at the awarded amounts. As the Allowance Items are somewhat unique in terms of cost controls, the allowance cost controls fall into three types, depending on their unique characteristics.

The first type of Allowance Items cost control is generally described as that in which quantities and unit rates can be identified for a comprehensive program of cost engineering that will identify quantity and rate variances from the baseline budget early enough to mitigate any adverse impacts to the greatest extent possible. In conjunction with the value engineering program, these activities include:

- monitoring and sampling design quantities at pre-designated intervals;
- comparing sampling results to the corresponding baseline budget (or prior sample);
- identifying and reporting trends as early as possible;
- extrapolating those trends to reflect forecasted cost impact at the Project level;
- creating mitigation plans, including value engineering, to minimize or negate adverse trends; and
- correlating the required funding of changes in Estimates at Completion with the risk management program.

This approach to the control of Allowance Items cost is appropriate for trackwork, Wiehle parking garage, station finishes and mechanical/electrical/plumbing, the WFCY sound and box platforms, pedestrian bridges, site development, fire suppression, the WFCY Service and Inspection building, and contact rail. Based on current approved estimates, this represents almost 69% of the total allowances budget.
5.0 Management and Project Controls

The second type of Allowance Items cost control is generally described as those allowances that are performance-based specifications where quantities and unit rates would not be known until after contracts are awarded. In most of these cases, the basis of baseline estimates was revised by the cost reduction efforts, changing both performance specifications and the general approach to achieving them. In this case, similar to the above, the continuous engineering and commercial oversight during the subcontract procurement process will ensure the closest adherence to the Project budget as is possible prior to award of the contract. Competition, bid evaluation, and bid conditioning will ensure that the lowest possible acceptable price is achieved and that the incidence of later growth is minimized. This approach to the control of allowances is applicable to Communications and Security, Elevators and Escalators, Traction Power Supply, and ATC Supply. Based on current approved estimates, this represents almost 30% of the total allowances budget.

The third and final type of Allowance Items cost control is essentially design-to-budget, where respective recipients will be assigned budgets and instructed that funding must remain within the assigned values. This approach is less stringent than the two types described above and is subject to compliance issues. This approach to the control of allowances is applicable to Installation of Public Art, Spare Parts, and Corrosion and Stray Currents. Based on the current approved estimate, this represents a little over 1% of the total allowances budget.

5.7 Tracking Federally Eligible Project Costs

The Project’s scope of work includes elements that will be funded entirely with non-federal funds, in addition to costs that are eligible for reimbursement with federal Section 5309 New Starts funding. The Chart of Accounts and the Project WBS, applicable to the CPM schedule, have been developed such that they support the segregation of federally eligible Project costs into the appropriate SCC codes and clearly segregates federally eligible Project costs from non-federally eligible Project costs. Unique codes distinguishing non-federal from federal Project costs have been assigned and communicated down to the expenditure level (time cards, time and materials tickets, invoices, etc.) for accurate collection and differentiation in the cost and payment system.

5.8 Change Orders and Claims

The Airports Authority’s CAO oversees technical and cost management of change orders and claims. The change order process is described in Article 19 of the Design-Build contract. The goal of the Project organization is to avoid disputes and claims by establishing a relationship of trust and confidence. As part of this relationship, the parties will disclose and discuss any issues that may affect the cost or time of performance for the work at bimonthly meetings with senior representatives of the parties. Once an issue has been identified as a potential claim, the first attempt at resolution will be at the field level, through best efforts and good faith negotiations. If an issue cannot be resolved at the field level, it will be elevated within each organization to senior representatives of each party. Dispute avoidance and resolution will conform to the requirements of Article 28 of the Design-Build contract. The Airports Authority’s procedure guidelines for processing Design-Build changes as defined in Project Management Procedure PM-5.01 are referenced in the Project’s Quality Program Plan.

5.9 Contingency Management and Control

The management and subsequent control of contingency costs allocated for the Project is given both high priority and constant visibility by the Airports Authority Project Management Procedure PM-5.07. Controls are exercised by establishing allocations by Project stage and then controlling to those allocations by a formal and documented procedure of requests and authorizations. Visibility is provided by reports, both tabular and graphic, that demonstrate descriptive use (tabular) and expenditure trends (graphic).
Contingency utilization is closely aligned with the Project’s risk management program in an effort to identify potential contingency utilization issues in time for management to take effective action to mitigate or negate their impact. In so doing, the risk program also becomes a tool for contingency management and periodic forecasting of contingency utilization, keeping Project management continuously apprised of contingency status.

A key part of the contingency management procedure is the control of the release of contingency funds by written approval of senior project management. Any and all changes in contingency require authorization from varying levels of the Project’s senior management, depending on level of expenditure. Based on their individual risk profiles, the various stages of the Project will be assigned a baseline contingency allocation. For the purpose of this process, stages are described as Design, Procurement, Construction, and Commissioning. The allocation process will limit approved contingency utilization to assigned levels, thereby reserving assigned amounts to subsequent stages. Given the recommendation of the Project Manager, the Project Director is authorized to approve a change in stage contingency of up to 80% of the stage allocation. After that, the Airports Authority Vice President of Engineering assumes signatory responsibility for authorization of the remaining 20% of the stage, with the recommendation of both the Project Manager and the Project Director. In addition, as a general guideline, the approval for the utilization of contingency will be granted for general use as requested and required up to the 80% point of the stage. After 80%, only those utilization requests that directly affect the safety and operability of the system will be granted.

Contingency is given constant visibility through monthly reporting in the Project’s progress report. Narrative reports will describe period activities and identify any areas of concern. Tabular reports will list each approved request by stage, its value, and the planned versus actual stage performance. Graphic reports will demonstrate expenditures over time and potentially any trends in utilization that might develop.

5.10 Indexing Commodity Cost Controls

Rather than embed large allowances to address the risk of escalation on certain commodities, the contract with DTP calls for the adjustment of cost to those commodities based on established government indexes. Quarterly, based on the quantities of these commodities, either contracted firm fixed price or delivered to site, these indexes will be used to establish actual escalation. The change from the baseline value contained in the contract will be determined and applied to the quarterly quantity to form the basis of a change order to the Design-Build contract. To protect the Project from the inevitability of escalation increases to these commodities, a unique contingency allowance was established during the formation of the Final Design budget. This value was reviewed during the preparation of the FFGA budget and found to be adequate. Controlling indexed commodity costs will then rely both on the trending of the commodity quantities and on trending and forecasting the index itself.

When possible, the quantities of the designated commodities are periodically monitored and trended as part of the Project controls quantity trending procedures to maintain an estimate at completion for that commodity. Drawings are surveyed at various stages of completion and compared against the control estimate quantities to identify any variances and trends. Once identified, these are then extrapolated into estimates at completion based on the sample. Actual quantities delivered during construction are compared with the estimate at completion quantities to ensure accuracy.

Changes in the commodities index itself will also be tracked, trended, and forecasted. The results will then be combined with the estimated quantity information to produce an overall cost value. This value
will then be compared to the pre-established indexed commodity contingency. Forecasted overruns of this contingency will be funded from the respective phase contingency as called for in Project Management Procedure PM-5.07, Contingency Control Procedure. The potential for indexed commodities cost overrun of the allowed contingency is also monitored and evaluated as part of the Risk Management Program.

5.11 FTA Project Management Oversight
The Airports Authority is working closely with the FTA’s Region III Office and the Washington Metropolitan Office overseeing WMATA’s Capital Planning and Operating Programs to ensure that FTA requirements for obtaining an FFGA are met. The Airports Authority will continue to coordinate with the FTA through regularly scheduled monthly meetings and as otherwise needed with the assigned PMOC. The Airports Authority will make monthly submissions of Project budget and schedule reports at these meetings (pursuant to FTA Project and Construction Management Guidelines). These meetings will include FTA/PMOC and Project representatives. Once a date is established for each meeting, the Project Director is responsible for the meeting agenda and materials.

5.12 Document Control
DTP established an electronic document control system named “InfoWorks” for use by DTP on the Project. During PE, InfoWorks was used by both DRPT and WMATA and served as the Project’s overall document control system.

The Airports Authority has established a document control system separate from DTP to control Project-related documentation during Final Design and Construction. The document management system is Open Text Enterprise Content Management Solution, which provides features that include:

- an archiving and imaging ability to archive electronic documents in different formats, including video clips and pictures;
- a business process management ability to establish workflow routings and follow-ups with specific responsible parties;
- a document management and collaboration facility to establish collaboration among different workgroups on documents;
- a digital asset management ability to store, search, and identify specific information;
- an email management ability to interface with Microsoft Outlook in terms of relevant information on emails and proper archiving;
- a high-volume document processing ability to process archiving of high-volume documentation, such as high-speed scanning of batch documents; and
- an ability to control access of information by defined hierarchy/access rights based on user/group specific rules.

DTP will continue to use InfoWorks to control DTP-related documentation. InfoWorks is based on a DTP-established electronic communication and coordination management system accessible through DTP’s local area network and the Internet.

The Airports Authority’s electronic document control system is also accessible through a local area network. The system is managed by the PMSS Electronic Document Control Group. The document control system allows Airports Authority team members and outside reviewers (e.g., WMATA, VDOT, and county staff), whether in the Project office or at a remote location, to share Project information, including drawings and other documentation submitted by DTP to the Airports Authority for review. The
Airports Authority electronic document control system is described in detail in Project Management Procedure PM-1.02, Document Control.

Both DTP’s InfoWorks and the separate Airports Authority document control system meet document control requirements addressed in Section 4.0 of the Airports Authority Quality Program Plan. Both systems offer the following benefits:

- Expedited electronic document review
- Centralized capture of Project-critical information
- Real-time retrieval and tracking of documents that may address the full spectrum of Project scope
- Provision of a secure repository, or archive, of historical information and documentation
- Security for Project data in read-only text, CADD files, and databases
- “Approved access” that allows only selected team members to access certain Project information

5.13 Progress Reporting and Report Management

Monthly progress reports that document cost, schedule, and physical progress, expressed in both narrative and analytical form, will be issued. Narratives will include descriptions of monthly accomplishments, cost and schedule performance, milestones achieved, and other pertinent performance segregated to focus on each Project participant in addition to DTP. Analytical information will include numerous representations of cost and schedule, including planned versus actual performance. This information will be presented in both narrative and graphical format, including schedule bar charts and columnar cost reports and spreadsheets.

In addition to Quarterly Progress Review Meetings to be held with the PMOC and FTA’s Region III staff, the Airports Authority will meet with the PMOC on a monthly basis with an agenda that will generally follow the outline below:

I. Project Highlights and Overview
   - Summary of Project Status
   - Risks
     - Review of 10 Most Significant Project Risks
     - New Risks
     - Risk Mitigation/Assessment

II. Project Highlights and Overview
   - Permitting
   - Allowance Item Subcontract Status
   - Real Estate Acquisition Status
     - Activity Since Last Monthly Report
     - Issues

III. Final Design/Construction Status
   - Progress Assessment through (month/year) (overall Final Design and/or Construction progress)
   - Issues

IV. Vehicle Procurement and Contract Status
   - Progress Assessment through (month/year)
   - Issues
V. Project Budget
   • Current Budget Status
   • Change Orders
   • Contingency Management Status Report
   • Management of Remaining Budget

VI. Schedule
   • Overall Project Schedule (actual vs. planned)
   • Contractor and Manufacturer Schedules
     o Design/Build contract (Final Design and Construction)
     o Vehicle procurement
   • Issues

VII. Environmental Mitigation

VIII. DBE Participation

IX. Questions and Comments

Consideration is being given to having the reporting made available through a web reporting and integration portal called the One View Portfolio Management System. In a web-based application, the software can integrate, in a single source, information from the following computerized applications that will be used on the Project:

- **Schedule** – CPM Schedule, Primavera Project Management, Version 5
- **Financial and Cost** – PRISM Enterprise Cost System
- **Document Control** – OpenText Livelink
- **Cost Estimating** – Heavy Construction Software Solutions Estimating System

Some of the important features of this web-based system include:

- the executive “dashboard,” a custom report for top-level managers;
- Project performance metrics reporting, such as earned values status, schedule progress information, funding draw-downs, budget tracking and obligations, and cost trends;
- access to monthly narrative and analytical progress reports;
- cost information that is archived in a database, permitting accurate point-of-time data retrieval; and
- various levels of security that allow for the protection of information and for the system manager to isolate the users of sensitive cost information.

Reports will be prepared by responsible PMSS personnel, including Engineering, Construction, and Project Controls management.
6.0 Labor Relations and Policy

This section of the PMP addresses the labor relations issues.

6.1 Labor Relations and Policy

DTP is responsible for providing all necessary labor required to complete the Design-Build work. DTP will employ a Project Labor Agreement to which the following trade unions are signatory:

- Laborers
- Carpenters
- Bricklayers
- Electrical Workers
- Plasterers and Cement Masons
- Operating Engineers
- Bridge, Structural, Ornamental, and Reinforced Iron Workers
- Teamsters
- Plumbers and Pipefitters

Subcontractors will be used in certain specialty areas. Subcontractors will consist of union and merit shop contractors. Subcontractor proposals shall be evaluated and awarded to the best qualified bidder.

DTP will comply with all affirmative action and EEO requirements. Federal and local regulations applicable to the work shall be managed and adhered to during construction.

A drug and alcohol program for all Project personnel will include pre-hire, for-cause, post-accident, and random testing.

6.2 Wage Rates and Job Classifications

The wage rates and fringe benefits paid over the duration of the Project will be those provided in the appropriate local collective bargaining agreements on the date of NTP, including all increases due during the construction of the Project. Classifications, including apprentice designations, shall follow local union guidelines.

All labor must comply with the rules and regulations that apply to the Project, including Davis-Bacon wage requirements.

6.3 Wage and Hour Requirements

DTP will use time clocks, electronic badging systems, or other systems for effective management of the timekeeping process for personnel entering the Project site. All labor will be paid in accordance with labor agreements in place at the time the work is performed.

Shift work and around-the-clock work is envisioned for some aspects of the work because of the limitations on hours of work—due to traffic conditions—and other local restrictions. Shift differential will be provided in accordance with governing labor agreements and laws.
6.0 Labor Relations and Policy

6.4 Federal, State, and Local Regulations
The Project Labor Agreement shall not violate any applicable federal or state laws. This includes all affirmative action and EEO requirements. Local regulations applicable to the work shall be managed and adhered to during construction.

6.5 No Strike Agreements
The standard provisions of the Project Labor Agreement entered into by DTP include provisions that there shall be no strikes, picketing, work stoppages, slowdowns, or any other disruptive activity for any reason by the union, or by any workers, and there shall be no lockout by DTP. The union cannot sanction, aid, abet, or encourage such disruptive activity. Any worker engaging in such activity shall be subject to disciplinary action, including discharge. The local unions’ responsibilities in this regard are backed up by the international unions.

6.6 Disadvantaged Business Enterprise Program
The U.S. Department of Transportation DBE program is implemented by state highway, transit, and airport agencies that receive federal funds subject to 49 CFR Part 23 and 49 CFR Part 26. The program supports and provides funding for airports, seaports, rail, and public transportation, and is designed to ensure that minority- and women-owned businesses are provided opportunities to compete for contracts in the delivery of transportation initiatives. The DBE program requires state and local transportation agencies that receive U.S. Department of Transportation financial assistance to establish goals for the participation of DBEs. The DBE program was designed to foster the development of DBE firms to be responsible, competitive, and independent contractors. Additional information about the Airports Authority’s DBE plan is described in Section 9.5.

The Project is targeting DBE goals of 15% for PMSS and 10% for DTP. A program has been implemented to monitor performance against those goals and to reach out to the DBE community to identify qualified DBE firms that may, over the course of the Project, be able to contribute to its development.
7.0 Risk Assessment

The Airports Authority has conducted an evaluation of Project risk and initiated the development and implementation of a Risk Management Plan, including Contingency Management Procedures. The FTA conducts its own risk assessment as part of its oversight of the Project and will work with the Airports Authority to develop a mutually agreed upon Project execution strategy that contains a description of the required contingency and risk management process.

7.1 Airports Authority Risk Evaluation

One of the most important tools for management of the Project is the identification and evaluation of risk during the Final Design, Construction, Commissioning, and Testing stages of the Project. The categories of risks include (but are not limited to):

- **Scope** – Potential for changes in Project scope to elements, including stations, fleet size, guideway, systems, and site development
- **Agreements** – Potential for delays due to difficulties in securing the FFGA permits and other approvals, including the delay that would be caused by a negative outcome on the pending court case regarding transfer of the DTR
- **Real Estate Acquisition** – Cost and time exposure related to acquiring the real property needed to construct and operate the rail extension
- **Utility Relocations** – Potential for changes due to unknown utilities and uncooperative utility companies
- **Design Process** – Potential for changes due to required alignment changes, major standards changes, and/or delays in owner approvals
- **Allowances** – Potential for changes due to unknown utilities and uncooperative utility companies
- **Vehicle Procurement** – Potential for changes to vehicle design and late delivery of vehicles
- **Procurement (excluding vehicles)** – Potential for market changes that affect the prices for the subcontracted items that are yet to be bid, including the Allowance Items, and the commodities subject to the Design-Build contract’s commodities escalation clause
- **General Construction** – Potential for changes due to unavailability of specialist labor, changes in restrictions on roadway traffic management, weather delays, delays in provision of owner-responsible elements (e.g., fare collection), extended commissioning/testing time, and a construction accident
- **Tunnel Construction** – Potential for changes due to collapse, settlement, and unknown ground conditions
- **Aerial Guideway Construction** – Potential for changes due to unavailability of specialist labor, changes in restrictions on roadway traffic management, weather delays, delays in provision of owner-responsible elements (e.g., fare collection), extended commissioning/testing time, and a construction accident
- **Station/Facilities Construction** – Potential for changes due to unavailability of specialist labor, changes in restrictions on roadway traffic management, weather delays, delays in provision of owner-responsible elements (e.g., fare collection), extended commissioning/testing time, and a construction accident
- **Third party (utility)** restrictions and constraints on performing to required level of effort to complete cable installations in conjunction with Project schedule
The methodology employed by the Project to evaluate risks has been to:

- identify a comprehensive and non-overlapping set of “risks” that could affect the Project cost and schedule;
- for each risk, assess its likelihood of occurrence and the cost and schedule impacts if it does occur (e.g., impacts expressed in terms of additional costs and/or delays to particular activities in the cost and schedule model(s)); and
- develop a probabilistic cost and schedule model (e.g., using the Monte Carlo technique) to assess the uncertainty in cost and schedule, considering the risks as well as other uncertainties (e.g., in unit prices).

The Project risk assessment has been based on the 100% PE submittals and the latest Basis of Design Report, which incorporates the “Open Items” scope elements added to the Project scope. The risk assessment was updated to consider the overall estimated cost of the Project, considering the negotiated price, terms, and conditions of the Design-Build contract. This effort led to the quantification of the risks to establish the appropriate Project contingencies.

### 7.2 Airports Authority Risk Management Plan

Risk analyses and risk mitigation planning have been conducted to establish the FTA-suggested contingency level for the Project and to develop the Airports Authority’s comprehensive plan for managing risks and contingency utilization throughout Project execution. Previous evaluations have been updated to reflect the current risk profile of the Project and include:

- quantification of the current degree of uncertainty in the estimated cost, accounting for appropriate risk response (mitigation) and development of an appropriate Project budget and contingency;
- quantification of the current uncertainty in the Project schedule, considering appropriate risk mitigation, from which important milestones were established;
- prioritization of the residual risks, for further evaluation and risk mitigation; and
- an updated Risk Management Plan.

Project risk management is a comprehensive approach to address cost and schedule effect due to uncertainty from a variety of sources. The approach is based on several major processes, including identification of, planning for, analysis of, response to, and monitoring and control of risks to minimize the probability and impact of adverse risk events.

The Airports Authority’s Risk Management Plan addresses the inputs, outputs, tools, and techniques used to effectively manage Project risks and to establish and control the utilization of both cost and schedule contingencies in the current budget. Initial contingency estimates are refined as the level of Project definition improves. High-risk elements have been identified from the risk assessment, as have appropriate mitigation strategies. The impacts of the strategies were measured through the probabilistic modeling process, and this process will be updated and refined based on inputs from the FTA and current Project status based on established milestones, as described in the Risk Management Plan. The plan incorporates findings from the FTA’s Project execution strategy workshop and shows a time-phased allocation of both cost and schedule contingency that corresponds to the occurrence of individual risks, the ability for risk mitigation, and the time phases of the Project. The risks will be monitored throughout the Project, focusing on selected key activities, such as real estate acquisition, Allowance Items procurement, utility relocations, tunnel construction, station construction, and other critical path elements. In addition, the risk
analysis will be updated at the completion of each defined major Project milestone, such as FFGA approval, completion of Utility Relocations, completion of Final Design, and completion of NATM tunnel work.

As part of the overall risk management process, the Airports Authority sample DTP’s detailed designs at regular intervals to ensure that there have been no quantity variances from those in the design basis that are beyond changes in documented scope growth that could potentially increase the Project’s cost. Sampling will be accomplished only on that scope that has yet to be included in the firm fixed price portion of the Amended and Restated Design-Build contract, essentially the Allowance Items scope, as this represents the only risk of non-scope change documented variance. An agreement has been reached with DTP’s project controls staff to provide this information as part of its trend program. At both 60% and 100%, design sampling will be accomplished and transmitted to the Airports Authority as a request for change to adjust the Allowance Items budgets in the contract. The results are audited by the Airports Authority and, if found acceptable, are incorporated into the Project’s estimate at completion. Once this has occurred, they form a part of the basis for calculating and reporting risk management performance against the pre-established levels of required contingency and available schedule float. In addition, during the construction of the Project, the Airports Authority will continuously review the likely estimated cost at completion of each contract, including all executed, pending, or potential contract modifications (change orders), compared to the budgeted value; assess if mitigation measures or contingency utilization is needed; and, if necessary, implement required steps in a timely fashion. Allowance forecasting techniques are also addressed in Section 5 of this PMP.

Schedule contingency is based on the Revenue Operations Date of December 1, 2014. The resulting contingency, measured in days of float, will be managed in similar fashion to the cost contingency in that it will include a mixture of both mitigation and contingency utilization. The Airports Authority will monitor and analyze schedule float and both actual and pending schedule events on a monthly basis to establish their impact on the schedule. Event triggers are evaluated against established conditions requiring implementation of schedule mitigation or schedule contingency utilization as described in the Risk Management Plan.

The Airports Authority will provide visibility into the performance of the risk management activities through utilization of the Management Deliverables that is found in the PMOC’s Program Guidance No. 40 EFG Project Mitigation Framework.

7.3 FTA Risk Assessment Process

As part of its process leading to an FFGA for the Project, the FTA, through the PMOC, conducted cost and schedule risk assessments. The PMOC prepared scope, cost, and schedule characterizations related to the risk assessment. Three draft characterization packages were reviewed with FTA representatives in July 2006, and were revised by the PMOC based on discussions during the review meeting. The PMOC’s risk assessment activities resumed with the decision not to proceed with the large bore tunnel. The PMOC provided copies of the draft risk assessment reports on scope, cost, and schedule for review. Comments were reviewed jointly among DRPT, the Airports Authority, and the PMOC in October 2006. A Risk Register Workshop with DRPT, the Airports Authority, the FTA, and the PMOC was held November 28–30, 2006.

In May 2007, the PMOC prepared Spot Reports that assessed and evaluated the updated grantee’s scope, cost estimate, and schedule. These reports and the updated risk register were discussed at the Risk Register Consolidation Workshop, which was held June 12–14, 2007. The PMOC submitted a draft spot
7.0 Risk Assessment

The Project budget submitted with the Request to Enter Final Design incorporated contingency levels consistent with the August 2007 FTA recommendations. The Project budget submitted with the application for an FFGA includes contingency levels consistent with FTA guidelines for a project at the current development stage (post-commencement of Final Design with Utility Relocation work under way in advance of Construction). The contingency levels also reflect the knowledge regarding risks and uncertainty gained since August 2007 based on Project development, design, and construction work to date. For example, the completion of negotiations with DTP regarding the delay to FFGA approval has provided a firm fixed price and related schedule commitment for the impacts of the delay which is a substantial mitigation for this risk.

The current version of the Risk Register, which was updated following the Project execution strategy workshop with the PMOC on August 26–27, 2008, along with detailed information regarding the milestones and the approach to risk management, is included in the current Risk Management Plan.

7.4 Performance Bonds and Parent Guarantees

The Project’s Design-Build contract provides for a combined performance and payment bond in the penal sum of $274 million. Performance bonds will cover work performed under the Design-Build contract.

Although the Project is using performance bonds with a penal sum at less than the full contract price, there is an overall structure of other security mechanisms that protects the interests of the financial partners in ensuring completion of the Project. Both Bechtel and Washington Group have provided Parent Company Guarantees to guarantee the performance of the contract.
8.0 Environmental Analysis and Mitigation

The environmental effects of and appropriate mitigations for the Project have been investigated and documented. In addition to the Draft, Supplemental Draft, and Final Environmental Impact Statements prepared between 2000 and 2004, an EA was prepared in 2006 covering the PE design refinements. The amended ROD was issued on November 17, 2006.

8.1 Environmental Impact Statement

A Draft EIS for the Project was published in June 2002. A Supplemental Draft EIS was completed in October 2003. A Final EIS was published in December 2004. The Final EIS evaluated changes to the Project’s scope and alignment in response to public comments on the Draft and Supplemental Draft EISs, and assessed any potential environmental effects associated with phased construction of the LPA.

Recommended mitigation measures identified in the Final EIS were considered during the development of the PE plans. Formal mitigation commitments that must be incorporated into the Project’s design have been detailed in the Final EIS and documented in the ROD issued by the FTA in March 2005 and separately by the FAA in July 2005.

8.2 Environmental Assessment and Amended Record of Decision

Based on design refinements to the Project following the completion of the 50% PE plans, DRPT, in coordination with the FTA, prepared an EA to analyze the environmental effects of the proposed changes. The EA found no significant changes in the environmental effects of the proposed changes over those presented in the Final EIS. The Draft EA was circulated to regulatory agencies and the public on February 24, 2006. A public hearing was held on March 28, 2006, and the comment period for the EA closed on April 11, 2006. DRPT prepared a public hearing report and the FTA issued its amended ROD on November 17, 2006.

8.3 Supplemental NEPA Documentation

An additional supplemental NEPA document, a Categorical Exclusion, was prepared to address the use of the eastern portion of the North Employee Parking Lot at Dulles Airport as a temporary facility in support of Dulles Metrorail precast plant and storage efforts. Categorical Exclusions apply to actions that are “categorically excluded” from the requirements of the NEPA, and it was prepared under the purview of FAA NEPA regulations using the FAA Categorical Exclusion Form. The FAA granted approval of the Categorical Exclusion in May 2008. The FAA also granted air space approval in June 2008. This approval relates to building heights and construction cranes becoming obstacles to aviation in the area. It also deals with lights and reflective surfaces that could interfere with pilots’ vision.

The need for preparing additional supplemental NEPA documentation is constantly being assessed, along with environmental permits and the appropriate implementation of permit requirements. If necessary, additional NEPA documentation will be developed to address any Project changes and deviations that are significant enough to warrant NEPA consideration. In addition, Project declarations made during the NEPA process are being tracked and implemented, in accordance with the requirements of NEPA.

8.4 Mitigation Measures and Monitoring

Recommended mitigation measures identified in the Final EIS were considered during the development of the PE plans. Formal mitigation commitments that must be incorporated into the Project’s design have been detailed in the Final EIS and documented in the ROD issued by the FTA in March 2005 and separately by the FAA in July 2005.
Mitigation measures and other features of the Project that avoid or reduce adverse impacts, to which the FTA and the Project sponsor committed in the Final EIS and 2006 EA, are addressed in the ROD, Attachment A, which is entitled *Summary of Mitigation Measures*. Attachment A to the ROD is used to track and update all mitigation measures used to reduce environmental impacts. Specific types of mitigation measures that are tracked and updated include land use and socioeconomics, property acquisition and displacements, visual and aesthetic conditions, cultural resources, parklands, safety and security, water resources, noise, vibration, transportation effects (station and facility access), transportation effects (station vicinity), and construction effects. Attachment A to the ROD is updated and submitted to the FTA on a quarterly basis, as required by the ROD.

Mitigation measures are also tracked and assessed in a document entitled *Environmental Compliance Matrix for Design-Build*, prepared and regularly updated by DTP. By constantly assessing mitigation commitments and reviewing compliance requirements and permitting conditions, mitigation requirements are being aggressively enforced. If deviations to Project plans should change, mitigation measures will be adapted to reduce environmental impacts.

### 8.4.1 Transportation Management Plan

Among the required Project mitigations identified in the ROD is development of a congestion management plan. In May 2007, the Project’s congestion management plan was renamed to the TMP. In accordance with Section 11.05(b) of the Dulles Toll Road Permit and Operating Agreement, the Airports Authority is providing assistance on and the proportionate share of the cost for a TMP for the Northern Virginia region to address traffic congestion caused by the construction of transportation projects in the region. The Dulles Metrorail TMP was adopted by the TMP Working Group on October 19, 2007. Subsequent to this approval, VDOT submitted the Dulles Metrorail TMP to the Federal Highway Administration. The TMP has been developed to assist in implementing strategies to reduce reliance on single-occupancy vehicle travel in and around the Project construction area and generally to decrease the amount of vehicular travel to and from the construction zone. The TMP consists of the following elements, without limitation:

- Implementation of strategies and services to reduce the amount of single-occupancy vehicles traveling to the construction area (including without limitation programs to promote ridesharing, teleworking/telecommuting, public outreach and information, incident management by police and fire departments, and VDOT driver assistance)
- Employer-sponsored activities (including without limitation employer outreach, alternative work schedules, commuter benefits programs, and preferential parking for vanpools and car sharing)
- Incident management (including without limitation strategically located driver assistance teams, wreckers, policing of traffic at major intersections, and maintaining response rates of fire and rescue teams)
- Communications teams that will develop communications plans to inform the public, employers, and employees of current construction activities for the Project, and that will inform the public of alternative routes around the construction sites

VDOT will be responsible for implementing the Dulles Metrorail TMP strategies through MOUs with Project partners (the Airports Authority, DRPT, Virginia State Police, Fairfax County, etc.), in coordination with the Working Group. VDOT is also coordinating the Project’s TMP with all other TMPs developed for other transportation construction projects in the vicinity of the Project.
9.0 Procurement/Contract Administration

The methodology to be employed by the Airports Authority in managing the Design-Build contract with DTP and the professional services contract with the PMSS team is addressed in other sections of the PMP. This section describes the plan and procedures the Airports Authority will use in:

- the acquisition and administration of contracts for additional services, labor, material, and equipment for the Project that are not already addressed in the Airports Authority’s Design-Build contract with DTP or the professional services contract with the PMSS team;
- the administration and oversight for the contract Allowance Items; and
- the administration and oversight for the WMATA-procured components of the Project.

9.1 Airports Authority Procurements of Additional Goods and Services

9.1.1 Procurement Policies

The solicitation and award of contracts for additional goods and services for the Airports Authority during the course of the Project will be performed in accordance with the Airports Authority’s Contracting Manual, Project Management Procedure PM-5.03, referenced in the Airports Authority Quality Program Plan, and in compliance with the FTA Best Practices Procurement Manual and Circular 4220.1E, Third Party Contracting Requirements.

From inception, the process of awarding contracts for additional goods and services will strictly comply with the Airports Authority’s contracting principles. These principles mandate the use of full and open competition unless an exception is specifically approved by the appropriate authority. Dependent on contract value, the Airports Authority’s Board of Directors may have signatory authority.

9.1.2 Pre-Solicitation Procedures

The Airports Authority’s Contracting Manual stipulates the completion of the following steps during the pre-solicitation phase of all procurements.

1. **Designation of the COTR.** COTRs are assigned by either Airports Authority Vice Presidents or Department Managers. COTRs are fully responsible for ensuring that the selected contractor or vendor adheres to all of the requirements of the contract.

2. **Development of an Independent Cost Estimate.** The COTR is responsible for preparing an independent cost estimate for the work. Independent cost estimates will be based on market research using such tools as the Thomas Register, the Internet, and available history from previous contracts. The independent cost estimate will also consider specific requirements for each contract, including current market conditions, e.g., material shortages, unique delivery requirements, and potential for volume discounts.

3. **Preparation of the drawings, specifications, and statement of work for the contract.** The COTR is responsible for preparing the statement of work, with associated technical drawings and/or specifications. These documents are prepared to ensure maximum competition while accurately and precisely defining the function to be performed or the essential physical/performance characteristics of the work.

4. **Preparation of the procurement justification,** if applicable. The COTR is responsible for preparing the procurement justification if the requirements of the contract do not or cannot provide for a full and open competition for the work. Examples include contracts for utility services and proprietary equipment or software.
5. **Development of the bid evaluation criteria.** The COTR is responsible for preparing the evaluation criteria to be applied in considering each bid. Although unique criteria will be prepared for each solicitation, price will typically comprise 40% of the evaluation. The remaining 60% of the evaluation will be based on the bidder’s demonstrated understanding of the requirements of the contract, the experience and qualifications of the bidder, the experience and qualification of the bidder’s personnel, past performance on completing similar work, and the bidder’s capacity to accomplish the work.

6. **Establishment of the bid Evaluation Committee.** The COTR is responsible for identifying a committee to evaluate bids and will serve as the committee chair. The evaluation committee will be composed of a minimum of three voting members with no internal or external conflicts of interest.

7. **Preparation of the procurement request.** The COTR is responsible for preparing the procurement request, including the scope of work, technical drawings and specifications, definitions of applicable contract terms and conditions (e.g., level of DBE/local DBE/minority business enterprise/woman-owned business enterprise participation and liquidated damages, if applicable), pricing schedules, and all other provisions required by federal and state regulations.

### 9.1.3 Solicitation Phase

During the solicitation phase of the procurement the following actions will be completed.

1. **Advertising of solicitation.** All procurements are posted on the Airports Authority’s Contracting Opportunities website (http://www.mwaa.com/contracting) and publicized in *Project Elet*. Solicitations in excess of $200,000 are advertised in the Sunday edition of *The Washington Post*.

2. **Conducting a pre-proposal conference.** The COTR, with assistance from the Airports Authority’s Procurement and Contracts Department, will schedule and host a pre-proposal conference. The pre-proposal conference provides the forum for all potential bidders to obtain answers to their contractual, technical, and/or DBE/local DBE/minority business enterprise/woman-owned business enterprise questions. As applicable, the pre-proposal conference will also include a tour of the proposed work site.

3. **Issuance of amendments and other supplemental information.** Minutes of the pre-proposal conference will be documented and issued to all potential bidders. These minutes will contain all questions asked during the pre-proposal conference and the Airports Authority’s response(s). Should either the exchange of information at the pre-proposal conference or other events necessitate an amendment to the solicitation, the COTR will be responsible for its preparation and issuance.

### 9.1.4 Evaluation and Award

The Airports Authority CO will review all bids/proposal for commercial compliance and initiate the following actions.

1. **Evaluation Committee review.** The COTR, in the role of Evaluation Committee chair, will lead the technical evaluation of each proposal, using the evaluation criteria prepared during the presolicitation phase. Members of the committee will analyze and score each proposal based on the agreed-upon criteria. At the conclusion of the Evaluation Committee’s review, the COTR will prepare a spreadsheet of the technical scores for each proposer.

2. **Determination of the successful offer.** The weighted technical score prepared by the Evaluation Committee will be combined with the weighted price score to determine the successful offer. The
COTR is responsible for the preparation of a memorandum summarizing the bid evaluation process and results, including a final recommendation for award.

3. **Preparation of award paper for the Airports Authority Board of Directors.** Following the requirements of the Airports Authority’s Contracting Manual, the COTR will prepare the award paper for Airports Authority Board of Directors approval. Proposed contract awards that require Board of Directors approval include those having a direct and significant impact on the traveling public, sole-source contracts over $200,000, and competitively bid contracts over $3 million.

4. **Completion of pre-award.** Upon confirmation of successful bid, the COTR will conduct a pre-award meeting with the successful contractor, ensuring that the contractor submits the documents and certificates required by the contract, including the W-9 form, the Electronic Funds Transfer form, and any bonds and insurance certificates. The pre-award phase of the solicitation culminates in the issuance of the NTP to the contractor.

### 9.1.5 Contract Administration

Contract administration is the day-to-day management of contracts and includes contractor oversight and direction, processing of invoices and contract changes, grants administration, and contract compliance. The contract administration duties are the responsibility of the Airports Authority’s CO and the COTR, with support from the Project’s CAO. Project Management Procedure PM-5.03, referenced in the Project’s Quality Program Plan, describes the Airports Authority’s established procedures for contracting and contract administration.

The COTR is responsible for the administration of the contract during the performance period. The duties and responsibilities of the COTR during the performance of the contract include the following.

1. **Progress payments.** The COTR will review, verify, and resolve all issues concerning contractor invoices. Once satisfied with the contractor invoice, the COTR will ensure the invoice is correctly coded for accounting and formally approve the invoice for payment.

2. **Contract modifications.** The COTR will prepare and issue any required modifications to the contract. Modifications may be necessary to include administration changes to the contract, to define changes to the scope of work that were not foreseeable when the scope was originally developed, and/or to revise other provisions of the contract during the performance period.

3. **DBE/local DBE compliance.** The PMSS Diversity Officer will support the Airports Authority’s Equal Opportunity Program by monitoring the contractor’s performance in achieving the goals defined under the contract.

### 9.1.6 Contract Closeout

Upon completion of the contractor’s physical work, the COTR will complete the following tasks to close out the contract.

1. Resolve any outstanding issues and issue final modifications to the contract.

2. Verify that the contractor has prepared and delivered as-built drawings for the work, completed all training required by the contract, prepared and delivered all required operations and maintenance manuals, delivered the required quantities of spare parts, and otherwise successfully fulfilled all requirements under the contract.

3. Review, verify, and approve the contractor’s final invoice.
9.2 Allowance Items

The Design-Build contract includes Allowance Items for certain subcontracts that have been determined to be subject to uncertain future pricing. The Airports Authority determined during the original 2007 contract negotiations with DTP that the proposed pricing for these subcontract scopes were high due to the level of design at the completion of PE, the extended schedule for implementation, and potential changes in market conditions. In addition to the technical specifications and drawings for the Allowance Items that are reviewed for acceptance by the Airports Authority and WMATA following the process identified for all technical submittals, DTP will provide separate submittals of the bid documents for the Airports Authority’s formal review and acceptance. Specifically, DTP will provide the Airports Authority with the following documents for each of the Allowance Items:

- Bidder pre-qualification criteria
- The potential list of bidders
- The Request for Proposal package, which includes the scope of work, general and special conditions of the contractor, pricing schedules, and other associated contract documents
- The proposal evaluation criteria
- The Airports Authority’s review of the Allowance Items procurement packages focused on ensuring that the firm fixed priced scope is not being transferred to an Allowance Item and that the commercial terms of the contract are fair and reasonable for the identified scope

The Airports Authority will have representatives on the technical and commercial evaluation teams for each Allowance Item. As with design reviews and all aspects of testing, WMATA, as technical advisor, will participate in the evaluation. WMATA will have the opportunity to review and comment on the proposals and will continue to review designs and other submittals after the allowance subcontract is awarded. DTP will submit the bids for each item, along with the evaluated price and its recommendation for award, to the Airports Authority for approval.

Once the subcontract is awarded for a specific Allowance Item work scope, that work, including all technical, cost, and schedule risk, will become DTP’s as part of the firm fixed price contract.

9.3 WMATA Procurement Plan

WMATA will be responsible for the procurement of rail vehicles, maintenance vehicles, station maintenance equipment, and AFC equipment for the Project as described below. WMATA is also contracting to procure and install a new fiber optic backbone between the Jackson Graham Building and the West Falls Church station.

9.3.1 Rolling Stock Procurement

WMATA’s Metrorail Revenue Vehicle Fleet Management Plan includes information necessary to estimate the fleet requirements for both Phase 1 (to Wiehle Avenue) and Phase 2 of the LPA. The new vehicles will be compatible with existing WMATA rolling stock and will conform to WMATA’s design criteria and specifications. WMATA’s technical and procurement specifications have been reviewed and coordinated with the Airports Authority to ensure compatibility with the Project’s other systems and facilities, as well as with the Project schedule and budget.

At the request of the Airports Authority, WMATA will procure the 64 vehicles needed to meet the requirements of the Project using its existing procedures for new vehicle purchase.
Currently, WMATA has completed the development of specifications and contracting documents, and will carry out the entire procurement process. WMATA will also be responsible for vehicle contract administration, design review, and QA, as well as management of vehicle production and acceptance. WMATA will be responsible for vehicle safety and security certification so that the new vehicles meet WMATA’s Safety and Security Certification Program Plan and any other applicable federal or state requirements.

The Airports Authority will monitor the procurement activities as necessary to verify compliance with Project technical, schedule, and budget requirements. WMATA will keep the Project Director informed of all activities related to the vehicle procurement process, and will submit written monthly progress reports summarizing events and progress toward major milestones.

Costs related to the railcar procurement will be funded by the Project.

### 9.3.2 Automatic Fare Collection Equipment Procurement

WMATA will procure the AFC equipment for the Project. WMATA has determined the number of each type of AFC device needed from ridership forecasts and, with the Airports Authority’s concurrence, will procure the appropriate number of entry-exit gates, ticket vending machines, add-fare machines, and transfer vending machines for each station. WMATA is responsible for providing specification and bid documents and for carrying out the bid process.

Oversight and inspection of AFC production and installation is the responsibility of WMATA. During Final Design, WMATA provides the interface information to the Airports Authority necessary for DTP to coordinate its design and construction of the facilities required to support the AFC system.

WMATA will install the AFC equipment in stations after such stations have reached a state of completion ready to accept AFC equipment. Conduit and wiring will have been installed by DTP in readiness for AFC installation.

The Airports Authority will monitor the procurement activities as necessary to verify compliance with Project technical, schedule, and budget requirements. WMATA will keep the Project Director informed of all activities related to the AFC procurement process, and will submit written monthly progress reports summarizing events and progress toward major milestones.

The Project will provide funding to WMATA for costs associated with AFC provided to the Project.

### 9.3.3 Maintenance and Security Vehicle and Equipment Procurement

WMATA will procure vehicles and equipment necessary for maintenance and security of the Project after passenger service begins. WMATA has provided its revised requirements for non-revenue rail vehicles, on-highway maintenance and security vehicles, and facilities maintenance equipment, and, with the Airports Authority’s concurrence, will procure the appropriate number of each type of vehicle and equipment. WMATA is responsible for providing specification and bid documents and for carrying out the procurement process.

WMATA is responsible for oversight, inspection, and acceptance of the vehicles and equipment. During Final Design, WMATA provides the interface information to the Airports Authority necessary for DTP to coordinate its design activities.
9.0 Procurement/Contract Administration

The Airports Authority will monitor the procurement activities as necessary to verify compliance with Project technical, schedule, and budget requirements. WMATA will keep the Project Director informed of all activities related to the maintenance and security vehicle and equipment procurement process, and will submit written monthly progress reports summarizing events and progress toward major milestones.

The Project will provide funding to WMATA for costs associated with maintenance and security vehicles and equipment provided to the Project.

9.3.4 Operations Control Center and Communications

WMATA will provide modifications to its existing Operations Control Center and communications systems necessary to incorporate the Project into the ARS. This includes the design, material procurement, installation, and testing of hardware and software in the Operations Control Center and fiber optic communications backbone between the Operations Control Center and West Falls Church.

WMATA is responsible for oversight, implementation, and integration testing of the system modifications. During Final Design, WMATA provides the interface information to the Airports Authority necessary for DTP to coordinate its design and construction of the facilities required to interface with the Operations Control Center and communications systems.

The Project will provide funding to WMATA for costs associated with the implementation of these control and communications systems to the extent that they are not provided by others. For example, WMATA will be compensated for the use of new fiber optic cable provided under its agreement with VDOT.

9.4 Quality Assurance Requirements

QA requirements for the Project are addressed in Section 5.2 of this PMP and are detailed in the Airports Authority Quality Program Plan. Section 5.0, Purchasing, of the Airports Authority Quality Program Plan addresses specific requirements and controls that must be applied to procurement activities on the Project. These requirements and controls are applicable to the Airports Authority, DTP, consultants, suppliers, and subcontractors who perform purchasing activities as part of their work on the Project.

9.5 Identification of Disadvantaged Business Enterprise Opportunities

On September 14, 2007, the President and Chief Executive Officer of the Airports Authority signed the Airports Authority’s DBE policy statement. The statement declared that, “The Airports Authority has established a Disadvantaged Business Enterprise (DBE) program in accordance with U.S. Department of Transportation, 49 CFR Part 26. The Airports Authority has received federal financial assistance from the Department of Transportation, and as a condition of receiving this assistance, the Airports Authority has signed an assurance that it will comply with 49 CFR Part 26.”

The DBE program goals for the Project are 15% for the PMSS and 10% for DTP. The PMSS consultant currently has under contract 10 firms that are certified as DBEs and, as staffing positions are identified, respective firms are sourced for qualified individuals. Similarly, DTP has developed and continually updates a list that identifies qualified individuals and companies certified as DBEs. These companies are contacted as opportunities where they may meaningfully participate in the Project are identified. DTP maintains an open door invitation to DBE registrants to contact and provide qualifications for potential performance on the Project. In addition, the Airports Authority, through the PMSS and DTP, is reaching out to the community to identify and develop qualified individuals and companies to join the ranks of Airports Authority-certified DBE contractors, consultants, and vendors.
10.0 Design Program

The primary objective of the design program is to advance the existing PE designs through Final Design, resulting in issued-for-construction documents that are complete, accurate, and in full compliance with the appropriate criteria, codes, and standards.

10.1 Management of Design
On May 12, 2008, the FTA approved the Project to enter into Final Design in accordance with the federal New Starts program. The Airports Authority has authorized DTP to continue all planned design activities via a series of task orders. DTP is responsible for the preparation of Final Design documents that are fully compliant with the Design-Build contract. All Final Design documents will be prepared, under Airports Authority oversight, by the “engineer or architect in responsible charge” in the DTP organization. The Deputy Director of Design will lead the Airports Authority’s oversight role, supported throughout by technical staff for each of the appropriate disciplines.

10.2 Design Criteria, Standards, and Specifications
The Project uses design criteria and standards from the Airports Authority, WMATA, VDOT, and affected utility companies as top-level design requirements for the Project. It is important that the Project comply with these design criteria and standards to ensure that the Project, an extension of the existing Metrorail System, meets overall system requirements related to system reliability, maintainability, accessibility, safety, and security. Changes to the design criteria and standards that are identified during the course of the Project must be compatible with existing WMATA systems, must be approved by the Airports Authority and WMATA, and must be processed through the formal design change process before the changes are implemented by DTP.

DTP will ensure the final designs, including drawings, specifications, and other design documents, are in accordance with the design criteria and standards adopted for the Project. If either DTP or the Airports Authority determines that there is a compelling reason to deviate from these requirements, the proposed deviation will be documented and submitted to the appropriate party, e.g., WMATA or VDOT, for evaluation. The processing of the deviations will follow the procedures for review of changes to design standards (Project Management Procedure PM-2.02, referenced in the Airports Authority’s Quality Program Plan). Prior to submittal, each deviation must be evaluated for systems safety and security-related hazards and vulnerabilities. The deviation submittal shall include a description of the deviation, its justifications, its effects, and any results if the deviation is not granted. If the deviation is conditionally accepted for consideration by the Airports Authority, it is submitted to WMATA or VDOT, as appropriate, for final approval.

During Final Design, design review documents shall be submitted to the Airports Authority in accordance with the Design-Build contract. The design review documents will include intermediate and Final Design drawings and technical specifications used to design, procure, install, and construct the Project. These design submittals will also be provided concurrently to VDOT, WMATA, Fairfax County, Loudoun County, and other applicable public agencies and jurisdictions as appropriate for review and comment. These reviews will ensure that the DTP design documents comply with the design criteria and standards and other public agency requirements.
10.3 Configuration Management

DTP has established a configuration control process that requires the evaluation, coordination, and approval of changes in the configuration of an item after establishment of a technical baseline. This baseline is required to be in compliance with the appropriate design criteria and standards and any approved deviations.

The baseline consists of approved technical documentation for an item as set forth in drawings and associated lists, specifications, and referenced documents. Drawings are uniquely numbered and specifications follow a standard format. Specification paragraphs are numbered and identified. Complete drawing lists are established. A record is made of the total number of drawings, the titles of drawings, the revision status, and the dates the drawings are approved.

DTP has established procedures to document and control changes to approved technical documents, including changes that occur during the Construction, Installation, and Testing stages of the work. Field changes, including field change requests and notices, red line drawings, and nonconformances dispositioned as use-as-is or repair, are documented and incorporated into final as-built drawings and specifications.

The contract provisions and agreements the Airports Authority have with DTP and the Project partners emphasize a burden of proof that will be enforced regarding severely limiting the types of events or conditions eligible for a change. This applies to the Design-Build contract as well as to the enforcement of betterments with Project partners and third parties, such as utilities. Changes to approved drawings or specifications are required to be made in accordance with established procedures. The Airports Authority will monitor DTP’s design changes for compliance with design criteria and standards. Changes that deviate from WMATA design criteria and standards and other requirements specified by the Design-Build contract require the approval of WMATA and the Airports Authority. These deviations will be processed for approval as specified by Section 10.2 above and per Project procedures and instructions.

Permanent files of contract documents are maintained. These documents include, among other things, historical information relating to Project changes. As the Project is implemented, the configuration control process evolves to include the documentation of the completed changes in terms of Project Record Documents.
11.0 Real Estate Acquisition

This section addresses the acquisition of property rights necessary for the construction, operation, and maintenance of the Project. The RAMP was submitted to the FTA on December 20, 2007, and was revised and resubmitted on August 15, 2008. The following subsections summarize the RAMP.

11.1 Real Estate Acquisition Management

The Airports Authority is managing the acquisition of real estate necessary to construct and operate the Project. DTP is responsible for specific acquisition activities necessary for conveyances of property interests and the relocation of businesses as appropriate. The Airports Authority, on behalf of the Project, will maintain executive oversight of DTP for all decisions that are made regarding real estate for the Project. The Airports Authority’s procedure on monitoring DTP property acquisition activities, Project Management Procedure PM-3.01, is referenced in the Project’s Quality Program Plan.

11.2 Real Estate Acquisition Management Plan

A RAMP was prepared in parallel with the completion of PE and has been updated at key project milestones. The organizational structure, coordination requirements, procedures to be employed, and specific acquisition strategies are described in the Plan. An inventory of property requirements resulting from the PE drawings has been developed and further refined as Utility Relocations plans progress. The RAMP was specifically structured to support a Design-Build construction effort, as indicated below. The RAMP:

- describes appointment of a Property Acquisition Agent along with duties that include having an agent-subcontractor skilled in appraisal and acquisition of properties;
- describes the Project’s property acquisition strategy, including relocation activities;
- identifies the coordination tasks and documentation requirements to support property acquisition;
- establishes a schedule for property acquisition activities;
- identifies organizational roles and responsibilities related to property acquisition;
- describes the property acquisition process;
- describes the relocation process;
- includes discussion of assessment of damages as part of the cost estimate;
- includes a table of conveyances and displacements identifying residential, commercial, and government-owned parcels;
- includes a flowchart of activities setting forth sequencing of procedures, with the action of each participant shown;
- identifies property interests to be acquired;
- lists conveyances by Fairfax County and by proffer of privately owned parcels;
- describes utility easements (RAMP Section 3.4);
- describes negotiation and closing with property owners;
- describes the eminent domain condemnation process for use if negotiations fail;
- describes preparation of acquisition packages; and
- describes and identifies temporary easements for construction purposes.
11.3 Property Acquisition and Relocation Assistance

Property interests to be acquired are identified in the RAMP based on PE completed in April 2006 as well as ongoing Supplemental Preliminary Engineering for Route 7. The Project is advancing engineering in preparation for a Design-Build approach, and updates to property requirements have been incorporated in the revisions of the RAMP.

As a federally assisted Project, property acquisition and displacement activities must comply with regulations set forth in 49 CFR Part 24, which implements the Uniform Relocation Assistance and Real Property Acquisition Policies Act, as amended. On November 17, 2006, the FTA approved an amended ROD finalizing the Project alignment, including an aerial portion through Tysons Corner. This action enabled property acquisition activities to begin in May 2007.

The Project is being developed with the cooperation of multiple agencies at the federal, regional, state, and local levels, including the FTA, WMATA, VDOT, and Fairfax County.

At the state level, support for property acquisition activity is being provided by VDOT. The Airports Authority is coordinating with the Northern Virginia District of VDOT for use of VDOT acquisition procedures and its electronic database system. VDOT has approved EAs and processed condemnation certificates prepared under the direction of the Airports Authority and DTP. VDOT will also provide property for use by the Project within existing state highway corridors. The Airports Authority will provide land use permits and easements of property within the Dulles Connector Road and DIAAH for use by the Project. Coordination is required for the Project to share this corridor with other current and planned transportation uses. The Airports Authority may acquire certain land interests in its name that are required for both the Project and other planned improvements in the corridor.

Through proffer agreements, Fairfax County has acquired ownership of several key properties adjacent to proposed station areas, with several additional properties still to be proffered for Metrorail use. Fairfax County is also accepting land dedications from developers in return for future density credits on property remainders. Several properties are listed in this plan as potential dedications based on requests by land owners. Dedicated properties and proffers will be conveyed to Fairfax County, and the county will provide easements to the Airports Authority allowing entry and construction of Project facilities.

WMATA will provide specific land areas within the WFCY for facilities supporting the Project. In addition, WMATA will review all property interests to be acquired by the Project for rail purposes to confirm that WMATA’s operational and maintenance requirements can be met. Property interests acquired from private owners that are used for rail operations and maintenance will be transferred to WMATA at the completion of the Project. Property interests held by the Airports Authority and VDOT will allow future WMATA use through permit or other agreement.

Based on current requirements, the Project will acquire interests on approximately 85 separate parcels. All property interests acquired by the Project in the name of the Commonwealth will be acquired by fee simple deeds or easements using VDOT-approved forms. Private utility company easements will be acquired by the Project in the name of each utility company using VDOT-approved forms.

Several properties will be acquired for storm water ponds and wayside facilities. If the necessary property interests are either entirely on Airports Authority-controlled property or only on a portion of Airports Authority-controlled property, these acquisitions may be performed using Airports Authority procedures and authorities.
11.0 Real Estate Acquisition

The inventory of property interests to be acquired for the Project is summarized in a Property Acquisition List, which was initially developed based on property interests identified in the Final EIS and which has been revised as PE and Supplemental Preliminary Engineering progressed in order to accommodate refinements in design. It was expanded to include property interests needed from the Airports Authority, VDOT, and WMATA. The Property Acquisition List identifies the type of interest to be acquired, the area of this interest, and details regarding ownership and use of the property. It continues to be refined and updated as the Project’s design advances and will be submitted on a monthly basis to the FTA.

11.4 Property Management Plan

Maintenance and protection of property interests acquired in the name of the Commonwealth will be provided by the Property Acquisition Agent until control of the property is transferred to DTP. The Project does not anticipate holding property interests for any significant time before construction is authorized. Any property acquired that is surplus to Project needs will be disposed of in accordance with the procedures required by the Uniform Act and/or VDOT.

The Property Acquisition Agent will be required to maintain an inventory of all real property and improvements acquired for the Project. The inventory will be updated when physical possession of the property occurs.

The responsibility of the Property Acquisition Agent includes protecting the property from vandalism, encroachment, or other misuse, as well as taking measures to ensure public safety. Maintenance and protection of the property will be a Project expense.

Upon completion of the Project, property management will be provided by VDOT or WMATA, depending on use of the property. Properties used for roadway purposes will remain under VDOT responsibility. Properties used for Metrorail facilities will be conveyed to WMATA.

11.5 Scheduling and Cost Estimates

The Property Acquisition Schedule is part of the master schedule. A weekly report is provided by DTP to update the Property Acquisition Schedule.

A cost estimate for the property interests to be acquired was generated in June 2006 based on completed PE. The estimate was revised in April 2007 to include changes in property requirements from Supplemental Preliminary Engineering and again in May to reflect property dedications to Fairfax County. The cost estimate included property valuation (by square foot) and assessment of damages initially provided by an appraiser on the Property Acquisition Agent’s team.

The estimate was developed considering costs for land values, improvements, and damages for each property from which interests are to be acquired. The estimate for land values included costs for temporary and permanent easements as well as for fee acquisitions. Relocation expenses were included for those acquisitions involving displacements and/or personal property moves. The estimate included a contingency for condemnation increments and settlements that was based on VDOT experience for real estate acquisition in Northern Virginia.

The cost estimate has considered impacts in the form of damages to property remainders. As most of the incurable damages are directly related to the Project’s design, efforts will continue to evaluate design refinements as appropriate to reduce these impacts. For land values, the estimate is based on the area of fee acquisitions and the areas for permanent, temporary, and utility easements. Assumptions were made
11.0 Real Estate Acquisition

for business displacements and relocation payments based on the Pre-Acquisition Relocation Assistance Planning Report. Working with an appraiser, unit land values were established for each property to be acquired and factors were developed for valuation of easements.

The Real Estate Cost Estimate is updated on a monthly basis using actual appraisal values as they become available.

11.6 Conveyance to WMATA

As a condition to the Project being accepted into the ARS, the Project will convey to WMATA property interests in the Project adequate to ensure WMATA’s continuing control of the Project property throughout the useful life of the Project. WMATA will continue to participate in the review of Project design drawings during both Preliminary and Final Engineering to ensure a sufficient property interest is acquired for WMATA to adequately operate and maintain the transit system. Parcel-specific drawings will be prepared for the conveyance of property rights at the end of construction.
12.0 Community Relations

The Communications and Outreach Plan for Phase 1 Design-Build is based on the Airports Authority’s commitment to remain transparent to the community—businesses, residents, and commuters—throughout construction.

The Airports Authority Communications and Outreach Plan, dated October 2007, outlines communications and outreach efforts needed for constructing a complex linear project through a part of the region that contains more than 125,000 jobs, 35,000 residents, and one of the nation’s largest retail districts. Activities are coordinated with the TMP.

12.1 Community Relations Goals

The plan establishes procedures to provide information before it is needed and when it is needed and provides for timely management of information flow. The plan establishes procedures for:

- providing general and specific project information to many audiences through businesses, homeowner groups, community groups, the media, employers, public officials, and others;
- prioritizing needs and concerns;
- establishing channels/systems for responding to complaints;
- developing proactive strategies to work with different audiences;
- providing information to help minimize congestion to multiple entities; and
- providing advance and regular traffic information from DTP to the Airports Authority and VDOT, as part of the TMP.

12.2 Strategic Approach

The Project faces many community relations challenges, including accurately communicating schedule delays and costs, retaining public confidence, and releasing information on a fast moving, complex, and large project in a timely fashion. Communication strategies will follow the rule of “communicate information early and often” to minimize loss of faith and trust. Detailed charts of potential issues and associated strategies are part of the Communications and Outreach Plan.

12.3 Roles and Relationships

The Airports Authority is responsible for oversight and execution of the Communications and Outreach Plan. The Airports Authority will be the sole public voice for the Project, will direct all public messages, and will coordinate communications with public agencies. The Airports Authority’s Manager of Rail Communications will oversee implementation of the plan. VDOT will be the lead agency to release traffic impact information that will be provided by DTP as part of its MOT and communications obligations. DRPT is responsible for Transportation Demand Management spelled out in the detailed construction communications section of the plan and related appendices. The plan also includes specific crisis communications directives.

12.4 Outreach Audiences

The Airports Authority continues to work with a variety of audiences, including businesses, citizens groups, commuters and DTR users, employers and employees, public officials, business groups (chambers of commerce), and shoppers, to promote the ongoing understanding of the progress, impacts, and goals of the Project. Tools to be used include, but are not limited to:
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- Outreach information meetings – 400 in the past three years
- Construction site tours
- Establishment of an information store in a strategic location
- Participation in community fairs and festivals
- Youth and education programs
- Continuing expansion of existing information (email) networks
- Mailings and “blast” emails
- Providing information to elected officials who may receive complaints
- Construction Hotline
- Construction alerts

12.5 Online Communication

Online user rates in the Project impact area are as high as 95%. To maximize that opportunity for communicating, the following actions will be taken.

- The website (www.dullesmetro.com) is being restructured to provide real-time traffic conditions and alerts, Transportation Demand Management information, station designs, event calendars, etc.
- Construction alerts will be available via emails, text messaging, and on the website.
- Website promotions will increase.

12.6 Media Relations

As construction approaches and utility relocations continue, media scrutiny is increasing. The media provide a positive channel to communicate critical information. The media also become a magnifier for challenges and a forum for public debate.

Media audiences include local print and broadcast media, trade and national publications and editorial writers, columnists, and bloggers. Communication strategies include monitoring news coverage daily, maintaining and expanding relationships with the media, pitching feature stories on the Project team and other pertinent topics, offering semiannual site tours, organizing events, providing factual support, maintaining the Project website section, and creating B-roll packages (footage showing the progress of the Project for use by TV stations and other media outlets). As stated above, the Airports Authority will be the sole public voice for the Project, and all press inquiries will be handled by the Airports Authority’s communications team, including the Manager of Rail Communications.

12.7 Research and Evaluation

The project team has a responsibility to ensure that resources allocated to communications are effective in keeping the public informed. Both qualitative and quantitative research will be done to help mold outreach and ad campaigns.
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13.1 Roles and Responsibilities – Design-Build Construction
DTP will have the primary responsibility for front-line hands-on construction management of the work. DTP’s approach to construction management of the Project is detailed in DTP’s PMP. The Airports Authority will perform extensive coordination and oversight of DTP’s construction activities to ensure that construction proceeds in compliance with Project requirements. Specific coordination and oversight activities include:

- Review and approval of DTP’s construction and QC inspection procedures
- Review and approval of DTP’s Permitting Plan and administration of the permits issued by the Airports Authority
- Coordination of project requirements with third party stakeholders, including VDOT, WMATA, Fairfax County, and various utility interfaces
- Surveillance of DTP’s and its subcontractors’ construction and QC inspection and test activities
- Surveillance of DTP’s construction-related personnel safety and environmental programs
- Surveillance of DTP’s permitting and MOT processes
- Monitoring of DTP’s field change and nonconformance control processes
- Monitoring of the Project as-built documents

The Airports Authority is providing oversight and coordination of the Project’s real estate acquisition in accordance with guidelines provided by the Commonwealth. The Airports Authority is also providing oversight and coordination for the utility relocations as agreed to with the various utility companies involved with the Project and its alignment. Both the real estate acquisition and Utility Relocations work are being performed under separate agreements with DTP, in which DTP acts as agent for the Airports Authority. The Airports Authority oversight of the Utility Relocations work is similar to that which will be provided for the Design-Build contract, with the exception that each utility company performance agreement will be with the Airports Authority as opposed to with DTP. The Airports Authority construction management representatives will monitor cost and overall schedule performance to ensure it is coordinated with and supported by the Design-Build program.

13.2 Construction Contract Administration
The Airports Authority will administer the Design-Build contract with DTP during the construction of the Project. Key contract administration-related activities that will be conducted by the Airports Authority include:

- Approval of key DTP personnel performing construction-related activities
- Review and input to the actual performance relative to the Project construction schedules
- Monitoring and evaluation of construction work progress and processing of payments to DTP
- Provision of cost and labor efficiency analysis
- Provision of input to resolve construction-related issues
- Assistance in managing, approving, and processing design and construction-related contract changes
Review and oversight of the procurement of Allowance Item packages, including major system components and general civil construction coordination

Additional detail on the construction management interface with Project Controls and Contract Administration are highlighted in Section 5.0 of the PMP and in specific Project procedures.

13.3 Construction Safety

As described in Section 7 of the Project’s SSMP, the responsibility for construction safety for the Project is assigned to DTP, as it is responsible for all activity on the Project site. DTP has assigned an ES&H Manager to the Project. DTP’s Project Executive Director, through the Project Director and the ES&H Manager, is responsible for all matters concerning ES&H on the Project, including implementation of an effective ES&H program. The ES&H Manager will be responsible for establishing and implementing the Project ES&H program, meeting all applicable federal, state, and local codes; owner’s site requirements; and ES&H core processes. This program will be documented in the Project ES&H Plan and will address:

- Orientation/Training Programs
- Work Permits
- Emergency Action Plans
- Environmental Permitting and Compliance
- Safety Meetings
- Publicity Related to Safety
- Safety Motivation and Incentive Plans
- ES&H Inspections and Assessments
- Medical Plan and Facilities
- Sanitary Facilities
- Site Security
- ES&H during Start-Up and Integrated Testing
- Reviews and Assessments

The Project ES&H Plan will be reviewed and approved by the Airports Authority and monitored for proper implementation. All Project participants performing activities on the work site will be required to comply with the requirements of the Project ES&H Plan.

Independently, the Airports Authority will conduct safety training and orientation for all of its personnel and will require that all its site personnel attend the orientation as provided by DTP. It is the Airports Authority’s goal to:

- support a zero accident policy;
- monitor all construction activities;
- increase personal awareness of safe work procedures; and
- ensure accurate reporting and recording of all safety and security incidents.
13.4 Change Order Control

A procedure for change order control (Project Management Procedure PM-5.01) has been developed consistent with the change order process described in the Design-Build contract. The procedure and methods developed for identifying and processing change orders will be consistent with the requirements of the Design-Build contract provisions and are found in Section 5.8 of the PMP.

The Airports Authority will continuously monitor the construction progress and activities. This monitoring will provide for both the collection of data and the preparation of documentation associated with field-generated changes or the need for change. This independently collected source of data will provide substantiation for issues that result in change to the contract. Essentially, DTP is responsible for identifying and resolving all issues arising out of design to the satisfaction of the design criteria. Issues arising out of unknowns will be substantiated and quantified by Airports Authority field oversight.

13.5 Payments and Claims Closeout

A procedure for handling payments and claims (Project Management Procedure PM-5.05) has been developed consistent with the payment and claims closeout process described in the Design-Build contract. The specific procedures and methods developed for identifying and processing change orders will be consistent with the requirements of the Design-Build contract provisions.

Through a consistent presence at the worksite, the Airports Authority’s construction management staff will be familiar with the day-to-day progress, interfaces, and issues that arise during construction. Monitoring and recording the progress of the work will provide input to the Project controls efforts for reporting Project progress and processing invoices. In addition, the construction knowledge inherent with the construction management staff will afford the Project a level of oversight that is unencumbered by the production demands of DTP. This level of oversight will proactively address safety, production, and quality issues to support expeditious and efficient resolution to avoid claims and unproductive activities.

13.6 Claims Avoidance

One of the Airports Authority goals is to complete the Project without residual claims affecting the completion of the Project and orderly closeout and transfer of the work to WMATA. This requires comprehensive oversight of the work activities to reduce avoidable delays, rework, and unsatisfactory work product. The construction management effort provided by the Airports Authority serves the distinct purpose of providing independent oversight of the quality and efficiency of the work required of a grantee. The Airports Authority will provide supervisory oversight of the efforts expended by DTP in performing or securing the performance of the work. Continuous day-to-day oversight and review of DTP’s efforts is intended to identify and resolve issues to avoid both delay and conflict in the field. The identification and resolution of issues at the lowest possible level in the organizations is encouraged, as is the rapid elevation of unresolved issues through a hierarchy for swift resolution. The Airports Authority will support and promote partnering to ensure open and direct communication between parties responsible for the resolution of issues contemporaneously with the performance of the work. Many issues will arise in the field under the direct supervisory review of DTP and Airports Authority personnel. Claims avoidance is based on the fair, equitable, and expeditious resolution of the issues as they arise. Mobilization of a knowledgeable, experienced construction management workforce will provide and promote the opportunity to avoid claims.
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13.7 Logistics Plan

During PE, DTP prepared a Constructability Report that assessed constructability, access, work methodology, and material selection. Focus was placed on construction site laydown, construction access, staging, and significant aerial guideway erection issues. This last issue included construction across major arteries, constructability of concrete piers, and station and tunnel construction methods. PE addressed most of the construction issues identified at the time.

In accordance with DTP’s construction execution strategy, the Project has been divided into operation areas. The construction activities within each of these areas encompass a basic type of construction or facility (elevated guideway, station, tunnel, etc.). Within the operation areas, there are additional subsets of work, including roadway crossings, stations, utility work, surface street work, MOT, at-grade guideway, trackwork, at-grade bridge crossings, aerial guideway structures, tunnels, stations, detention ponds, traction power stations, train control, and communications systems.

The Project location presents unique challenges for access to the construction operations. These challenges derive from a combination of the urban setting, the high-volume traffic areas, the linear nature of the construction, the different types of construction, and the changing conditions and limitations. Certain assumptions concerning utilities, I-495 interface with future VDOT plans, future HOT Lane modifications, construction site access, adequate laydown area, craft parking, operational work hours, and transfer of excavated material to Dulles Airport’s future Y-15 rail yard site have been considered in the development of the construction schedule.

The construction operations have multiple interfaces and coordination with public agencies, including the Airports Authority, WMATA, VDOT, and Fairfax County. These agencies will be critical in developing MOT operations, access to work zones, staging areas, construction permitting, and relocation of publicly owned utilities. The Airports Authority will assist in coordinating the necessary approvals of MOT plans from VDOT to facilitate the construction work.

Construction staging areas and laydown needs in an urban construction setting become critical components to the construction staging and sequencing procedures. Having access to critical materials close to the construction zones is essential to maintaining construction cost and schedule. Proposed material laydown/staging areas will require the acquisition of temporary ROW to support these locations. Material laydown/staging area for the Tysons West station and for the Tysons Central 7 station (in reasonable proximity to the station work) is critical given the tight median work zone available. The Constructability Report provides a plan to deal with construction craft parking and laydown/staging areas. Eleven locations were identified in the report that could provide the necessary space to facilitate construction. The actual locations to be used will be defined during early activities and Final Design.

The Airports Authority construction management staff will assist in defining and securing appropriate laydown areas. The Airports Authority has the permitting approval for sites owned and controlled by the Airports Authority and will monitor the operation of the sites to ensure proper maintenance and to minimize impact on the public. DTP’s construction offices located at these sites will provide space for Airports Authority field staff to facilitate oversight of the contractor.

13.8 Value Engineering/Lessons Learned

Consistent with the Value Engineering effort during PE and Final Design, the Project will continue to be reviewed throughout the Construction stage to identify any potential cost and time savings that would benefit the Project. Items identified and determined to be beneficial to the Project’s cost and schedule will
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be incorporated into the work by contract change order. Airports Authority staff will continually monitor the work, the field conditions, site access, methods and means, quality, and schedule to identify and process Value Engineering opportunities.

Similarly, the construction of the Project will result in lessons being learned regarding the design-construction interface, methods and means, material performance, and similar issues and processes. The Airports Authority will assemble and track noteworthy items and issues that should benefit development of future Metrorail extensions, including, initially, Phase 2 of the LPA.

13.9 Materials Testing

Materials testing for both the Utility Relocations work and the Design-Build work on the Project will be the responsibility of DTP. Materials testing will be performed in accordance with the codes and standards specified within the terms of the contract’s technical specifications prepared by DTP and common to the industry. The specified codes and standards have been reviewed by the Airports Authority in accordance with Project Management Procedure PM-5.06.

Section 8.0 of the Airports Authority Quality Program Plan specifies that the test laboratories that are used on the Project by DTP to conduct testing, such as soil testing, aggregate testing, concrete testing, electrical testing, mechanical and welding testing, nondestructive examinations, and calibration of measuring and test devices, be accredited by a recognized accreditation body. The Airports Authority monitors DTP material testing activities during construction in accordance with Project Management Procedures PM-1.04, Quality Audits; PM-1.05, Quality Surveillance; and PM-4.02, Monitoring of Site Construction, Installation, and Testing, and verifies that the testing is conducted in accordance with QA and technical requirements.

13.10 Utility Relocations

Relocation of utilities will be required to construct the Project as designed. A majority of the utility relocations will be performed in advance of the Design-Build construction in support of the Project schedule. Approval to proceed with the utility relocations was included in the FTA’s approval to enter into Final Design of Project.

The Airports Authority has agreed that the required Utility Relocations work is to be performed under a contract to DTP, with DTP acting as the Airports Authority’s managing agent, utility designer, and manager/supervisor of the construction. DTP has successfully negotiated a subcontract for the performance of the work on a Guaranteed Maximum Price basis that ensures the completion of the Utility Relocations work within the Project budget and schedule. DTP’s responsibilities, as agent for the Airports Authority, include the performance and coordination of the design with third party utility companies for both the utility relocations and the new permanent utility services; negotiating scope, price, and schedule agreements for all work to be performed by utility companies in support of the Project; and coordinating access to the site and construction of all new facilities in support of the relocation of the utilities. Utility relocations design drawings have been prepared by both the utility companies and DTP, and have been coordinated comprehensively by DTP acting as the Airports Authority’s agent. The construction work is being performed by DTP and its subcontractors as well as by the various utility companies. DTP will be the point of contact between all utility companies and the Project. The Airports Authority will continue to interact daily with and support DTP in its efforts to manage the utility relocation efforts and its interface with the public. The construction management effort expended by the Airports Authority is designed to monitor the performance of the work and to secure the desired end product at the budgeted cost and
quality needed to ensure full acceptance by the third party utility and the local stakeholder entities having jurisdiction.

The design, supply, construction, and management of the utility relocations necessary for the construction of the Project are being paid for by the Airports Authority. The scope of this effort is to replace in kind the equivalent utility service system that existed before undertaking the Project. Utility betterments are defined as utility scope elements and activities that are not required for construction of the Project, including acquisition of additional property required for the betterments. All betterments are the financial responsibility of the utility companies, whether constructed by the utility company or by the Airports Authority through DTP. Work performed by DTP, the utility companies, or their subcontractors in support of these betterments will be noted in the daily reports by the Airports Authority inspectors. Betterment work will not be permitted to have any effect on the Project schedule or budget. Securing additional property required in support of these betterments will not be the responsibility of the Project or the Airports Authority.

13.11 Interfaces and Relationships
In association with the Utility Relocations work, DTP will be the first line of communication with the utility companies and will also be the lead in scope negotiations and coordination with each utility company to establish an agreement, scope, and cost for its work on the Project. DTP will coordinate all work in the field for each utility company and will schedule its work according to the Project baseline schedule. DTP, its subcontractors, and each utility company will be responsible to apply for its respective permits from VDOT or other agencies as required to perform its work on the Project. Each permit required is indicated on the Project baseline schedule to allow review time and to coordinate the mobilization and work of the field crews. The Airports Authority’s Construction Oversight Manager and field staff will assist in communication and coordination with VDOT to expedite the permitting process.

There will be several utility companies accessing all Project segments of the utility corridor. DTP will establish control of these areas or work zones to allow safe and efficient access for the utility companies to plan and perform their work in a timely fashion. The Airports Authority’s field inspectors will monitor DTP’s arrangements and coordination of these work zones.

As the Utility Relocations work advances and the corridor becomes available for the construction of guideway and stations, the interface with the primary stakeholders will increase. The Airports Authority is responsible for coordinating the interface among DTP, WMATA, VDOT, and Fairfax County. Although DTP will be primarily responsible for ensuring that the design, construction, and operations of the constructed system comply with the requirements of the stakeholders, the Airports Authority will, as the grantee, retain the responsibility for the overall management of the Project. This coordination role will intensify during the Construction stage of the Project, when the cost and schedule impact of decisions are most significant.

The Airports Authority’s construction management staff will proactively interact with the construction organization led by DTP’s direct hire management staff. The various inspection staffs will be co-located or housed close to the DTP staff at the various Project work fronts. Relationships will be established at the lowest functional level between the PMSS inspection oversight staff and the workforce to afford daily interchange of plans, progress, issues, ideas, concerns, and resolutions. This exchange will promote mutual cooperation and respect among peers to the benefit of the Project. It is important to resolve as many issues as possible at the lowest possible level in the organization and to establish an escalation ladder within each organization to reach resolution of issues, ideas, or concerns as quickly and efficiently
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as possible. To secure this cooperative relationship, the primary stakeholders in the Project will participate in a program of Facilitated Partnering. Periodic gathering of the stakeholders and management and key staff will set the tone for the day-to-day cooperative relationship necessary for the smooth advancement of the Project.

Participation in the day-to-day field activities will involve all the stakeholders. In particular, WMATA, as the intended owner and operator of the facilities and systems, will have an ever-increasing role and presence in the oversight of the construction effort. The Airports Authority’s construction management staff will integrate the quality requirements and reporting relationships necessary to ensure WMATA involvement when appropriate and to maintain the flow of information regarding quality to WMATA’s staff.

The other key stakeholder in the Project is the public, which will be inconvenienced by the construction of the Project. It is the responsibility of the Airports Authority and DTP, facilitated by VDOT, to listen and react to the needs of the public as a whole and as individuals to minimize the disruption to daily lives and routines. The work will be planned and performed in consideration of its affect on the public, and due care and consideration in both protecting and assisting the public will be monitored by the construction management workforce assembled for the Project.

DTP is required to provide progress and schedule updates to the Project Community Outreach team so that it can interact with the local businesses and residents to keep them aware of the progress and potential impacts to traffic and local access. (Reference Section 12.0 of this PMP for more details on the public outreach effort.)

13.12 Roles and Activities

The Airports Authority’s Construction Oversight Manager will lead and direct the field inspectors and will work closely with the DTP Utility Relocations and Construction Managers and their staff to assist in coordination with agencies, utility companies, and stakeholders. The PMSS staff will represent the Airports Authority, will attend all coordination meetings, and will maintain open dialogue and correspondence with each stakeholder affected by the work. The Airports Authority’s Construction Oversight Manager will assist DTP in making field decisions in response to conditions or activities that could affect budget or schedule. As necessary, the Airports Authority’s Construction Oversight Manager will make field decisions regarding work that is outside of the anticipated scope of work. These decisions will be made only after a discussion with the appropriate Airports Authority manager and, possibly, the CO. The Airports Authority may be required to direct DTP to work overtime or to add to the crew size to complete a critical portion of work that could have an effect on the overall Project schedule. This direction will be documented by the Airports Authority.

The VDOT Coordinator will assist in “over the shoulder” reviews of the Project design to ensure each portion of the design and work plan is in compliance with VDOT standards. This “hands-on” VDOT interface will ensure timely review by the VDOT permitting team. The VDOT Coordinator will also be available to schedule VDOT inspectors and to monitor conditions in the field for their compliance with the permits.

DTP will subcontract with several large, locally established heavy civil infrastructure and systems contractors for utility relocations and heavy civil infrastructure and systems work, while self-performing other significant operations. DTP will direct and coordinate all work by these subcontractors as required by the Project’s integrated design.
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All field work will be monitored by Airports Authority’s inspectors. The Airports Authority’s inspectors will track labor hours, material, and equipment used. They will report on production and progress of key metrics. As this work progresses under DTP control, each inspector will prepare daily reports that record the work installed or completed, the material placed, and the equipment used, as well as any issues regarding safety or quality. Any recognized issues regarding safety or quality will be orally communicated to the DTP foremen or superintendents immediately, and these conditions will be noted on the daily reports or in a formal written correspondence. Daily reports will be reviewed by the Airports Authority’s Construction Oversight Manager, and a weekly report will be developed from this information. These reports will be used to verify the monthly billings by DTP and each participating utility.

The Airports Authority will coordinate with WMATA’s field staff to ensure that key elements and points in the progress of the work are witnessed, inspected, and recorded. This involvement will ensure the overall timely acceptance of the work in support of revenue service.

13.13 Design-Build Contract

Outside of the agreement to perform the Utility Relocations work, the construction of new transit facilities and systems is being performed under a Design-Build contract. The construction effort will essentially be performed under a firm fixed price after the Allowance Items are procured and awarded. The design will be essentially 75% or more complete when construction begins. Some complementary features of the Project design will be completed early with the Utility Relocations work to minimize impact on traffic and businesses. DTP and the Airports Authority are endeavoring, through the design and coordination of work, to minimize the number of traffic diversions during Project construction.

The Airports Authority’s construction management procedures and oversight, as established through the Utility Relocations scope of work, will be reinforced during the facilities and systems construction to ensure that the work is performed per the design drawings and that DTP’s Project Quality Management System Manual is being implemented. The Airports Authority Director of Construction will be responsible for ensuring that the work is properly documented and that the billing for this work is tracked to stay within the Design-Build firm fixed price budget.

The facilities and systems components of the Project include roadway modifications; at-grade, elevated bridge, and tunnel guideway/trackwork (ballasted and direct fixation); multi-level transit stations; third-rail power distribution; and communication and train control. The following sections highlight individual characteristics of the different elements of the Project and specific construction management oversight to be provided.

13.13.1 Survey

DTP is responsible for providing all Project surveys. After the Project survey control is established, and prior to its use for construction layout, the Airports Authority’s construction management staff will spot-check the control for stated accuracy. The findings of the Airports Authority’s validation will be reconciled with DTP to ensure that Project control is accurate and that it will support the design.

During the course of construction, the Airports Authority’s survey team will be mobilized to perform independent validation of the construction control being used on a daily basis for the performance of the work. All findings will be documented, reviewed, and reconciled with DTP.
13.13.2 Roadway Modifications

A schedule-critical portion of the construction is the roadway modifications required to accommodate the Metrorail facilities. The roadway modification work is an Allowance Item that will be added to the full fixed price portion of the Design-Build budget upon award and is not subject to federal funding conditions. The roadway work will be closely monitored by the Airports Authority’s inspectors to verify the quality and quantity of work. The Airports Authority will coordinate VDOT’s independent oversight of the roadway as construction proceeds. The subcontracts’ scopes of work, estimates, and contracts for roadway work will be closely reviewed to ensure compliance with the Design-Build contract and budgets. Inspection of the roadway work is generally more empirical, and performance is based on validated test results to ensure appropriate work quality. All inspection oversight will be focused on securing empirical results and minimizing rework of roadway and ancillary structures. Construction oversight will be coordinated by the Airports Authority to minimize duplication and to maximize the benefit to the Project of the various stakeholders’ interests.

This roadway modification work will have a direct effect on the traffic in the Northern Virginia area of Tysons Corner. The Airports Authority and VDOT managers and inspectors will conduct Constructability Reviews of all work plans to secure the most efficient methods and means in performance of this work. The Airports Authority will assist the DTP coordination effort with VDOT’s permitting department by working closely with VDOT to maintain visibility through “over the shoulder” reviews of the Project design and construction planning to keep the responsible agency representatives informed of day-to-day developments. The timely and open review of the roadway design and MOT plans with VDOT’s input is anticipated to promote the completion of the work with minimal and managed impact on the public.

13.13.3 Elevated Guideway/Trackway Construction

The construction of the elevated guideway will involve the drilling and concreting of large-diameter, deep caissons. The successful completion of the caisson will be documented with concrete test results and cross-column sonar tests. The construction management oversight organization will monitor the performance of the work and the recording of the test results. The caisson will be capped with a reinforced concrete foundation, a pier, and a pier cap to carry girder beams and deck or a match cast box girder. Concrete placement quality inspection and testing activities will be performed by DTP or its subcontractor and monitored continuously by Airports Authority inspectors. The survey of the guideway construction will be spot-checked by the Airports Authority throughout the construction effort.

DTP will organize and supervise the installation of the running rail and contact rail, performing various continuous measurements throughout the process. The Airports Authority will monitor the track installation and will coordinate its oversight with WMATA, as the ultimate owner and operator. Appropriate tests to record the quality of the installation in support of the Safety Certification of the Project will be performed by DTP and monitored by WMATA and the Airports Authority.

13.13.4 At-Grade Guideway/Trackway Construction

At-grade guideway construction involves the grading and leveling of the alignment. Bridges will be built over watercourses, roads, and/or significant depressions in the landscape. The leveling of the alignment will address both the existing drainage and the sub-drainage from the new alignment and facilities. Some reinforced concrete is needed for various structures to both contain and support the alignment. The establishment of the sub-grade includes the installation of all ductbanks and drains. Once established, as determined by testing, to meet the specified requirements, the installation of sub-ballast, ballast, cross-ties, and track will progress to the design line and grade. Following the running rail, contract rail and all wayside equipment foundations will be completed to allow the wayside equipment to be installed,
connected, and tested. The Airports Authority will monitor the civil and systems work as it is performed and will establish and coordinate the interface between DTP and WMATA in support of the Safety Certification Program as well as the budgeted schedule and cost.

13.13.5 Tunnel Guideway/Trackway Construction

Timely completion of the tunnel between International Boulevard and the median of Route 7 is on the Project schedule’s critical path. The excavation and installation of permanent lining of the tunnel and supported excavation will be performed by DTP or its subcontractor, essentially on a two to three shift per day basis. The Airports Authority will mobilize a field inspection staff to continuously monitor the performance of the work. This organization will be staffed by engineers and inspectors experienced in NATM tunneling and supported excavation work, and will provide the Project with a level of technical oversight considered prudent for this critical interface of the Project with the public. Shift inspectors will be assigned to monitor and proactively counsel the performance of the work to ensure safety and efficient progress of the work. Monitoring of the continuous testing of the quality of the work, including the periodic settlement readings from the surface, will be performed by Airports Authority’s inspectors. The Airports Authority will periodically survey the status of the tunnel with regard to line and grade and will verify settlement measurements from established baseline criteria.

13.13.6 Transit Stations

Four of the five stations will be constructed in the median of busy public thoroughfares, and the fifth will be built in the shoulder of the road. The structures consist of reinforced concrete on deep drilled foundations, with structural steel roofs and connecting bridges to the shoulders of the roadways. Access to the structures will be restricted as a result of the neighboring traffic. The Airports Authority will monitor the construction of the stations, verifying quality of performance and intent of final use. Tracking test results and monitoring the methods and means will support the delivery of a structurally sound and aesthetically pleasing finished product. The Airports Authority’s inspectors will interact with VDOT to monitor the MOT and the impact on the public. Similarly, the inspection team will interact with WMATA to ensure compliance with design form, fit, and function for a transit station. Critical survey checks will be performed as identified in support of facilities and system interfaces and ADA requirements.

13.13.7 Third-Rail Power Distribution, Communication, and Train Control

The installation of the Project systems components is less empirical and more functional. Material of a pre-engineered and manufactured nature will be delivered along the alignment and installed. Running rail and switches installed within the segments described above will provide a pathway to deliver and install contact rail and wayside equipment, while supporting access and work platforms for cable pulling and other continuous work required. Equipment to house traction power and communication equipment along the corridor will be placed on foundations. The Airports Authority will monitor the coordination of these installations with the elevated guideway and at-grade trackway construction and the required interface with the transit station construction. The Airports Authority will monitor the performance of this work and will participate in the WMATA review and acceptance of systems installations. Various testing and readiness reviews of the system’s equipment will be witnessed by the Airports Authority. The Airports Authority will monitor the operational testing and system integration performance and will administer the orderly turnover of the Project to WMATA.
14.0 Intergovernmental and Utility Agreements

The following sections describe intergovernmental and utility agreements that have been or will be executed to facilitate the coordinated execution of the Project among the various governmental and non-governmental agencies.

14.1 Intergovernmental Agreements

Implementation of the Project requires the Airports Authority to enter into numerous agreements with governmental and non-governmental agencies. The Airports Authority is authorized under the Virginia Act and the District Act to enter into agreements with federal, regional, state, and local governmental agencies to secure required funding, permits, and certificates in connection with the Airports Authority’s operation and responsibilities. Capital funding for the Project will be secured by the Airports Authority through agreements with several funding partners, including the FTA and Fairfax County. The Airports Authority is also responsible for coordinating activities with the various entities affected by the implementation of the Project, negotiating additional agreements, and managing permits acquisition and approval. The following agreements have been completed or will soon be completed.

14.1.1 Federal Transit Administration

The Airports Authority will enter into an FFGA with the FTA that details the Project, the level of Section 5309 funding committed to the Project, and the FTA’s anticipated disbursement schedule.

14.1.2 Virginia Department of Rail and Public Transportation

On June 28, 2007, the Airports Authority and DRPT signed the Assignment and Assumption Agreement, which transfers the Comprehensive Agreement DRPT to the Airports Authority. The Assignment and Assumption Agreement also defines DRPT’s ongoing role in providing technical assistance, coordination with other Commonwealth agencies, and participation in the Fairfax County special exceptions process.

14.1.3 Washington Metropolitan Area Transit Authority

On September 14, 2007, the Airports Authority signed a Cooperative Agreement with WMATA that defines the scope of technical support to be provided by WMATA during Final Design and Construction, and the appropriate method of reimbursement for these services. The scope includes capital equipment and design, procurement, installation and commissioning, and serving as technical advisor during design and construction and as future owner and operator.

The agreement outlines WMATA’s specific responsibilities in its role as technical advisor for the following stages: Pre-Final Design, Final Design, Construction, and Post-Construction completion (including Testing and Start-Up). The agreement includes a budget for these services.

14.1.4 Virginia Department of Transportation

The Airports Authority has entered into three agreements with VDOT: the Master Transfer Agreement (signed December 29, 2006), the Dulles Toll Road Permit and Operating Agreement (signed December 29, 2006), and the Cooperative Agreement (signed September 11, 2007). The agreements describe the terms and conditions of the transfer as well as the new roles and responsibilities of each signatory agency and set out the terms necessary for the timely implementation of the Project.
The Master Transfer Agreement outlines the legal and financial requirements of the Airports Authority and VDOT under the proposed transfer of the DTR to the Airports Authority. The agreement includes representations and warranties, pre-closing covenants, conditions precedent to closing, and procedures for termination prior to closing.

The Permit and Operating Agreement provides the specific terms associated with the transfer of operational responsibility of the DTR from VDOT to the Airports Authority. The agreement describes each party’s rights and obligations for tolling and the use of toll revenues; bond financing; design, property acquisition, and construction; management of the DTR; capital improvements and safety orders; contracting practices; and interrelations among other transportation facilities.

The Cooperative Agreement delineates the roles and responsibilities of each agency in completing the timely implementation of the Project. The agreement establishes terms and conditions for financing and constructing the Project, design and construction reviews, land use and construction permits, reimbursement of VDOT agency staff time, real estate acquisition on behalf of the Project, utility relocations responsibilities, MOT, and the conditions for construction and final acceptance of VDOT facilities.

14.1.5 Fairfax County
The Airports Authority and Fairfax County entered into a Cooperative Agreement on July 19, 2007. The agreement describes the relationships between the Airports Authority and Fairfax County and the duties and rights of each party. The agreement defines each agency’s role in project coordination and design reviews, conveyance of rights-of-entry, land use and construction permitting approvals, property acquisition and use, and traffic maintenance.

14.1.6 Funding Agreement
The Airports Authority, in cooperation with Fairfax County and Loudoun County, developed a multi-lateral funding agreement among the non-federal funding partners. This agreement outlines the overall funding commitments of the non-federal funding partners for Phases 1 and 2 of the LPA.

The overall funding commitments are based on the allocation percentages defined in the Draft EIS, updated to reflect the fixed contribution by the FTA for Phase 1, the transfer of the DTR to the Airports Authority, and the Airports Authority’s intention to use DTR revenues to replace funding for Phase 2 originally intended to be provided by the federal government. The funding agreement also addresses the treatment of in-kind contributions, cost reductions and increases, financing costs, and the timing of contributions. The agreement was signed on September 11, 2007. The Project Financial Plan is based on the agreed terms of this agreement.

14.2 Utility Agreements
Agreements with the various utility companies are in two forms. First, in the fall of 2006, DRPT authorized the utility companies, by letter, to begin preparing relocation designs. This authorization included the methodology for reimbursement of design expenses. Second, DTP prepared draft Utility Agreements (Force Account Agreements) that provide the procedures and reimbursement of utility relocations construction. These agreements are reviewed by the Airports Authority’s legal staff, with negotiations with the utility companies that began in August 2007 continuing as better understanding of the scopes of work and the requirements of each utility company is developed. The Force Account Agreements will be useful in managing the work, as the documents will formalize contract language for indemnity, insurance, transfer of ownership, warranty, payment terms, and pricing, along with many other pertinent terms and conditions of the agreements between the Airports Authority and the utility companies.
companies. Upon completion of these negotiations, the utility agreements will govern work performed by the utility companies for the duration of the Project. Utility relocation work is currently being conducted under purchase orders and purchase order modifications between the Airports Authority and utility companies.

On December 20, 2006, the FTA approved DRPT’s request for a Letter of No Prejudice allowing DRPT to incur costs for Utility Relocations design work. This Utility Relocations design work includes utility company designs, cost estimates, relocation schedule/plans, and applications for Utility Relocations permits. In December 2007, the Design Agreements between DRPT and the utility companies were transferred to the Airports Authority as the Project sponsor responsible for payment for the work by the utility companies. This design work has progressed to the point that the Project now has coordinated design packages for utility relocations along Route 123 and Route 7. These packages have been submitted to and approved by VDOT for construction.
15.0 Conflict Resolution

In its efforts to foster cooperation and an effective working relationship among the participants, the Airports Authority will require all parties to actively participate in partnering techniques to identify and resolve issues that may arise during Project implementation.

The Airports Authority will use the following dispute escalation and resolution process as set forth in Article 28 of the Design-Build contract.

15.1 Cooperation and Communications

DTP and the Airports Authority are required to work with each other throughout the Project and have agreed to communicate regularly with each other at all times to avoid or minimize any claims. As part of the relationship of trust and confidence established between DTP and the Airports Authority under the contract, both parties shall disclose and discuss any issues that may affect the cost or time of performance of the work, whether or not such issues result in a claim, at quarterly meetings between senior representatives of the parties.

15.1.1 Negotiations

DTP and the Airports Authority will first attempt, within 14 days of the initiation of a claim, to resolve the claim at the field level through best efforts and good faith negotiations between DTP’s authorized representative and the Airports Authority’s authorized representative.

15.1.2 Elevated Negotiations

If a claim cannot be resolved through the parties’ authorized representatives, then, upon the request of either party, DTP’s Senior Representative and the Airports Authority’s Senior Representative shall meet as soon as conveniently possible, but in no case later than 14 days after such a request is made, to attempt to resolve such claim. Prior to any meetings between such representatives, the parties will exchange relevant information that will assist the parties in resolving the claim and, if applicable, make available any independent expert opinion.

15.1.3 Independent Expert

If a claim involves an issue or dispute where the assistance of an independent expert may be helpful, the parties may, by mutual agreement, engage a jointly selected independent expert with technical or other appropriate expertise to assist them. The independent expert will, if agreed upon by the parties, review and render an advisory opinion within 60 days of his/her retention or a longer period if the parties mutually agree.

15.1.4 Submission of Certified Claim

If a claim cannot be resolved to the mutual satisfaction of both parties, regardless of whether or not Sections 15.1.2 and/or 15.1.3 have been complied with, then DTP shall submit a certified claim as set forth in Section 15.2.

15.2 Certified Claim and Procedures

DTP shall submit a written certified claim (Certified Claim) to the Airports Authority’s CO signed by a duly authorized officer of DTP. The Certified Claim shall include at a minimum:
15.0 Conflict Resolution

- the nature of the relief sought;
- a narrative that fully explains the facts and circumstances underlying the Certified Claim, including the basis of the Airports Authority’s liability to DTP; and
- specific reference or inclusion of all actual cost accounting records, actual schedule data, as-built data, and other documentation fully supporting any request for adjustment to the contract price or extension of time.

The Certified Claim shall contain a certification that:
- the claim is made in good faith;
- the supporting data is current, accurate, and complete as of the date of certification;
- the amount of additional compensation and/or time of performance requested accurately reflects a reasonable adjustment in the added cost and time of performance to which DTP reasonably believes it is entitled; and
- there is supporting actual cost accounting records and actual schedule as-built data that reflect the work performed as of the date of certification.

Within 30 days of receipt of the Certified Claim, the Airports Authority’s CO shall issue a written decision to DTP regarding the dispute. This decision will be considered final and conclusive unless, within 30 days of the date of receipt of the Airports Authority’s CO’s final decision, DTP furnishes a written request to the Airports Authority’s CO for mediation of the issue(s) in accordance with Section 15.3.

15.3 Mediation

If the parties cannot resolve the dispute in accordance with Sections 15.1 or 15.2, the parties agree to submit the dispute to mediation. The mediation process shall be initiated within 30 days of the submission, and the parties shall endeavor to conduct and complete the mediation within 60 days of the appointment of the mediator. Such mediation shall be a “dispute resolution proceeding” within the meaning of Virginia Code § 8.01-576.4, and all communications and materials made in or in connection with the mediation are confidential in accordance with Virginia Code § 8.01-576.10. The parties shall mutually agree on the selection of a mediator, who shall be neutral as defined in Virginia Code § 8.01-0576.9, and shall equally share the costs of the mediator’s fee and other administrative fees of the mediation. If the parties are unable to agree upon a mediator, a mediator shall be appointed pursuant to the Construction Industry Arbitration Rules and Mediation Procedures of the American Arbitration Association. The parties agree to produce documents as may be required by the mediator to facilitate the mediation.

In the event that the mediation fails, the mediator shall issue a certification of the failure of mediation to the parties. No later than 10 days after such certification, the Airports Authority’s CO shall issue its written final decision to DTP regarding the Certified Claim.

15.4 Legal Proceedings

As to such portion of the Certified Claim that is denied by the Airports Authority, DTP may institute a civil action for such relief as it claims to be entitled to under the contract. DTP’s compliance with Sections 15.2 through 15.3 shall be a condition precedent to bringing a civil action.

DTP and the Airports Authority waive their respective rights to a trial by jury on any claim or cause of action upon, arising under, arising out of, or related to the contract or other proceeding or litigation of any type brought by any of the parties against any other party, whether with respect to contract claims or...
actions, tort claims, or otherwise. DTP and the Airports Authority agree that any such claim or cause of action shall be tried without a jury. Without limiting the foregoing, the parties further agree that their respective right to a trial by jury is waived by operation of this section as to any action, counterclaim, or other proceeding that seeks, in whole or in part, to challenge the validity or enforceability of the contract.

The sole and exclusive jurisdiction and venue for any legal action between the parties arising out of or relating to the contract shall be filed in and decided by a court of competent jurisdiction in the Commonwealth.

15.5 False Certifications
Any Certified Claim that is based on false statements or material misrepresentations shall entitle the Airports Authority to a full recovery of all costs and fees incurred by the Airports Authority in investigating, analyzing, negotiating, mediating, and litigating such claim, including attorneys’ and consultants’ fees. This remedy is a contractual remedy and does not otherwise affect the other rights of the Airports Authority in law or in equity.

15.6 Continuance of Work During Dispute
At all times during the term hereof, including during the course of and notwithstanding the existence of any claim:

- DTP shall perform as directed by the Airports Authority, in a diligent manner and without delay, shall abide by the Airports Authority’s decisions or orders, and shall comply with all applicable provisions of the contract documents; and
- the Airports Authority shall perform its obligations under the contract in a diligent manner and without delay.

Records of the work shall be kept in sufficient detail to enable payment in accordance with applicable provisions in the contract documents.
16.0 Safety Certification

A system safety and security program that addresses applicable FTA requirements and guidelines during the Design and Construction of the LPA has been implemented. The LPA is an extension to the operating WMATA Metrorail system, and system safety and security requirements related to the WMATA Metrorail system, including extensions to the system, are contained in the WMATA Safety and Security Certification Program Plan. The Airports Authority system safety and security program also addresses applicable requirements of this WMATA plan. The procedures for monitoring of DTP’s system safety and security certification activities (Project Management Procedure PM-6.01) and monitoring of DTP’s ES&H activities (Project Management Procedure PM-6.02) will be followed by the Airports Authority.

16.1 The Airports Authority Safety and Security Management Plan

The Airports Authority SSMP documents the Airports Authority’s policy on safety and security and defines the roles and responsibilities of the Airports Authority, WMATA, and DTP in implementing, monitoring, and complying with applicable safety and security requirements during the course of the Project. The SSMP references the DTP SCMP. The SCMP describes in more detail the safety and security certification process that will be implemented by DTP during Final Design, Construction, and Testing on the Project.

The SSMP defines the scope of the safety and security program that falls under the responsibility of the Airports Authority during the course of the Project. The Airports Authority Project QA/QC and Safety Manager, assisted by the Project Safety Supervisor, has been assigned the authority to ensure that the requirements of the SSMP are implemented properly by all Project participants. The SSMP encompasses the following equipment, facilities, plans, and procedures:

- System-Wide Elements – includes the third rail, train control system, voice and data communications, closed-circuit television, digital image recorders, intrusion detection system, traction power substations, track, supervisory control and data acquisition, and fire protection and suppression systems
- Fixed Facilities – includes stations, parking garages, pedestrian overpasses and bridges, structures and bridges, and rail yards
- Safety and Security Plans and Procedures – includes such items as the Project SCMP, the ES&H Plan, and appropriate procedures and instructions (e.g., the procedure for hazard and vulnerability identification and resolution).

Because the Project is an extension to an operating transit system, certain activities remain the responsibility of WMATA. Equipment, activities, plans, and procedures related to safety and security that are the responsibility of WMATA but that are outside of the scope of the SSMP include:

- project vehicles, AFC equipment, communications backbone, and work on existing WMATA systems that is performed by WMATA;
- maintenance, revision, and control of safety and security requirements contained in WMATA design criteria and standards; and
- Operations/Maintenance Plans and Procedures, such as the Emergency Preparedness Plan, Snow Operating Procedures, and Operations Administrative Procedures.

The SSMP also addresses safety oversight by the TOC that has been established to provide oversight of the WMATA Metrorail System as required by 49 CFR Part 659, Rail Fixed Guideway Systems, State
Safety Oversight. The TOC will provide oversight of the system safety and security program that will be implemented on the Project during Design, Construction, Inspection, and Testing.

16.2 System Safety/Security Certification Management Plan

The SCMP describes the safety and security certification process that DTP will implement during the Project. During PE, DTP assigned a Safety and Security Manager to the Project. A Project SCWG was established, and representatives from the Airports Authority, WMATA, and DTP have been assigned to the SCWG. The SCWG directed and assisted the DTP Safety and Security Manager in developing the SCMP. The SCWG continues to function during the course of Final Design, Construction, and Testing of the Project, and will act as a review board for activities, analyses, and reports on safety/security-related issues. In this role, and in the role of driving the safety/security certification process, the SCWG, led by the DTP Safety and Security Manager, has the responsibility of ensuring that all safety/security-related reviews and analyses are performed and that all hazards and vulnerabilities identified during the course of the Project are documented and resolved.

The SCMP specifies that the following activities take place:

- Conduct hazard/vulnerability evaluations of any deviations from WMATA design criteria and standards and resolve hazards/vulnerabilities identified during the course of the work
- Develop and maintain a Safety/Security Certifiable Items List that is used to ensure that all certification activities have met the safety and security standards of the Project
- Develop and complete design conformance checklists to confirm that the design conforms to WMATA safety and security-related design criteria and standards
- Verify and document that installation/construction on the Project complies with the design
- Verify and document that the start-up and integrated testing program and results comply with the design and with safety and security requirements for the Project

When the activities described above have been completed, DTP will prepare a Final Safety/Security Certification Report that certifies that the Project, or a given stage of the Project, is in compliance with Project safety/security requirements. The Final Safety/Security Certification Report will be reviewed and approved by WMATA and the Airports Authority. Operational readiness will be achieved when WMATA and the Airports Authority have agreed that the work is essentially complete, the work has been successfully and fully tested, and the work has been verified to be safe and secure by applicable WMATA organizations. WMATA will be responsible at that time to implement safety/security certification follow-up procedures to ensure that safety/security-related requirements are maintained during pre-revenue and revenue operations.
17.0 Planning for Operations Start-Up

The Commissioning and Testing activities for the Project consist of installation verification tests, sub-system tests, functional tests, and integration tests. The installation verification tests are incorporated into the Post-Installation Check-Out (PICO) testing activity. Subsystem tests refer to independent system tests functioning in a subsystem’s operating section of the Project. For example, traction power, ATC, communications systems, and station equipment (e.g., elevators and HVAC systems) will all be tested for conformance to the design within the nearest limits of their operation.

Throughout the duration of the contract, DTP will be required to verify that the design, fabrication, installation, and performance of the system (composed of the fixed facilities and the operating system) comply with the requirements of the contract documents. This verification will be determined by analysis, inspection, and/or test. The monitoring of site construction, installation and testing, and start-up and integration testing will be done in accordance with the Airports Authority Project Management Procedures.

DTP shall prepare a System Acceptance Plan that sets forth the specific acceptance activities that are necessary for DTP to demonstrate that the Project, both the fixed facilities and the system elements, are compliant with the requirements of the contract. This plan shall include a Compliance Verification Matrix that identifies the specific requirements of the contract and the method(s) used for verification of each. The System Acceptance Plan will be closely aligned with the Project’s Quality Program Plan and shall include specific inclusions and/or specific cross-references.

Verification of the operating system is accomplished by DTP’s qualification tests, factory tests, PICOs, integration testing, and System Performance Demonstration activities. DTP’s verification of the fixed facilities shall be conducted throughout the progress of construction in accordance with the procedures described in the System Acceptance Plan.

The System Performance Demonstration shall follow the integration testing activities and will verify that the system can operate in compliance with the contract documents and shall demonstrate the integration of the Project with WMATA’s ARS.

17.1 Post-Installation Check-Out

PICO will be initiated by DTP upon completion of installation of system equipment. PICO testing includes systematic inspection and testing of the equipment to verify the proper functional performance of each individual component.

PICO activities will be accomplished using DTP-prepared and Airports Authority-accepted inspection and test procedures. DTP shall maintain and submit a formal and permanent record of each PICO activity to the Airports Authority for review. Any PICO activity that finds a portion of the Project that is not in accordance with Project requirements will be documented and all corrective actions will be recorded up to the time when the components or subsystem tested is determined to be in compliance.

17.2 Integration Testing

The purpose of integration testing is to determine that the system equipment operates properly when integrated with other equipment at that particular operating site. DTP will perform and document all integration activities and will verify that all subsystems, and assemblies thereof, are installed and inter-
connected in accordance with accepted designs and that they function in accordance with the Project requirements.

DTP is required by the contract to give sufficient notice to the Airports Authority if WMATA equipment or personnel are required to verify any portion of the system to be tested under this section to ensure proper coordination and equipment availability.

Integration testing procedures shall be included as a supplement to the System Acceptance Plan and shall be accepted prior to performing any test. The required format for all inspection and testing procedures is provided to DTP in the contract documents. A pre-test meeting will be held with representatives from the Airports Authority and the participating parties to review the testing procedures, test dates, and durations, and to witness test data, record format, test failure and success criteria, and other elements.

The Airports Authority has the right to reject a test procedure or require additional tests if, in the sole opinion of the Airports Authority, the proposed procedure test does not adequately verify or demonstrate the performance of the subject component, subsystem, or system.

DTP is required by contract to notify the Airports Authority a minimum of 14 days in advance of each test. All Integration Test Reports will be submitted to the Airports Authority within 14 days of the test.

DTP shall prepare and submit, for the Airports Authority’s and WMATA’s approval, a Dynamic Testing Readiness Report, which serves as notice and which documents that work required for the start of dynamic testing or any other testing requiring WMATA vehicles has been completed in accordance with the System Acceptance Plan and related procedures.


### 17.3 System Performance Demonstration

The purpose of the System Performance Demonstration is to verify that the integrated systems of the Project perform individually and collectively as required by the contract and in particular shall demonstrate the integration of the Project with WMATA’s ARS.

The System Performance Demonstration will incorporate anticipated normal and abnormal service operations and simulations of emergency operations. This testing will include those operational static and dynamic tests necessary to verify the system operational compliance as a working integrated system within the whole ARS.

Prior to the end of the System Performance Demonstration period, the Airports Authority and WMATA may conduct inspections, surveys, and/or testing as either deems desirable. If such inspections, surveys, and/or tests disclose that any work does not meet the requirements of the contract documents, the Airports Authority will promptly advise DTP as to any defects in the work necessary to be corrected as a condition to Substantial Completion and as to any defects that may be corrected as punchlist items.

### 17.4 Operational Readiness

Upon the successful completion of System Performance Demonstration and the requirements of the contract documents, the Airports Authority will issue a Certificate of Substantial Completion.
WMATA will then conduct operational readiness activities, which include in-service testing, training, and evaluation, to verify operational readiness. DTP is required to provide support to WMATA during these activities; however, upon Substantial Completion, WMATA will assume control of the system. DTP’s successful completion of the punchlist and other requirements of the contract documents will lead to Final Acceptance by the Airports Authority.

17.5 System Acceptance

Acceptance of the system involves Substantial Completion and Final Acceptance. Substantial Completion signifies the end of the Design, Supply, Construction, Testing, and System Performance Demonstration stages of the work and the complete readiness of the system to enter operational readiness testing and commissioning. Final Acceptance indicates satisfaction of all contract requirements and the release of DTP from further responsibility under the contract, except for the guarantee/warranty provisions.

Following successful completion and documentation of all System Performance Demonstration testing activities and Substantial Completion of the requirements of the contract documents, DTP may formally submit its request for the Certificate of Substantial Completion.

17.6 Final Acceptance

Promptly after Substantial Completion, DTP shall perform punchlist items and other work, if needed. The punchlist items and other work activities shall fully satisfy DTP’s other obligations under the contract documents necessary to achieve Final Acceptance, including ensuring that the Project has been completed and all components have been properly adjusted and tested.

WMATA, with reasonable technical support of DTP, will conduct operational readiness activities after Substantial Completion of the contract in accordance with the Airports Authority/WMATA Cooperative Agreement. Prior to the start of operational readiness activities, WMATA will assume responsibility for control of access to and operation of all portions of the operating system. DTP shall not conduct any activities in the operating system without prior approval of WMATA.

WMATA will conduct operational readiness activities by operating trains and other equipment necessary to simulate ARS operations. Passengers will not be transported during operational readiness activities. It is anticipated that a 3-month period will be required to complete the operational readiness activities and the training of operators in the new service territory. The testing period may be extended if operational or equipment function problems are encountered.

DTP shall provide technical support to the Airports Authority for the identification and remediation of Project defects found during this period. Upon DTP’s satisfactory completion of all of the terms and conditions of the contract documents, Final Acceptance will be issued to DTP.
18.0 General Joint Development Program

Joint development related to the Project will be promoted by Fairfax County in accordance with *Fairfax County Guidelines Regarding Requests Made Pursuant to the Public-Private Education Facilities and Infrastructure Act of 2002 (PPEA)*. The county will be responsible for soliciting, selecting, negotiating, and managing joint development proposals related to the Project. Joint developments will be based on and accommodate the proposed Project facilities, as applicable, and will conform to FTA requirements.

In accordance with the PPEA, Fairfax County is currently planning a transit-oriented, multi-use redevelopment project at the Wiehle Avenue station. The redevelopment will be in accordance with joint development policies and guidelines outlined in Fairfax County’s policy plan, comprehensive plan, and station area plans. Fairfax County issued the Request for Proposals for the Wiehle Avenue station development on September 19, 2007. Fairfax County intends to successfully complete negotiations with the selected developer and issue the NTP in 2008. The Wiehle Village Center and Metro Station project will include a multi-level Park & Ride structure with approximately 2,300 spaces that will be built concurrently with the Project as a joint development project between a private developer and Fairfax County.

A portion of the affected property, which is currently being used as a Park & Ride lot, was originally purchased by the county with funds provided through an FTA grant. Therefore, FTA approval will be required to confirm that the development conforms to its intended use as a transit-related facility, according to the eligibility criteria and certificate of compliance requirements stated in the February 7, 2007, *Notice of Final Guidance on Eligibility of Joint Development Improvement under Federal Transit Law*. WMATA must also confirm that the garage and bus parking designs meet its standards for Metrobus operations and are in compliance with *WMATA Joint Development Policies and Guidelines*.

Fairfax County will continue to pursue joint development opportunities around other stations where such opportunities exist.
Appendix A

Project Management Procedures
# Project Management Procedures

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Appendix B

Before and After Study Approach
Before and After Study Approach

The Metropolitan Washington Airports Authority (the Airports Authority) will assemble information and conduct analyses to identify the actual performance of the Project, evaluate the reliability of technical methods used during the planning and development of the Project, and identify potentially useful improvements to those methods. A Before and After Study Plan was approved by the Federal Transit Administration (FTA) on September 17, 2008. Specifically, the plan addresses the following requirements.

1. Required Information

The Airports Authority will assemble information on five characteristics of the Project and its associated transit services:

- **Project scope**: the physical components of the Project, including environmental mitigation;
- **Service levels**: the operating characteristics of the new service and relevant transit services in the corridor;
- **Capital costs**: the total cost of construction, vehicles, engineering, management, testing, land acquisition, and other capital expenses;
- **Operations and maintenance (O&M) costs**: the incremental operations/maintenance costs of the Project and the transit system; and
- **Ridership patterns**: the incremental ridership, origin/destination patterns of transit riders on the Project and in the corridor, incremental farebox revenues for the transit system, and travel time savings for passengers.

2. Milestones

The Airports Authority will assemble those data items that are available and will conduct appropriate analyses at five key milestones in the development and operation of the Project.

- **Entry into Preliminary Engineering (2004)**: documentation of forecasts developed for capital costs, O&M costs, ridership, and fare revenues will be preserved. The physical scope, proposed service levels, and assumptions will also be documented.
- **Entry into Final Design Phase (2007)**: documentation of forecasts developed for capital costs, O&M costs, ridership, and fare revenues will be preserved. The physical scope, proposed service levels, and assumptions will also be documented.
- **Prior to Full Funding Grant Agreement (2008)**: documentation of forecasts developed for capital costs, O&M costs, ridership, and fare revenues will be preserved. The physical scope, proposed service levels, and assumptions will also be documented.
- **Prior to Start of Revenue Service (2013)**: transit service levels, O&M costs, and ridership levels prior to opening of the Project will be documented.
- **Two Years after Opening for Revenue Service (2015)**: actual capital costs, O&M costs, and ridership levels for the Project two years after the opening to revenue service will be documented. The physical (as-built) scope and services levels (as operated), as well as any adjustments to other transit services in the corridor, will also be described.

3. Work Plan for Travel Surveys

The Airports Authority will submit a detailed work plan that describes the scope of the travel surveys and how they will be used to support the analysis of forecast and actual ridership and trip characteristics. The FTA will review and approve the survey scope of work prior to implementation.
This appendix presents the qualifications and experience of the key Project management team. This material is presented to demonstrate the caliber and experience of the management staff working on this Project, whether they are with the Airports Authority, the PMSS team, WMATA, VDOT, or Fairfax County.

**METROPOLITAN WASHINGTON AIRPORTS AUTHORITY**

Augmenting its pre-existing management staff, the Airports Authority has hired key management staff for this Project, some of whom transferred from the DRPT Dulles project team. In addition, the Airports Authority has hired the PMSS consultant team that will augment the Airports Authority staff and provide support throughout the life of the Project. DRPT staff out of the Richmond office will continue to be a resource for the Project and will also assist in resolving any political issues that arise.

Following are brief descriptions of key Project team members.

**James E. Bennett – President and Chief Executive Officer**

Mr. Bennett is responsible for planning and directing all programs and activities of the Airports Authority, focusing on the future and the development of long-term business strategies. Mr. Bennett became the President and Chief Executive Officer of the Airports Authority on May 3, 2003. Mr. Bennett had served as the Executive Vice President and Chief Operating Officer of the Authority since April 1996. He is a graduate of Auburn University (B.A., Aviation Management, 1978) and the University of Michigan (M.P.A., 1986). He was the Assistant Aviation Director for the City of Phoenix Aviation Department from 1988 until joining the Airports Authority staff. He holds the designation of Accredited Airport Executive from the American Association of Airport Executives (AAAE). He currently serves on the Board of Airports Council International – North America, as former Chairman and Board member of the International Association of Airport Executives, as Board member of the Southeast Chapter of AAAE, and as a member of the Policy Review Committee. He is former Chair of the Arlington Chamber of Commerce, a member of the Board of the Loudoun County Economic Development Commission, and a member of the Executive Committee of the Greater Washington Initiative. Mr. Bennett is working with the Dulles Corridor Advisory Committee, a joint initiative of the Airports Authority and Fairfax and Loudoun counties, to facilitate the Metrorail project. The committee provides advice on issues related to the management, improvement, and expansion of the Dulles Corridor, as well as on changes to tolls on the DTR to fund roadway improvements and the Metrorail extension in the corridor.

**Philip G. Sunderland – Vice President and General Counsel**

Mr. Sunderland was recently appointed Vice President and General Council by the Airports Authority, and has been part of the Airports Authority Council Staff since 2007. Before joining the Airports Authority, Mr. Sunderland was the chief of staff for Congressman James Moran (VA, 8th). Prior to his work on Capitol Hill, he served as city manager for five years and city attorney for 14 years for the City of Alexandria, Virginia. Mr. Sunderland has served on the boards of numerous non-profit organizations in Northern Virginia, was a member of a Virginia General Assembly taskforce that prepared a recodification of the Local Government chapter of the Virginia Code, and has served as a teaching fellow at Stanford University Law School and the Chinese University of Hong Kong. He is a graduate of Stanford University Law School and Dartmouth College.
Lynn Hampton – Vice President for Finance and Chief Financial Officer

Ms. Hampton was Director of Finance for the City of Arlington (TX), from 1985 until her appointment to the Airports Authority in January 1989. Ms. Hampton is a former member of the Municipal Securities Rulemaking Board. She is a Certified Public Accountant. Ms. Hampton is a past Chair of the Alexandria (VA) Chamber of Commerce and Chair of the ACI-World Economic Committee. She also is Chair of the Board of Directors of Vantage Trust Company and Secretary/Treasurer of the Board of Directors of Access Group, Inc. Ms. Hampton is working with Deputy Director of Project Finance Jennifer Mitchell (see below), having negotiated funding agreements with Fairfax and Loudoun counties and revising the financial plan for the Metrorail project. Ms. Hampton is a graduate of the University of Louisville (B.S.C., Accounting, 1978; M.B.A, 1983).

Frank Holly – Vice President for Engineering

Mr. Holly is responsible for managing the Airports Authority’s Capital Construction Program for both Dulles and National airports. A graduate of Hampton University (B.S., Architecture, 1960) and the University of Missouri-Rolla (M.S., Engineering Management, 1970), Mr. Holly was an active duty officer in the Army Corps of Engineers before retiring at the grade of colonel in 1989. During his Army career, he was involved in managing large-scale development programs in the United States and overseas. After military service, he became Deputy Commissioner of Aviation, Department of Aviation, Chicago, Illinois. In that position, he was directly responsible for managing the engineering and maintenance functions at Chicago O’Hare International Airport. He joined the Airports Authority in 1992, in his present position.

The Airports Authority’s Capital Construction Program was initiated in 1988 to provide for planning, designing, and constructing certain facilities at National and Dulles airports. The Airports Authority currently estimates the cost of the 2001–2011 Capital Construction Program to be $4.6 billion (in inflated dollars). The program includes an Automated People Mover train system that will move passengers between the main terminal and stations at concourses A, B, and C at Dulles Airport. Mr. Holly is overseeing the Airports Authority’s plans to implement design and construction for the Metrorail project.

Andrew Rountree – Deputy Chief Financial Officer and Transition Coordinator

Mr. Rountree joined the Airports Authority’s Office of Finance in October 2005. He is responsible for the Airports Authority’s budget, treasury services and debt management, and strategic analysis. Previously, Mr. Rountree served as Director of Finance for the City of Richmond (VA) (2001–2005), Acting Director of Finance (2000–2001), and Deputy Director of Finance (1998–2000). During Mr. Rountree’s tenure with the city, he managed the issuance of more than $1 billion in either General Obligation or Utility System Revenue Bonds, and assisted the city in achieving one General Obligation Bond rating upgrade and two System Revenue Bond upgrades. Mr. Rountree holds a Bachelor of Science degree in economics, with a concentration in accounting, from Virginia Commonwealth University. He is a Certified Public Accountant and Certified Government Financial Manager. Mr. Rountree is a member of the Government Finance Officers Association, the American Institute of Certified Public Accountants, and the Association of Government Accountants.

Mr. Rountree oversaw the transition activities for the transfer of possession and control of the DTR to the Airports Authority and the transition of the Metrorail Project design and construction from DRPT to the Airports Authority. Mr. Rountree negotiated the terms and conditions of the Master Transfer Agreement Relating to the Dulles Toll Road and identified DTR operational strategies.
Charles S. Carnaggio, P.E. – Project Director

Mr. Carnaggio brings more than 30 years of directly relevant experience developing, overseeing, planning, designing, and building major capital transit projects throughout the country.

Mr. Carnaggio joined the Airports Authority from DRPT. Previously, Mr. Carnaggio was the Director of the Office of Engineering at the FTA and Deputy Administrator of the Maryland Transit Administration, with responsibility for operation and planning of the entire multi-modal transit system, including heavy rail, light rail, bus, and paratransit. His transit experience covers nearly every active transit construction project in the country, and he was responsible for developing many of the FTA programs and policies used to manage and evaluate transit New Starts projects. Mr. Carnaggio also brings expertise in transit operations, transit security, heavy civil construction, and large program management. He was the FTA sponsor of the Construction Roundtable and was instrumental in developing the FTA risk assessment process. With his unique perspective as both a grantee and federal regulator, Mr. Carnaggio has the skills and experience to direct the development of the Dulles extension from design through construction and into operations. Mr. Carnaggio is a registered professional engineer and holds a master’s degree in business administration from Loyola College and a B.S. in civil engineering from the Catholic University of America. In addition, he pursued graduate studies at the Naval Postgraduate School and the Federal Executive Institute.

Kevin C. Volbrecht, P.E. – Deputy Director Construction

Mr. Volbrecht has more than 25 years of construction management and engineering-related experience in heavy and light rail transportation projects; transit station facilities, including life safety and operational systems installations; building projects; highway projects; and airport terminal renovation and expansion, including U.S. Customs facilities and baggage handling systems. He has been involved and coordinated with numerous jurisdictional agencies, contractors, and consultants. His duties have included pre-construction design reviews for constructability, functionality, and cost-effectiveness; on-site construction activities from groundbreaking to closeout; and project controls.

Prior to joining the Airports Authority, Mr. Volbrecht was with URS Corporation. Most recently, he was the Deputy Project Manager on the final design contract for the 2.4-mile, $467 million extension for Miami Dade Transit from the Earlington Heights Station to the new Miami Intermodal Center Station. His duties involved assisting in the completion of design documents, focusing on contract specifications, interface coordination between design disciplines and Miami Dade Transit operational staff, and incorporation of design review comments on final design into the construction bid packages. He was also responsible for managing a number of subconsultants on the transit project. Other transportation projects that Mr. Volbrecht has been involved with include Resident Engineer for the Caltrain Double Track Construction project in Santa Clara County (CA); Facility Manager for stations and parking garages on the Bay Area Rapid Transit District to San Francisco Airport extension; and Field Project Controls Engineer for the Tasman West Light Rail Extension in Mountain View (CA). Mr. Volbrecht holds a bachelor’s degree in civil engineering from the University of the Pacific and has professional engineer licenses in California and Florida.

Nancy Hsu – Deputy Director Design

Ms. Hsu has more than 30 years of experience in the planning, design, construction, and operation of transit and transportation facilities. Most recently, Ms. Hsu managed the multiple infrastructure design projects for the new airside Aerotrain system scheduled to open in 2009 at Dulles Airport.
Ms. Hsu’s prior experience includes positions with WMATA and New York City Transit (NYCT). As WMATA’s Assistant General Manager for Rail Service, her responsibilities included daily operation and maintenance of the rail system. As Deputy Assistant Manager for Design and Construction, Ms. Hsu was responsible for the planning and design of the Blue Line extension to Franconia-Springfield and the Green Line extension to Branch Avenue, two major segments contributing to completion of the originally planned 103-mile Metrorail system. Ms. Hsu is also experienced with design and construction for capital projects within the NYCT system, having served as Project Manager for the renovation and expansion of mid-town Manhattan stations, including Times Square, Herald Square, Columbus Circle, and the 34th Street Stations at 7th and 8th Avenues. All locations included existing adjacent structures as well as new developments requiring joint development negotiations, funding agreements, and multi-party design and maintenance responsibilities. Ms. Hsu is a registered architect in Virginia, the District of Columbia, Maryland, New York, and Michigan. She received a bachelor of architecture degree from the University of Michigan and an M.S. from Georgetown University.

James L. Van Zee – Deputy Director, Project Development

Mr. Van Zee has more than 32 years of experience in planning positions in and around the Northern Virginia region and has a long history of involvement with the Dulles rail extension. He has extensive planning experience from both the public and private sectors and has knowledge of the local Northern Virginia institutions and players. For the past 11 years, he has served as Director, Regional Planning Services for the Northern Virginia Regional Commission and in a senior planning position with Fairfax County. In addition, he held the position of Chief of Current Planning/Zoning Administrator for Loudoun County from 1979 to 1981.

In his role with the Northern Virginia Regional Commission, a regional planning agency made up of 14 counties, cities, and towns, he served as co-staff of the Northern Virginia Transportation Authority; monitored transportation, land use, and telecommunications legislation in the Virginia General Assembly and analyzed its affects; served as chief of staff in preparing transportation/land use policy; managed the Alternative Transportation and Land Use Activities Study; and reviewed the interrelationship between state and regional transportation policies/programs and local land use policies. He also was lead staff in the analysis of the Virginia Railway Express Commuter Rail Land Use Study, managed various other transportation studies, and has been a senior associate for advisory services with the Urban Land Institute. Most recently, Mr. Van Zee advised the institute as a literature reviewer in its new publication Developing Around Transit. Mr. Van Zee holds a bachelor’s degree in urban studies from Virginia Commonwealth University and a master’s degree in planning from the University of Virginia.

Jennifer Mitchell – Deputy Director, Finance

Ms. Mitchell has more than 12 years of experience in transportation finance, with a focus on revenue forecasting, financial planning, and economic impact analysis. Prior to joining the Airports Authority, Ms. Mitchell was Manager of Project Finance for DRPT. Prior to that, she worked as Senior Transportation Planner with DMJM Harris, where she was part of the team conducting the alternatives analysis and environmental impact analysis for the Dulles Corridor Rapid Transit Project. She served as the Deputy Project Manager for the Final EIS, where she analyzed the land use and economic development impacts of the project on the surrounding jurisdictions and coordinated the financial plan for the project. Ms. Mitchell has held various consulting positions in transportation finance, planning, and economic impact analysis of transportation projects in the United States, Europe, and Latin America. Ms. Mitchell has project experience in the development of funding and implementation strategies for various transportation alternatives; toll revenue forecasting; identification of potential federal, state, and local funding sources; and analysis of the impacts of federal transportation policy on transportation investment projects. She is also experienced in the development and application of economic and financial analysis models.
Ms. Mitchell holds a bachelor’s degree in city planning from the University of Virginia and a master’s degree in regional planning with a concentration in government and infrastructure finance from the University of North Carolina at Chapel Hill.

**Jon Christensen – Manager of Quality Assurance/Quality Control and Safety**

Mr. Christensen has more than 35 years of engineering and management experience, including more than 30 years of experience in QA. Prior to joining the Airports Authority, Mr. Christensen was Manager of Quality Assurance for DRPT. He has held management positions with responsibility for development and implementation of QA programs related to nuclear and fossil power stations, mining projects, and two major rail transit projects. He has eight years of rail transit experience and was most recently assigned to the Southern New Jersey Light Rail Transit System Project as the Quality Assurance Manager for NJ Transit’s General Design Assistance Consultant. In this position, he established NJ Transit’s project QA program and procedures and conducted extensive overview of the project’s design-build-operate-maintain contractor in the form of audits, surveillances, and reviews. Prior to this assignment, he served as the Quality Assurance Manager for the Siemens Transit Team, which was the design-build-operate-maintain contractor for the Tren Urbano Project in San Juan, Puerto Rico. Mr. Christensen also developed the QA program and procedures for the project and was responsible for monitoring design and construction activities of the Siemens Transit Team and its subcontractors.

Mr. Christensen holds a B.S. degree in marine engineering from the U.S. Merchant Marine Academy and was an ASQ Certified Quality Engineer.

**Gabi Daniel – Manager of Risk Management/Project Controls**

Mr. Daniel has more than 21 years of experience in various engineering and construction management projects, including major civil engineering projects for WMATA and the Capital Improvement Program for Dulles Airport, whose total cost estimate was $3.4 billion. The program included significant expansion and renovation of the main terminal; construction of a new, 300-foot air traffic control tower; a fourth runway; five miles of tunnels; five underground stations; and installation of light rail automatic people movers. For the last 10 years, Mr. Daniel worked with Parson Consultant Management as manager for estimating and claim department. He supervised the construction project control team and negotiated more than 2,000 changes totaling in excess of $300 million in change orders and claims. Mr. Daniel administered construction contracts from the initial planning to completion. He prepared modification packages, merit determinations, and differing site conditions report documents; analyzed claim costs; and led negotiations required to make independent judgments and actions within established guidelines. In addition, he prepared construction cost forecasts for new projects and monitored and analyzed construction cost data. Mr. Daniel has also used data to develop program and project estimates for new extensions of ongoing projects. Mr. Daniel has a B.A. degree in civil engineering from the University of the District of Columbia and holds a professional engineering license in Virginia.

**Marcia McAllister – Manager of Rail Communications**

Ms. McAllister has more than 35 years of experience in communications, journalism, and transportation. Prior to joining the Airports Authority, she was communications manager for the Dulles Corridor Metrorail Project at DRPT. She has covered the construction and expansions of Washington’s Metrorail system and design and construction of the MARTA system in Atlanta for major daily newspapers. For the past 25 years, she has covered a wide range of transportation, land use and development, and community issues for several local newspaper chains, writing about land use and transportation in Fairfax, Loudoun, and Prince William counties; the District of Columbia; and suburban Maryland. Her career has also...
included communications work for the Department of Transportation and the Department of Justice and freelance work for some of the nation’s most prominent newspapers, including The Washington Post. In different positions with Times Community Newspapers, a chain of 14 papers in Fairfax County, she has covered the Dulles project over the years and won multiple journalism awards, including a first place Virginia Press Association award for in-depth coverage of the Draft EIS on the Dulles Metrorail project. Ms. McAllister holds a B.A. in journalism from Georgia State University in Atlanta and is a graduate of Leadership Atlanta.

**Wayne Thiel – Contract Administration Officer**

Mr. Thiel has more than 30 years of experience in construction, construction management, and contract administration of major multidisciplinary infrastructure projects, including the Washington, DC Mass Transit System and the Jubail Industrial City in Saudi Arabia. Mr. Thiel’s primary focus has been on mass transit projects, including stations, underground aerial structures, and tunneling. Prior to joining the Airports Authority, Mr. Thiel spent 20 years with WMATA and 12 years with Bechtel Corporation. Mr. Thiel is a graduate of the University of Maryland.

**Eric R. Carey – Contracts Manager and Contracting Officer**

Mr. Carey is responsible for design and construction contract management for the Airports Authority’s Capital Construction Program for Dulles Airport. Mr. Carey is a graduate of the Rutgers University College of Engineering (1969) and has taken graduate courses at the Columbia University School of Architecture. He has also participated in continuing education at the George Washington University School of Law as well as the National Transit Institute. Mr. Carey was a design and construction project director, as well as a contracting officer (unlimited warrant), during a 31-year career with the U.S. Department of Veterans Affairs Office of Facilities Management. He has been with the Airports Authority since 2004. He has extensive experience with the Federal Acquisition Regulations and with the Airports Authority’s acquisition requirements. He is also familiar with the FTA’s Best Practices Procurement policy. Mr. Carey is a Certified Construction Manager and is active in the Construction Management Association of America.

**Joseph Licaros – Grant Administrator**

Mr. Licaros will serve as the Airports Authority’s Grant Administrator for the Project. Before joining the Airports Authority, Mr. Licaros was the Grants Administrator for Cornell University and George Washington University. In these positions, Mr. Licaros coordinated and tracked funding from multiple grants, and maintained and reconciled all grant-related accounts. Mr. Licaros is a graduate of Holy Angel University, Philippines. He will oversee the Airports Authority’s incorporation in the FTA’s TEAM system for managing FTA-related federal grants.

**Alan Kolodne, PE, CCM – Senior Project Manager**

Mr. Kolodne has 34 years of progressive experience associated with both new heavy construction and structural rehabilitation of WMATA Metrorail infrastructure. He is currently a new member of the Airports Authority Project Management Staff for the Project. He is serving as the Senior Project Manager for Design and is assisting in the technical administration of Final Design activities, with a focus on inter-agency coordination. Mr. Kolodne had previously been involved in the Project for four years as a Project Manager for WMATA, responsible for technical support in Supplemental Engineering and Technical Management in Preliminary Engineering related to the civil, structural (aerial guideway and tunnels), and systems (traction power, ATC, and communications) disciplines.
Prior to his involvement in the Project, in his employment with WMATA, Mr. Kolodne was assigned as Project Manager for the WMATA office, responsible for management and implementation of the rehabilitation program for the ROW aerial, at-grade, and tunnel facilities, and for parking garage structures. These responsibilities included all aspects of design and construction, from pre-design planning to commissioning, including program budgeting and scheduling, procurement planning, design and construction contract management, coordination with ongoing revenue operations, and acceptance. Mr. Kolodne also managed the compressed natural gas conversion programs (for building upgrades and fueling plant installation) for two bus division facilities. Prior to that, Mr. Kolodne served as a Resident Engineer for 13 years and as part of the Resident Engineer’s staff for the 10 preceding years in the administration of construction contracts for five underground cut-and-cover station and line contracts (averaging $60 million each in value) and three at-grade and two aerial station and line contracts. One of these assignments included the construction contract for the East Falls Church station and line in the I-66 ROW on the Orange Line. Mr. Kolodne holds a bachelor’s degree in civil engineering from the University of Virginia. He is a registered professional engineer in Virginia and a Certified Construction Manager.

William J. T. Bell – QA/QC Supervisor

Mr. Bell is an accomplished Quality Manager with more than 27 years of experience working on construction projects. Prior to joining the Airports Authority, Mr. Bell spent 19 years at WMATA in increasingly responsible positions, including Quality Construction Engineer, Capital Projects Construction Engineer, Manager of Field Inspections, and Quality Control Engineer. During his time at WMATA, Mr. Bell served as the QA/QC Supervisor for several of WMATA’s design-build capital projects. He performed audits of Quality Management Systems Program Plans, QA/QC specifications, and Contract Modification Packages; provided design and constructability reviews of PE and final design documents; and issued reports on contractor QA/QC programs and activities. Mr. Bell spent eight years providing QA/QC engineering services at Bechtel Corporation for projects in San Francisco, Ann Arbor, and Saudi Arabia. He holds a B.S. in civil engineering and B.A. in economics from Trinity College of Dublin, and has completed numerous quality, supervisory, and construction training courses offered by WMATA, the FTA, VDOT, and others.

Ralph Gillwald – System Safety Supervisor

Mr. Gillwald recently left a 27-year role at WMATA and joined the Airports Authority as System Safety Supervisor for the Project. With extensive experience in the oversight of construction projects, communications system installation inspection, and electronic equipment component level repair, Mr. Gillwald is well versed in all aspects of safety management for major transportation projects. Mr. Gillwald joined WMATA in 1981 as an Electronics Bench Technician. He later became a Construction Inspector for Communications. He advanced from that role to become a Construction Engineer in WMATA’s Comprehensive Radio Communications System, Operations Liaison Officer, and finally Communications Project Support Specialist. Mr. Gillwald has been involved in the Project since he became Operations Liaison Officer in 2004. He has extensive experience coordinating project teams and monitoring the safety of construction projects. He has also coordinated and approved site-specific work plans, managed daily safety activities, coordinated contractor safety training, and participated in inspection and testing of systems. Mr. Gillwald holds an Associate’s Degree in business management from Northern Virginia Community College and a bachelor’s degree in business management from the University of Phoenix.
PROJECT MANAGEMENT SUPPORT SERVICES CONSULTANTS

The PMSS consultants are a group of transit engineering and construction experts made up of staff from numerous firms and led by the firm of Jacobs Carter Burgess.

Steven Sabo, P.E. – PMSS Project Manager

Mr. Sabo brings more than 36 years of experience in construction working for public sector owners, contractors, and professional construction managers with direct responsibility for performance, schedule, quality, and profit. He has experience in public transit, water/wastewater, airports, postal facilities, medical centers, universities, parking structures, historic renovations, industrial plants, and high-rise building projects.

Prior to joining Jacobs Carter Burgess, Mr. Sabo was the Assistant General Manager and Chief Engineer at Southeastern Pennsylvania Transportation Authority in Philadelphia, in charge of its Capital Design and Construction Division. In this capacity, he supervised more than 125 in-house engineers and architects involved in the authority’s continually renewing annual multi-billion dollar capital improvement and expansion program. Mr. Sabo is a registered professional engineer and holds a bachelor’s degree in civil engineering from the City College of New York. He is leading the Airports Authority’s consultant team in the planning, management, and execution of the Project.

Jim Cramer – PMSS Deputy Project Manager

Mr. Cramer has more than 35 years of experience in the transit industry. For the PMSS contract, Mr. Cramer serves as the Deputy Project Manager, reporting directly to Mr. Sabo. He assists Mr. Sabo in the planning, management, and execution of the Project. His experience includes project manager responsibilities for the design, manufacture, delivery, and commissioning of fully automated transit technologies for projects in Las Vegas, Tampa, and London. Additionally, Mr. Cramer was the Systems Area/Start-Up Manager for Wilshire Corridor and North Hollywood extensions of the Los Angeles Red Line and most recently served as the Project Manager for the Las Vegas Monorail Project. Over his career, Mr. Cramer has worked on numerous design-build contracts similar in scope to the Project.

Philip Castellana – PMSS Manager, Systems Oversight

Mr. Castellana has more than 32 years of experience in the transit industry, working for a public transit authority and Lea+Elliott. A mechanical engineer by training, Mr. Castellana has focused his career on the planning, design, procurement and delivery of vehicles, and design-build procurements for public transit authorities, airports, Amtrak, freight railroads, and private sector owners. His experience encompasses all modes of transit, from rail to bus transit and airport and urban automated people mover systems. He has led the Lea+Elliott team during the review of contract provisions, including dispute resolution, preparation of procurement documents, and development of transportation system operating plans. On the Project, he has played a key role in the contract documents for Final Design and Construction that will enable the Airports Authority to effectively manage DTP and to address the requirements of WMATA, Fairfax County, VDOT, and other stakeholders.

Mr. Castellana began his career at the Port Authority of Allegheny County in Pittsburgh, where he spent 10 years as Staff Engineer, Chief Engineer for Equipment and Maintenance, and Manager of Rail and Support Vehicle Maintenance and Equipment Engineering. He received his B.S. in mechanical engineering from Carnegie-Mellon University.
Warren Cromarty – PMSS Manager, Project Controls

Mr. Cromarty has more than 37 years of experience providing cost estimating, cost engineering, risk management, and other project controls services for industrial, commercial, government, and transportation projects across the nation. Prior to joining the firm of STV, Mr. Cromarty held positions at all levels of the contracting structure, including owner, general contractor, and subcontractor, and is familiar with those cost estimating, engineering, and control processes and procedures that have been successful for each. Mr. Cromarty also served as the Vice President of Project Controls and Procurement at Pacific Gas & Electric. He was involved in the development, design, procurement, construction, start-up, and commissioning of a portfolio of generating plants and cogeneration facilities, valued at more than $6 billion. In this position, he was responsible for all aspects of corporate cost estimating, cost engineering, and schedule controls. He also authored internal standards for estimating, cost engineering, project planning, scheduling, and specifications for these disciplines for use in contracting.

Mr. Cromarty’s professional experience also includes more than 13 years of oversight, as owner, of Bechtel (Power) Corporation, making him intimately familiar with the practices of this contractor. Mr. Cromarty has developed and administered cost estimating programs and cost engineering programs to establish trends, forecasts, and report project costs to a high degree of accuracy and reliability. He has developed and administered successful change control programs that have reduced change order costs to owners by millions of dollars, and he has extensive experience in both the submission and defense of delay claims, including forensic investigation of project events, schedule delay analysis, and estimating cost entitlement. Mr. Cromarty has extensive experience in leading project controls and estimating efforts on project endeavors costing billions of dollars, some having been under the auspices of government agencies. For example, Mr. Cromarty was the lead Project Controls Manager on the Great Plains Coal Gasification Project, designed and built under the auspices of the U.S. Department of Energy. This $2.4 billion, first-of-its-kind in the United States project was completed on schedule and $125 million under budget.

Robert L. Whedon – PMSS Manager, Construction Oversight

Mr. Whedon has more than 36 years of experience in the construction and construction management of major multidisciplinary infrastructure projects, including hydroelectric and transit projects, nationally and internationally. Mr. Whedon has been involved in the construction management of transit projects in Kuala Lumpur, Malaysia; Salt Lake City; Houston; Las Vegas; Los Angeles; and Seattle. Most recently, Mr. Whedon completed the supervision of construction of a complicated 4.5-mile segment of the Central Link Project for Sound Transit in Seattle. The construction scope included the relocation of all overhead utilities to newly constructed conduit ductbanks, relocation and reconstruction of all existing underground utilities, construction of a new four-lane roadway and sidewalks, double track embedded track, and three at-grade stations.

Prior to joining Jacobs Carter Burgess in 1998, Mr. Whedon was with Bechtel Corporation for 24 years, where he was responsible for both direct hire and construction management projects, including design-build programs similar in format to the Project. Mr. Whedon’s last project with Bechtel was as Area Manager for 21 kilometers of match cast box girder elevated guideway construction, 4 kilometers of at-grade construction, and 11 associated at-grade and elevated stations. Mr. Whedon received a B.S. in civil engineering from Michigan State University.

John Kearney – PMSS Deputy Manager, Construction Oversight

Mr. Kearney has more than 30 years of experience in heavy civil construction and the transit industry. His experience includes serving as project director, project manager, and construction manager of design-
build and turnkey delivery of large transit systems, airport facility expansions, and multi-story/high-rise buildings. Transit-related projects managed by Mr. Kearney include the Las Vegas Monorail, the Jacksonville (FL) Skyway Express, and the Senate Subway in Washington, D.C. Over the course of his career, Mr. Kearney has worked on numerous design-build-operate-maintain contracts requiring the development and implementation of operations and maintenance activities, giving him a “big picture” view on transit projects similar in scope to the Project.

For the PMSS contract, Mr. Kearney reports directly to the Manager, Construction Oversight (see above). In this role, he assists Mr. Whedon in overseeing all construction and utility relocations on the Project.

**Cliff Roberts, P.E. – PMSS Manager, Design and Engineering Oversight**

Mr. Roberts has more than 23 years of experience in the design, management, and construction of multi-disciplinary transportation infrastructure projects, including transit, highway, and rail facilities. A significant portion of this experience is with projects in Fairfax County and Dulles Airport. He has participated in projects for a wide variety of agencies, including the Airports Authority, VDOT, WMATA, and the Fairfax County Department of Public Works and Environmental Services. Mr. Roberts has participated in rail transit projects in Baltimore; Washington, D.C.; and Dallas. He has had significant roles in two of the largest and most significant transportation projects in the region: the I-95/I-395/I-495 Interchange in Springfield (VA) (“the Mixing Bowl”) and the fixed facility portion of the Automated People Mover system at Dulles Airport. The I-95/I-395/I-495 Interchange is a $750 million reconfiguration of an interchange serving two major interstate highways, one major arterial roadway, and several minor roadways. It is composed of more than 45 bridges and 35 miles of new roadway alignment. The Dulles Airport Automated People Mover system fixed facilities is part of a multi-billion dollar improvement to airside transportation. The fixed facilities include stations, a maintenance facility and tunnels for people mover trains, baggage tugs, and utilities. Tunnels were constructed under active taxi lanes and taxiways using a tunnel boring machine, the NATM, and cut-and-cover tunneling techniques.

Prior to joining Jacobs Carter Burgess, Mr. Roberts was a Senior Project Manager for the HNTB Corporation in its Northern Virginia office, where he managed the design efforts for numerous transportation projects. He is a licensed professional engineer in Virginia and Maryland and received a Bachelor of Engineering degree from the Stevens Institute of Technology.

**Paul Elman, P.E. – PMSS Design Liaison, Stakeholders and Regulatory Agencies**

Mr. Elman has more than 20 years of experience managing all facets of transportation infrastructure engineering and design development. Mr. Elman transferred from DRPT to join the Airports Authority and recently left the Airports Authority to begin work for the firm of Kimley-Horn. Prior to joining DRPT, Mr. Elman spent 10 years as Senior Project Manager for Parsons Corporation, managing rail and transportation infrastructure projects for such public sector clients as WMATA, MTA, VDOT, the Federal Highway Administration, and the Delaware Department of Transportation. With the Rail Transit Systems Division of Parsons, Mr. Elman served as lead firm representative with the Capital Transit Consultants consortium that performed all engineering consultant and design services for WMATA. In this capacity, Mr. Elman managed the PE and advance design contract for the Largo Metrorail Extension and, previously, the GEC for WMATA. Prior to joining Parsons, Mr. Elman spent several years overseeing large-scale land development projects for private sector clients in Northern Virginia and New Jersey. Mr. Elman is a registered professional engineer in four states and has a master’s degree in engineering administration from Virginia Tech and a B.S. degree in civil engineering from The George Washington University. Mr. Elman continues participation in the Project via a contract with Jacobs Carter Burgess.
Diane Clark – PMSS Environmental Compliance

Ms. Clark is an environmental professional with more than 22 years of experience in environmental consulting, general land use planning, environmental planning, regulatory compliance, and zoning functions. Ms. Clark has more than 18 years of experience working with NEPA and has prepared EAs, EISs, NEPA guidance manuals, training materials, and tracking systems for U.S. Government and military sites. Ms. Clark has developed natural resource management plans and performed program analysis and business process reengineering studies. She has also provided management assistance and insight on many issues related to environmental health, safety, and regulatory compliance programs. Ms. Clark holds a master’s degree in urban and environmental planning from the University of Virginia and a bachelor’s degree in political science from Roanoke College. She was recognized in 1997 and 2000 by the U.S. Environmental Protection Agency for high-quality performance in support of the National Technical Assistance Contract.

David Olguin – PMSS Project Administration and Program Logistics

Mr. Olguin has more than 27 years of experience in operations and business management. Prior to joining the Project team, Mr. Olguin was the District Business Manager for HNTB Corporation. In this role, he managed office operations, finance, and administration in close coordination with senior management. His responsibilities extended across 5 operating offices and more than 125 professional, technical, and administrative staff. Accomplishments include reductions in overdue accounts receivable from 40% to 15%, optimization of support staff billability from virtually zero to nearly 50% for project administrators and secretarial staff, and participation in the development of both an office strategic plan and a 3-year rolling business plan. Mr. Olguin also served as an Operations and Administration Chief in the United States Marine Corps for 12 years.

Rick Chen – PMSS Controls Configuration and Information Systems

Mr. Chen has six years of experience in the IT field, and has served in increasingly responsible positions supporting program management teams working on transportation projects at the municipal, state, and federal levels. Mr. Chen is well versed in all aspects of network administration and management, and has specific experience implementing these skills to support program management activities. Prior to joining the Project, Mr. Chen served as a network systems engineer for Comprehensive Care Management Corporation, where he provided technical support of network design and implementation for a 1,200-user network. Mr. Chen also worked as a consultant for the Department of Environmental Protection’s PMIS Project, where he helped design and implement a Portal Server and Program Management Information System. For four years, Mr. Chen provided consulting support to the 2nd Avenue Subway Project. As part of the IT team, Mr. Chen supported an Active Directory environment; installed and managed servers, routers, and switches; and provided centralized management of a network of 350 computers. Mr. Chen holds a master’s in computer science from Fordham University and a bachelor’s degree in Chemical Engineering from Yuan-Ze University in Taiwan. He is a Microsoft Certified Systems Engineer (MCSE 2003), Microsoft Certified Systems Administrator (MCSA 2003), Cisco Network Management Systems Engineer, Cisco Wireless LAN Support Specialist, Cisco Certified Design Associate, and Cisco Certified Network Associate.

John Fisher, P.E. – PMSS Project Principal

Mr. Fisher has 36 years of experience in the planning, design, programming, construction management, and construction of rail transit systems. He has a proven track record assembling and leading large diverse integrated teams on complex transit and transportation assignments. Mr. Fisher has served as Jacobs Carter Burgess Project Manager for FTA Project Management Oversight assignments since 1998. His experience also includes serving as Project Director for the $1.8 billion Kuala Lumpur Light Rail Transit
project in Malaysia while with Bechtel and serving in various roles on the Washington, D.C. Metro system. He is a nationally recognized innovative thinker in FTA procurement strategies, delivery modes, and risk assessment processes.

**Larry Miller, P.E. – PMSS Manager, Planning Oversight**

Mr. Miller brings more than 25 years of experience with transportation planning, traffic engineering, and transit projects. He supported the Airports Authority during its assumption of the Project and is thoroughly familiar with the planning and project development issues. He has worked on a variety of projects in Northern Virginia throughout his career, including work on transit planning and operations, design of roadways and traffic control devices, traffic and ridership forecasting, traffic engineering and safety studies, EISs, alternatives analysis, and corridor studies. He was Project Manager on the multi-modal, multidisciplinary Route 1 Corridor Study that developed short- and long-term plans for the 27-mile corridor in Fairfax and Prince William counties (VA). The solutions included improvements to the transit, highway, and pedestrian facilities and services throughout the corridor, and considered environmental and economic impacts and benefits. He has conducted numerous transit technology assessments that are part of feasibility studies and alternatives analyses, such as the Honolulu High Capacity Transit Corridor project. He is experienced in design-build project delivery strategies through preparation of performance specifications for design-build contracts for a new automated transit system and an extension of an existing automated transit system at the Atlanta Hartsfield-Jackson International Airport.

Prior to joining Lea+Elliott, Mr. Miller spent 18 years with TransCore (formerly JHK & Associates) managing a variety of projects, including the Route 1 Corridor Study. He is a licensed professional engineer in Virginia, received his bachelor’s degree in civil engineering from Villanova University, and received his master’s degree in civil engineering (with a minor in city and regional planning) from North Carolina State University.

**Pam Peckham, SR/WA, AICP – PMSS Manager, Real Estate Acquisition**

Ms. Peckham has more than 20 years of property acquisition experience, including her work for Diversified Property Services and WMATA. Ms. Peckham served Diversified Property Services clients as a Right-of-Way Agent in Montgomery County, Calvert County, and Prince George’s County (MD). Ms. Peckham held the position of Acquisition Manager for several telecommunications projects and Head of Private and Government Real Estate Acquisition for WMATA. She has extensive experience in negotiating agreements, and has reviewed appraisal documents, offer packages, and relocation benefits on various acquisition projects. Her work in Northern Virginia includes several WMATA projects for expansion of Metrorail parking on the Orange Line at the West Falls Church and Vienna stations and the extension of the Metrorail Blue Line to Franconia/Springfield.

**Susan Hinkle – PMSS Specialist, Quality Assurance**

Ms. Hinkle, Senior Quality Control Manager with STV Inc., has 18 years of hands-on and management experience in various sectors of the manufacturing, government contracting, and IT communities. Her experience includes serving as Corporate Director of Quality and Program Manager on several government projects, including projects for the U.S. Department of Transportation and Naval Sea Systems Command. She is accomplished in several disciplines, systems, and processes, including business development, 5S, 8D, SMT, PTH, welding, TQM, root cause analysis, project management, configuration management, corrective action, supplier quality engineering, metrics and data analysis, auditing, sampling plans, personnel security, TL 9000, Malcolm Baldridge, ISO 9001:2000, CMMI v1.2, IPC-A-610, API Q1, and ASME NQA-1. Ms. Hinkle authored the book *Take A Quality Ride – The Realities of Implement-*
ing a Quality Management System in 2006 and has been profiled in the American Society for Quality’s Six Sigma Forum.

Ms. Hinkle received her M.B.A. and B.S. in political science from Suffield University. She is a certified project management professional and has a secret-level security clearance.

**Troy Davis – PMSS Diversity Officer**

Mr. Davis has more than 17 years of experience in the field of construction management and DBE program management as project engineer, primarily on VDOT transportation projects. Mr. Davis’s past project experience includes supervising project staff, performing inspection of contractor activities, conducting cost estimating, reviewing subcontracting agreements, consulting on financial matters, negotiating scope changes with contractor, documenting pay quantities, keeping daily logs of project activities, and ensuring that all inspection and testing is performed in strict compliance with VDOT standards and specifications. Prior to joining McKissack and McKissack, Mr. Davis provided direct construction management and engineering assistance to minority, disadvantaged, and women-owned businesses; advised VDOT and Federal Highway Administration on the status of DBE matters; and worked with VDOT to establish the overall annual goals for the DBE program as they relate to the Woodrow Wilson Bridge Project. Mr. Davis holds a bachelor’s degree in public administration from Virginia State University. Mr. Davis will report directly to the Project Manager, Mr. Steven Sabo.

PMSS has additional expert resources available on an as-needed basis.

**WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY**

**David D. Couch – Managing Director, Office of Engineering and Capital Projects**

Mr. Couch has more than 30 years of experience in the management of transit construction of new Metrorail systems, rail extensions, and rehabilitation of bus facilities and rail systems. His office is responsible for management of the Project, capital projects, and completion of Metro Matters. Mr. Couch has a bachelor’s degree from Syracuse University and a master’s degree from the University of Wisconsin, and is certified as a Project Management Professional and Construction Manager.

**John Thomas, P.E. – Project Executive/Director, Office of Major Capital Projects**

Mr. Thomas joined WMATA in 1989 as an Assistant Office Engineer and has held several progressively responsible positions at WMATA during his 19 years of service. As WMATA’s Project Executive on the Project, he is the lead person for WMATA. As the Director of WMATA’s Office of Major Capital Projects, he is also charged with the completion of Metro Matters Yard Projects, the Navy Yard Entrance Modification, the Fort Totten Police Substation, and the Huntington Station Parking Garage. Previously, Mr. Thomas was the Project Manager for the New York Avenue Station, which is a new in-fill station built on the Metrorail Red Line that involved significant coordination and planning challenges to construct, test, and open while minimizing impacts on Red Line revenue service. Mr. Thomas holds a bachelor’s degree in civil engineering from Youngstown State University and a master’s degree in business administration from Mount Vernon College, and is a licensed professional engineer in the state of Maryland.

**Neil Nott – Project Manager, Design**

Mr. Nott has more than 28 years of progressive experience associated with the design and construction of a variety of transit and institutional projects, with more than 18 years directly involved with the design and construction of heavy rail transit stations and facilities. Mr. Nott’s experience in the design of heavy rail transit stations and facilities includes seven years serving as Senior Project Architect on the Bay Area
Rapid Transit SFO Extension, with lead responsibility for planning, design, and construction oversight of stations and wayside facilities on this $1.5 billion, 8.7-mile long, four-station, design-build demonstration project. Currently, Mr. Nott is responsible for technical design coordination and interface between WMATA and the Airports Authority. Mr. Nott was also responsible for management of station and facility design during the previous environmental and PE phases of the Project. He holds a bachelor of architecture degree from the University of North Carolina-Charlotte and is a Registered Architect.

**Virginia Department of Transportation**

**Ronaldo T. Nicholson, P.E. – Program Manager, Northern Virginia District**

Mr. Ronaldo “Nick” Nicholson is the Northern Virginia District’s Program Manager for Mega Projects. Mr. Nicholson served as the Assistant Resident Engineer for Construction and Preliminary Engineering in Fairfax County for VDOT. Before joining VDOT in 1993, he worked as a Senior Design Engineer with the Fairfax County Department of Public Works, where he was the Project Manager for the Fairfax County Parkway from 1985 to 1993.

Mr. Nicholson has received numerous awards in his 20+-year career, most recently the 2006 VDOT Commissioner’s Award for Outstanding Achievement on the Woodrow Wilson Bridge Project and the 2006 Virginia Governor’s Award for Teamwork on the Woodrow Wilson Bridge Beltway Shift.

Mr. Nicholson graduated with a M.S. in structural engineering from The George Washington University in Washington, DC. He received his B.S. in civil engineering from the University of Kansas. He is a registered professional engineer in Virginia, and currently serves as a member of the Bridge and Structures Maintenance Committee of the Transportation Research Board.

**Peter Vigliotti, P.E. – Dulles Corridor/Metrorail Coordinator**

Mr. Vigliotti has more than 16 years of public agency experience in the administration and management of heavy construction transportation projects. Prior to his assignment on the Project, Mr. Vigliotti’s role in VDOT was Area Construction Engineer for the construction of a new bridge over the Occoquan River in Northern Virginia. Mr. Vigliotti’s previous experience includes two years of employment at the Oakland International Airport (Port of Oakland), as a Resident Engineer in the administration of various aviation construction projects, and approximately 11 years of experience with the California Department of Transportation as an Assistant Resident Engineer and Resident Engineer in the administration of various highway construction projects. Mr. Vigliotti’s responsibility in these positions was to address engineering and constructability issues in an expeditious manner during project construction. Other responsibilities included monitoring the progress of work and the financial stability of the projects. Mr. Vigliotti’s role as VDOT’s Coordinator for the Project is to address and coordinate design and construction activities that affect VDOT’s facilities during construction of the Project. Mr. Vigliotti also has VDOT permitting authority, and he will be located at the Airports Authority’s Project office.

Mr. Vigliotti holds a B.S. in civil engineering from the University of Rhode Island and is a registered professional engineer in the Commonwealth of Virginia and the State of California.

**Department of Rail and Public Transportation**

**Michael Harris – Project Coordinator**

Mr. Harris has extensive project management experience and 21 years of experience in the ITS operations, transit, traffic engineering, and transportation planning fields. Since early 2008, he has served as Project Coordinator for DRPT. He currently serves as the lead staff member for DRPT on the Project, responsible for coordination of all DRPT activity. He also supports the Commonwealth interface with the
Project. He reports to Corey Hill, Chief Public Transportation for DRPT in Richmond. Prior to this assignment, he was in the private sector as Project Manager for the VDOT-sponsored Woodrow Wilson Bridge Southside Mobility Study. He is currently Project Manager for Virginia’s efforts with Google Transit, Project Manager for the Woodrow Wilson Southside Mobility Study Phase II for DRPT, and Project Manager for the DRPT ITS Strategic Plan. He also serves as the interim project manager for the upcoming I-66 Corridor Transit Study. He holds a bachelor’s degree in civil engineering from Pennsylvania State University and a master’s degree in urban systems engineering from George Mason University.

**FAIRFAX COUNTY**

**Richard F. Stevens – Project Manager, Dulles Corridor Metrorail Project**

Mr. Stevens has more than 30 years of experience in the transit industry. As Fairfax County’s Project Manager for the Project, he is responsible for coordinating activities within the county to ensure that the Project is implemented in a manner that meets county goals and objectives for land use, transportation, and the environment. Mr. Stevens serves as a liaison to the Airports Authority, the Project team, and stakeholders.

Prior to joining Fairfax County, Mr. Stevens was with WMATA for 23 years, serving most recently as its Director for Business Planning and Project Development. He worked on long-range planning efforts for the Metrorail and Metrobus systems, prepared WMATA’s “Transit Service Expansion Plan,” and participated in the planning for Metrorail service in the Dulles Corridor.

Mr. Stevens’s prior assignments were at the FTA and in private consulting. He has participated in numerous industry conferences and meetings and was a member of the Rail-Volution National Steering Committee. He holds a B.S. in civil engineering and an M.S. in transportation and urban planning from the State University of New York at Buffalo.

**Dulles Corridor Metrorail Project Staffing Plan Details**

At the end of this appendix are the organization charts for the Airports Authority, the PMSS, and WMATA. The text below provides some background information and additional staffing details on those organization charts.

**Airports Authority Staffing Plan**

As stated in the PMP, the Airports Authority is using a combination of direct and indirect reporting arrangements to take advantage of the depth of its existing organization and to provide the skills necessary to successfully manage the Project. The Airports Authority’s organization chart shows that staff working on the Project are divided into those working from the Airports Authority’s corporate offices and those working from the Project office. All of the Airports Authority staff working from the Project office will be working on the Project full-time. Those working from the corporate office will work on the Project as needed. The open positions are in the process of being filled.

**PMSS Staffing Plan**

The PMSS will supplement and complement the Airports Authority staff by providing support services for the implementation of the Project. The PMSS organization chart shows the relationships between PMSS staff and the Airports Authority Project staff. The PMSS will provide support by staff who will be assigned to the Project full-time and staff who will be brought in to work when they are needed, either through separate subcontracts or drawn from the staff of the firms currently participating on the PMSS team, depending on the demands of the Project as it progresses. Some will work at the Project office,
others will complete their work remotely. All full-time positions needed at this point in the Project have been filled.

**WMATA Staffing Plan**

As provided in the WMATA/Airports Authority Cooperative Agreement of September 14, 2007, WMATA staff from a variety of disciplines will be assigned to the Project as they are needed. This flexible approach conserves labor expenses and uses the Project budget as efficiently as possible. The initial staffing plan, included as Exhibit 5 of the agreement, calls for 32 full-time equivalents in 2008 based on the Project schedule available at that time. Actual staffing may vary somewhat in response to schedule changes. At this time, WMATA does not anticipate the need to hire any additional staff for the Project.

The technical mix of staff will vary as the Project progresses through Design, Construction, Testing, and Certification. Also, depending on Project demands and the specific needs of the required personnel, WMATA management will decide whether the staff will work from the Project office or from the WMATA offices. There are currently 18 work spaces in the Project office dedicated for WMATA’s use, with additional space available if needed. Lastly, in addition to the areas of responsibility identified on the organization chart, WMATA staff will coordinate the activities of the force account agreements and the third party contracts.
Airports Authority Dulles Corridor Metrorail Project Organization

Airports Authority Corporate Office

Board of Directors
Chief Executive Officer
James E. Bennett

Chief Operating Officer
Margaret McKeough

Chief Financial Officer
Lynn Hampton

Chief Administrative Officer
Eric R. Carey

General Counsel
Philip G. Sunderland

Senior Director
Airport Manager
Frank D. Holly

Chief Program Manager
3rd Quarter 2008
Nancy Hsu

Deputy Director Design
Ralph Gillwald

Manager of Risk Management/Project Controls
4th Quarter 2008
Gabi Daniel

Manager of Project QA/QC and Safety
4th Quarter 2008
Jon Christensen

Manager of Rail Communications
Marcia McAllister

Deputy Director Project Finance
4th Quarter 2008
Jennifer Mitchell

Manager of Project Administration
4th Quarter 2008
Gabi Daniel

WMATA

WMATA

Deputy Director Project Development
James Van Zee

Manager of Rail Communications
Marcia McAllister

Manager of Risk Management/Project Controls
Gabi Daniel

Manager of Project QA/QC and Safety
Jon Christensen

Manager of Rail Communications
Marcia McAllister

Deputy Director Project Finance
Jennifer Mitchell

Manager of Project Administration
Gabi Daniel

Deputy Director Design
Nancy Hsu

Deputy Director Construction
Kevin C. Volbrecht

Senior Project Manager
Nancy Hsu

Senior Project Manager
4th Quarter 2008
Kevin C. Volbrecht

Deputy Director Project Development
James Van Zee

Manager of Rail Communications
Marcia McAllister

Manager of Risk Management/Project Controls
Gabi Daniel

Manager of Project QA/QC and Safety
Jon Christensen

Manager of Project Administration
Gabi Daniel

Deputy Director Project Finance
Jennifer Mitchell

Manager of Project Administration
Gabi Daniel

Deputy Director Construction
Kevin C. Volbrecht

Senior Project Manager
4th Quarter 2008
Kevin C. Volbrecht

Deputy Director Project Development
James Van Zee

Manager of Rail Communications
Marcia McAllister

Manager of Risk Management/Project Controls
Gabi Daniel

Manager of Project QA/QC and Safety
Jon Christensen

Manager of Project Administration
Gabi Daniel

Deputy Director Project Finance
Jennifer Mitchell

Manager of Project Administration
Gabi Daniel

Deputy Director Design
Nancy Hsu

Deputy Director Construction
Kevin C. Volbrecht

Senior Project Manager
Nancy Hsu

Senior Project Manager
4th Quarter 2008
Kevin C. Volbrecht
Washington Metropolitan Area Transit Authority – MCAP Organization

John Thomas
Director, MCAP

Dulles Corridor Metrorail Project

COST REPORTING

Railcars

Third Party Contracts
- Fare Collection
- Fiber Optics
- Art-in-Transit

Admin & Design Management
- Civil/Track
- Structural
- Architectural
- Facilities
- Geotech
- Electrical
- Mechanical
- Traction Power
- Communication
- ATC
- Budget
- Office Engineer
- Secretary

Force Account
- As-Built Access
- Tie-In Activities
- West Falls Church Yard Work
- Systems Integration Testing
- Start-Up

QA/QC & Safety Certification

Construction Project Manager – K-Line

Construction Project Manager – Line & Tunnel

Construction Project Manager – Stations

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Functional Reporting Responsibility

Communications/Support

Dulles Corridor Metrorail Project
Extension to Wiehle Avenue
Project Management Plan

September 2008
v. 6.0 Final