

PMOC REPORT

**OP 20 – Project Management Plan Review
OP 21 – Technical Capacity and Capability Review
OP 24 – QA/QC Review**

**Honolulu Rail Transit Project
Honolulu Authority for Rapid Transportation (HART)
City and County of Honolulu
Honolulu, HI**

July 2012 (FINAL)

PMOC Contract Number: DTFT60-09-D-00012
Task Order Number 2: Honolulu
Work Order Number 2
Project No. DC-27-5140
OPs Referenced: OP 1, OP 20, OP 21 and OP 24

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1.0 EXECUTIVE SUMMARY

1.1 Introduction

The Honolulu Authority for Rapid Transportation (HART) continues to advance development of its proposed Honolulu Rail Transit Project (“Project”), formerly known as the Honolulu High-Capacity Transit Corridor (HHCTC) Project, in accordance with the Federal Transit Administration (FTA) New Starts requirements. The Project is intended to provide improved mobility in the highly-congested east-west corridor along Oahu’s south shore between Kapolei and the Ala Moana Center. The Project would provide faster, more reliable public transportation services than those currently operating in mixed-flow traffic.

FTA assigned Jacobs as a Project Management Oversight Contractor (PMOC) on September 24, 2009, for the purpose of monitoring the Project and providing FTA with “information and well-grounded professional opinions regarding the reliability of the project scope, cost, and schedule” of the Project. That effort continues with this report, which represents the PMOC’s (Jacobs) assessment of the grantee’s Project Management Plan and technical capacity and capability.

1.2 Project Description

The Project is an approximately-20-mile-long elevated fixed guideway rail system along Oahu’s south shore between East Kapolei and Ala Moana Center. The alignment is elevated, except for a 0.6-mile at-grade portion at the Leeward Community College station. The proposed investment includes 21 stations (20 aerial and 1 at-grade), 80 “light metro” rail transit vehicles, administrative/operations facilities, surface and structural parking, and maintenance facilities. The grantee plans to deliver the Project in four guideway segments:

- Segment I (West Oahu/Farrington Highway) – East Kapolei to Pearl Highlands (6 miles/7 stations)
- Segment II (Kamehameha Highway) – Pearl Highlands to Aloha Stadium (4 miles/2 stations)
- Segment III (Airport) – Aloha Stadium to Middle Street (5 miles/4 stations)
- Segment IV (City Center) – Middle Street to Ala Moana Center (4 miles/8 stations)

In a recently-announced change, HART has combined Segments III and IV into a single guideway construction contract. The Contract Packaging Plan has been updated to reflect this change.

Additional Project information:

- **Additional Facilities:** Maintenance and Storage Facility (MSF) and parking facilities
- **Vehicles:** 80 vehicles, supplied by the Core Systems Contractor (CSC), which is also responsible for systems design and construction and operations. The CSC is a Design-Build-Operate-Maintain (DBOM) contract.
- **Ridership Forecast:** Weekday boardings – 99,800 (2019); 114,300 (2030).
- **Grantee’s Target Revenue Service Date (RSD):** March 2019

1.3 PMOC Scope of Work

Under this Work Order, Jacobs is to provide the following deliverables per the corresponding FTA Oversight Procedure (OP):

Table 1. PMOC Deliverables

OP	Description	Note
OP 20	Project Management Plan Review	Included within this report
OP 21	Technical Capacity and Capability Review	Included within this report
OP 22	Safety and Security Management Plan Review	Submitted as separate stand-alone report
OP 23	Real Estate Acquisition and Management Plan Review	Submitted as separate stand-alone report
OP 24	QA/QC Review	Included within this report
OP 27	Before and After Study Plan Review	Submitted as separate stand-alone report
OP 37	Fleet Management Plan Review (Bus)	Submitted as separate stand-alone report
OP 37	Fleet Management Plan Review (Rail)	Submitted as separate stand-alone report
OP 38	Bus and Rail Vehicle Technical Review	Submitted as separate stand-alone report

1.4 OP 20: Project Management Plan Review

The PMOC followed the requirements outlined in the “*FTA OP 20 – Project Management Plan Review*”, dated May 2010, to assess and evaluate the grantee’s Project Management Plan, Revision 5.0 dated June 29, 2012.

Conclusion

It is the PMOC’s professional opinion that PMP Revision 5.0 dated June 29, 2012 meets the FTA guidance and requirements necessary to execute an FFGA.

1.5 OP 21: Technical Capacity and Capability Review

The PMOC followed the requirements outlined in the “*FTA OP 21 – Technical Capacity and Capability Review*”, dated May 2011, to assess and evaluate the grantee’s technical capacity and capability.

Conclusion

It is the PMOC’s professional opinion that the grantee has demonstrated sufficient technical capacity and capability during the preliminary engineering and final design phases. HART has implemented several staff and procedural adjustments, many a result of FTA or PMOC recommendations that have improved HART’s technical capacity and capability in preparation of the FFGA.

The PMOC has some concern that the grantee may continue experiencing difficulty attracting and retaining the experienced staff needed for long-term project assignment and permanent grantee employment (post-Project) given Hawaii’s geographic isolation, salary limits, and high cost of living relative to the mainland. The grantee should adhere to the staffing plan to address the transition of staff during the final design and construction phases for positions currently occupied by PMC staff to grantee staff.

The PMOC will continue monitoring the grantee's project management process to ensure that it is effectively managing the project and continuing fiscal responsibility and accountability for all decisions affecting project design, cost, and schedule. The transition from PMC staff to full-time grantee staff must be closely monitored by the PMOC after receipt of an FFGA.

The grantee must issue comprehensive and timely Monthly Reports in accordance with the federal requirements. The PMOC will validate this requirement by receiving and reviewing several months of status reports when they are consistently submitted by the grantee.

It is the PMOC's professional opinion that the grantee has demonstrated sufficient Technical Capacity and Capability necessary to execute an FFGA. However, the PMOC has identified several recommendations the grantee must address as noted in Section 1.7.

1.6 OP 24: QA/QC Review

The PMOC followed the requirements outlined in the *FTA OP 24 – QA/QC Review*, dated May 2010, to assess and evaluate the grantee's Quality Management Plan (QMP), Revision 1.A dated February 15, 2012. The objective of this review is to assess and evaluate the adequacy and soundness of the grantee's QA/QC program and the grantee's implementation of such program over the course of the Project.

Conclusion

It is the PMOC's professional opinion that QMP Rev. 1.A dated February 15, 2012 meets the FTA guidance and requirements necessary to execute an FFGA.

1.7 Recommendations

Required Prior to Execution of FFGA

- (1) The grantee must consistently issue comprehensive and timely Monthly Reports to the FTA and PMOC. The reports must be provided prior to monthly and quarterly progress meetings.
- (2) The grantee must finalize the RCMP. The grantee must strictly adhere to the policies and procedures identified in the RCMP.
- (3) Fill following open key position:
 - Rail System Safety and Security Certification Manager.

Required Within Three Months of Execution of FFGA

- (4) Update PMP Figure 4 – Project Organization Chart to include the names of the new HART Executive Director, Deputy Executive Director and Chief Financial Officer.
- (5) Fill following open key positions:
 - Project Labor Agreement Manager
 - Procedures/Document Control Manager
 - Design Build Contract Administrator
 - Design Contract Administrator
 - Human Resources Specialist DBE

- Human Resources Specialist EEO
 - CSC Configuration Management Specialist
 - System Safety and Security Engineer
 - System Security Specialist
 - Occupational Health/Construction Safety and Security Manager
 - Construction Safety and Security Compliance Officer
- (6) Develop Baseline Project Procedures that are To Be Determined and are critical to proper execution of construction.
 - (7) Ensure a separate and distinct group within the GEC is utilized to perform the reviews for building code and ADA compliance, per the request of the City's Department of Planning and Permitting (DPP) Building Code Branch.
 - (8) Follow the staffing and succession plan for those key management positions that may be considered short term (three years or less) in order to ensure a successful "knowledge transfer" of project consultants' expertise to the grantee.
 - (9) The PMP, companion documents, and Project Control procedure documents must use consistent and traceable vernacular such as correct position titles, deliverable document titles, procedure titles, etc.
 - (10) Develop a Human Resources Management Plan (HRMP) that will function as a blueprint for the organization development of HART to assist with transition of PMC positions to HART.
 - (11) Update sub-plans to the PMP to reflect implementation of cost reduction measures related to redundancy of staffing between HART, PMC, GEC, CE&I and EDCs.

2.0 INTRODUCTION

The Honolulu Authority for Rapid Transportation (HART) continues to advance development of its proposed Honolulu Rail Transit Project (“Project”), formerly known as the Honolulu High-Capacity Transit Corridor (HHCTC) Project, in accordance with the Federal Transit Administration (FTA) New Starts requirements. The Project is intended to provide improved mobility in the highly-congested east-west corridor along Oahu’s south shore between Kapolei and the Ala Moana Center. The Project would provide faster, more reliable public transportation services than those currently operating in mixed-flow traffic.

FTA assigned Jacobs as a Project Management Oversight Contractor (PMOC) on September 24, 2009, for the purpose of monitoring the Project and providing FTA with “information and well-grounded professional opinions regarding the reliability of the project scope, cost, and schedule” of the Project. That effort continues with this report, which represents the PMOC’s (Jacobs) assessment of the grantee’s Project Management Plan and technical capacity and capability.

2.1 Project Sponsor

The City and County of Honolulu (“City”) is the overarching FTA grantee. The City’s Department of Transportation Services (DTS) and HART have executed a Memorandum of Understanding, which delineates each agency’s roles and responsibilities so as not to jeopardize the City’s standing as an FTA grantee. HART is responsible for the New Starts grants for the Project and may share responsibilities with DTS for grants using Section 5307 or other FTA funding sources.

2.2 Project Description

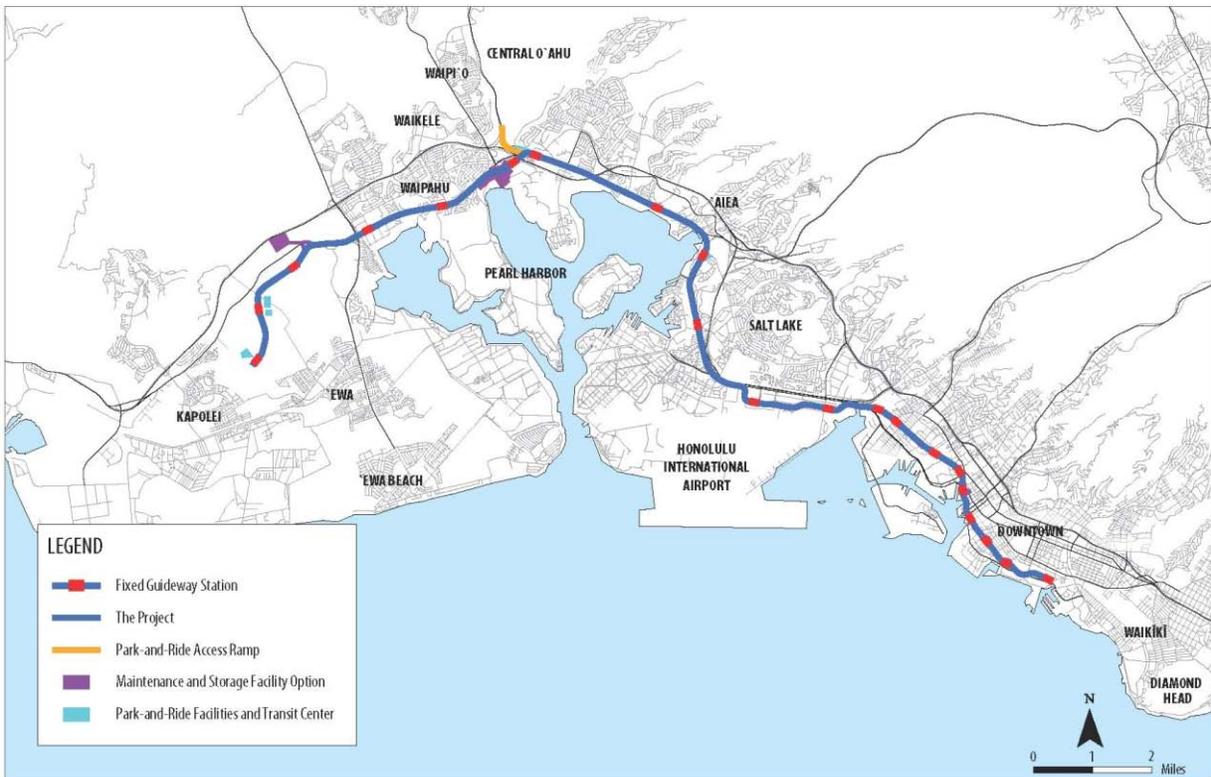
The proposed Project is a 20.5-mile light metro rail line in a grade-separated right-of-way that will provide high-capacity transit service on the island of Oahu from East Kapolei in the west to the Ala Moana Center in the east. The alignment is elevated except for a 0.6-mile at-grade portion adjacent to the Leeward Community College station. In addition to the guideway superstructure and trackwork, major physical elements of the Project include: 21 stations; one maintenance and storage facility; numerous right-of-way parcel acquisitions; and 80 light metro vehicles and associated core systems.

The Project is planned to be delivered in four design and construction segments:

- Segment I (West Oahu/Farrington Highway) – East Kapolei to Pearl Highlands (6 miles/7 stations)
- Segment II (Kamehameha Highway) – Pearl Highlands to Aloha Stadium (4 miles/2 stations)
- Segment III (Airport) – Aloha Stadium to Middle Street (5 miles/4 stations)
- Segment IV (City Center) – Middle Street to Ala Moana Center (4 miles/8 stations)

In a recently-announced change, HART has combined Segments III and IV into a single guideway construction contract. The Contract Packaging Plan has been updated to reflect this change.

Figure 1. Project as Identified in FEIS



East Kapolei is the western terminus of the Project. The alignment begins at North-South Road north of Kapolei Parkway. The alignment follows North-South Road in a northerly direction to Farrington Highway where it turns east following Farrington Highway and crosses Fort Weaver Road. The alignment is elevated along North-South Road and along Farrington Highway. The alignment continues in a north-easterly direction following Farrington Highway in an elevated structure. South of the H-1 Freeway, the alignment descends to grade as it runs alongside the Maintenance & Storage Facility at the former Navy Drum Site. The alignment continues at-grade to Leeward Community College and then returns to an elevated configuration to cross over the H-1 Freeway. North of the Freeway, the alignment turns eastward along Kamehameha Highway. Segment I includes seven stations: East Kapolei, University of Hawaii at West Oahu, Ho’opili, West Loch, Waipahu Transit Center, Leeward Community College and Pearl Highlands.

Segment II carries the alignment from Pearl Highlands to Aloha Stadium, running mostly above the median of Kamehameha Highway. At the highway interchange ‘Ewa of the stadium, the alignment crosses over to the mauka side of Kamehameha Highway, in land adjacent to the roadway that is currently used for stadium parking. Segment II includes two stations: Pearl Ridge and Aloha Stadium. East of Aloha Stadium Station, the segment features a third track for temporary train layovers or storage.

The Airport Segment, or Segment III, takes the alignment from Aloha Stadium to Middle Street. This entirely elevated section of the route starts on the mauka side of Kamehameha Highway, then transitions to the median of that street. As the route proceeds in the Koko Head direction, it leaves Kamehameha Highway to run on the makai side of the elevated H-1 Freeway. At Honolulu International Airport, the alignment swings out over the median of the H-1, then down Aolele Street to a station site adjacent to the main airport terminal. The route then continues Koko Head on Aolele and, eventually, the parallel Ualena Street to Lagoon Drive. At that point, the alignment crosses a corner of Ke'ehi Lagoon Park and threads through another highway interchange to Kamehameha Highway again at Middle Street. Segment III includes four stations: Pearl Harbor, Airport, Lagoon Drive, and Middle Street.

The City Center Segment, Segment IV, is also entirely-elevated as it carries the alignment from Middle Street to the Ala Moana Center. Segment IV features guideway structures above Dillingham Boulevard, Nimitz Highway, Halekauwila Street, Queen Street, and Kona Street. Above Kona Street at the Ala Moana Center Station, the segment includes tail tracks beyond the station to provide operational flexibility and storage. The segment includes eight stations: Kalihi, Kapalama, Iwilei, Chinatown, Downtown, Civic Center, Kaka'ako, and Ala Moana.

The Project also includes one Maintenance & Storage Facility (MSF), two park and ride lots, one park and ride structure and two bus transit centers. The rail vehicles will be fully-automatic and driverless.

The anticipated weekday boardings for the line are as follows:

- 99,800 (2019)
- 114,300 (2030)

2.3 Project Status

A Locally Preferred Alternative (LPA) was adopted in July 2008. The grantee was provided approval to begin Preliminary Engineering (PE) on October 16, 2009. The Final Environmental Impact Statement (FEIS) was published on June 25, 2010, and a Record of Decision (ROD) was issued on January 18, 2011. FTA granted approval to enter Final Design on December 29, 2011. The grantee is preparing an application for a Full Funding Grant Agreement in accordance with the FTA New Starts requirements.

2.4 Project Budget

The grantee's Base Cost Estimate (BCE), dated June 2012, is \$5.122 billion in Year-of-Expenditure (YOE) dollars, including \$644 million in allocated and unallocated contingency and \$173 million financing costs.

2.5 Project Schedule

Table 2 presents the grantee's target dates for key milestones of this New Starts Project as identified in its Master Project Schedule.

Table 2. Target Milestone Dates

Milestone Description	Grantee Target Date
FTA Award Full Funding Grant Agreement	06-Oct-12
WOFH/KH Revenue Service	29-Jun-16
Airport/City Center Revenue Service (RSD)	12-Mar-19

Note: MPS Data Date of March 30, 2012

2.6 Project Management Oversight Contractor (PMOC)

Under this Work Order, Jacobs is to provide the following deliverables:

- OP 20: Project Management Plan Review
- OP 21: Technical Capacity and Capability Review
- OP 24: QA/QC Review

2.7 PMOC Evaluation Team

The following table presents the PMOC Evaluation Team and the respective roles associated with the assessment of the Project.

Table 3. PMOC Evaluation Team

Name	Location	Role
Jacobs		
Tim Mantych	St. Louis, MO	Program Manager
Bill Tsiforas	Las Vegas, NV	Task Order Manager
Keith Konradi	St. Louis, MO	Rail Engineering
Bob Niemietz	St. Louis, MO	Structural Engineering
Ahmad Hasan	St. Louis, MO	Geotechnical Engineering
Allan Zreet	Dallas, TX	Architect
Charles Neathery	Dallas, TX	Construction Management, Project Controls, Schedule Risk Assessment
Tim Morris	Dallas, TX	Cost Estimating
Brian Carpenter	Dallas, TX	Cost Estimating, Scheduling
Steve Rogers	Dallas, TX	Cost Estimating
Albert Amos	Austin, TX	Economics
David Nelson	Boston, MA	Operations, Transit Capacity
Tracey Lober	St. Louis, MO	QA/QC
Joe Leindecker	St. Louis, MO	Planning
Virginkar and Associates, Inc.		
Arun Virginkar	Brea, CA	Vehicle Engineer, Buy America
Hal Edris	Spring Grove, PA	Systems Integration Manager
Triunity Engineering Management Inc.		
Jonnie Thomas	Denver, CO	Systems (Communications)
Interactive Elements Inc.		
Dennis Newman	New York, NY	Safety
Dorothy Schulz	New York, NY	Security
LS Gallegos Inc.		
JR Casner	Centennial, CO	Construction Management, QA/QC
OR Colan & Associates		
Bob Merryman	St. Louis, MO	Real Estate
Kowalenko Consulting Group Inc.		

Name	Location	Role
Emma Kowalenko	Chicago, IL	Planning/Environmental
Independent Contractor		
David Sillars	Corvallis, OR	Risk Manager

2.8 Documents Reviewed

Appendix B provides a listing of the project-related documents that were utilized during development of this PMOC Report.

3.0 OP 20: PROJECT MANAGEMENT PLAN REVIEW

3.1 Project Management Plan Review

The Federal Transit Administration (FTA) requires that grantees develop and implement a written Project Management Plan (PMP) for any major capital project funded by FTA. Specifically, Title 49 of the United States Code Section 5327 of Chapter 53, entitled Project Management Oversight (PMO) requires a PMP as a condition of Federal financial assistance for major capital projects. The required elements of a PMP are stipulated in the Code of Federal Regulations:

Title 49 – Transportation
Part 633 – Project Management Oversight
Subpart C – Project Management Plans
Section 633.25 – Contents of a Project Management Plan

Moreover, the grant applicant must agree to carry out the PMP approved by FTA. The PMP is a dynamic document for managing the engineering, design, construction, and start-up phases of a project. Periodic updating is expected as the grantee implements the project.

At a minimum, 49 Code of Federal Regulations (CFR) Part 633 requires that a recipient's PMP include the following items:

- (1) A description of adequate recipient staff organization, complete with well-defined reporting relationships, statements of functional responsibilities, job descriptions, and job qualifications
- (2) A budget covering the project management organization, appropriate consultants, property acquisition, utility relocation, systems demonstration staff, audits, and such miscellaneous costs as the recipient may be prepared to justify
- (3) A design management process encompassing Preliminary Engineering and Final Design
- (4) A construction schedule
- (5) A document control procedure and record-keeping system
- (6) A change order procedure which includes a documented, systematic approach to the handling of construction change orders
- (7) A description of organizational structures, management skills, and staffing levels required throughout the construction phase
- (8) Quality control and quality assurance programs
- (9) Material testing policies and procedures
- (10) Plan for internal reporting requirements including cost and schedule control procedures
- (11) Criteria and procedures to be used for testing the operational system or its major components;
- (12) Periodic updates of the Plan
- (13) The recipient's commitment to make monthly submission of project budget and project schedule to the Secretary

Additional requirements are outlined in Section 633.27 of 49 CFR 633 (Subpart C) regarding the implementation of a project management plan as follows:

- (a) Upon approval of a project management plan by the Secretary the recipient shall begin implementing the plan.
- (b) If a recipient must modify an approved project management plan, the recipient shall submit the proposed changes to the Secretary along with an explanation of the need for the changes.
- (c) A recipient shall submit periodic updates of the project management plan to the Secretary that include, but are not be limited to, the following:
 - (d) Project budget
 - (e) Project schedule
 - (f) Financing, both capital and operating
 - (g) Ridership estimates, including operating plan
 - (h) Where applicable, the status of local efforts to enhance ridership when estimates are contingent, in part, upon the success of such efforts
- (i) A recipient shall submit current data on a major capital project's budget and schedule to the Secretary on a monthly basis.

The PMOC followed the requirements outlined in the “*FTA OP 20 – Project Management Plan Review*”, dated May 2010, to assess and evaluate the grantee’s Project Management Plan, Revision 5, dated June 29, 2012. This OP 20 review has been formatted to provide a brief description of each FTA requirement, the contents of the PMP that address the requirement, and the PMOC comments with regard to satisfying the requirement. The PMOC comments are compiled and presented in table format, which includes the comment type and corresponding PMP page and section numbers.

3.2 FTA References

The following are the primary references to Federal legislation, regulation, and guidance with which the PMOC conducted the Project Management Plan Review in accordance to the FTA OP 20:

- Legislative
 - The Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU), P.L. 109-59
- United States Code (USC)
 - FTA statutes, 49 USC Chapter 53
- Regulations
 - Project Management Oversight, 49 CFR Part 633
 - Major Capital Investment Projects, 49 CFR Part 611
 - Joint FTA/FHWA regulations, Metropolitan Planning, 23 CFR. Part 450
 - Joint FTA/FHWA regulations, Environmental Impact and Related Procedures, 23 CFR. Part 771
 - USDOT regulation, Uniform Relocation Assistance and Real Property Acquisition for Federal and Federally Assisted Programs, 49 CFR Part 24.
- FTA Circulars
 - C4220.1E, Third-Party Contracting Requirements

- C5010.1D, Grants Management Guidelines
- FTA Master Agreement
- C6800.1, Safety and Security Management Guidance for Major Capital Projects
- Guidance
 - Guidance for Transit Financial Plans, June 2000
 - Reporting Instructions for the Section 5309 New Starts Criteria
 - Interim Guidance on Design-Build
 - Quality Assurance and Quality Control Guidelines
 - Project and Construction Management Guidelines, 2003 Update
 - Value Engineering Process Overview, January 1998
 - Transit Cooperative Research Program (TCRP) G-08 – A Guidebook for the Evaluation of Project Delivery Methods

3.3 General Requirements of a Project Management Plan

3.3.1 Project Description

FTA Guidance

The narrative description of the Project should include a physical description of the Project and a discussion of those aspects of the Project's history and background that will contribute to understanding the Project's objectives and management strategies. Those aspects of other Projects that are dependent on or supportive of activities covered by the management plan also should be described. Also included should be a description of those portions of project planning, financing, design, acquisition (e.g., real estate, services, materials, and equipment), permitting, licensing, construction, and operations covered by the plan and the status of the Project at the time the plan is issued.

PMP

PMP Chapter 1.0 "*Project Management Plan Overview*" satisfactorily addresses this requirement. This chapter includes a brief description of the system and project as well as the background of the project, project participants (cooperative agencies), and a project map.

PMOC Assessment

The PMOC has determined that grantee has satisfactorily addressed this PMP requirement to a level detailed enough to support its request for an FFGA and advance into the construction phase.

3.3.2 Physical Description and Function

FTA Guidance

System components should be described in terms of physical and functional requirements and overall design criteria. The conceptual design developed in the planning phase should set forth the intended performance characteristics of the completed project.

PMP

The Project Overview provides a detailed history and description of the project. It also explains the multiple entities involved in the project and adequately explains the interests for each party.

A project map is included and notes the project contracting packaging plan and alignment sections.

- Section I (West Oahu/Farrington Highway and Kamehameha Highway) – East Kapolei to Aloha Stadium (10 miles/11 stations)
- Section II (Airport) – Aloha Stadium to Middle Street (5 miles/4 stations)
- Section III (City Center) – Middle Street to Ala Moana Center (4 miles/8 stations)
- Section IV (Maintenance and Storage Facility (MSF))

The successful bidder for the Core Systems Contract (CSC) is a joint venture led by two Italian firms (Ansaldo STS and AnsaldoBreda) controlled by Finmeccanica SpA of Rome. The Ansaldo Honolulu Joint Venture (AHJV) proposes to deliver vehicles, train control, traction power, communications, fare collection equipment, and operations and maintenance services for a City-specified rail transit system. The basic infrastructure (elevated guideway and stations) is to be built by others under different contracts with the City and County of Honolulu. AHJV proposes to install and operate vehicles and systems proven with several years of successful operation in Copenhagen, Denmark.

The selected transit technology is electrically powered, industry-standard steel wheel on steel rail powered from a third-rail system. The selected vehicle is to be capable of a top speed greater than 50 mph. The vehicles will be fully automated and driverless although train attendants are anticipated to be on the train during an initial burn-in period to provide the possibility of manual intervention in response to malfunctions. The driverless option is possible because the fixed guideway will operate in exclusive right-of-way with no automobile or pedestrian crossings.

The traction power distribution system consists of about 14 substations and main line track power distribution facilities. The substations are spaced at approximately one and one-half mile intervals along the alignment. The exact number of substations will be determined during Final Design.

Train signaling uses automatic train control (ATC) and automatic train operations (ATO) technology. The communications and security facilities include emergency phones, closed circuit television (CCTV), and public address and information display systems.

There will be eight (80) vehicles in the initial years of operations. Vehicle delivery is planned according to the two project sections openings and additional vehicles will be added to the fleet as passenger demands require in the future.

It is the PMOC's professional opinion that the AHJV's proposal provides the physical and functional requirements for the systems portions of the CSC contract developed by the grantee. Although, the Signals, Communications, Traction Power, and Verification Testing and Acceptance/Safety and Security design are preliminary, further design development will be completed during Final Design and FFGA to validate the performance criteria or operational requirements provided in the CSC.

PMOC Assessment

The PMOC has determined that grantee has satisfactorily addressed this PMP requirement to a level detailed enough to support its request for an FFGA and advance into the construction phase.

3.4 Requirements of a Project Management Plan per 49 CFR 633

3.4.1 Organization and Staffing

FTA Guidance

Project organization charts showing the complete organization should be developed and should cover all project functions and all project personnel, regardless of affiliation. Staffing levels should be indicated. Charts may be time-oriented to show different organizational arrangements for different phases of the project. A responsibility matrix should be included.

Key personnel in all organizations should be identified and their principal duties, reporting relationships, job descriptions, job qualifications, and assigned responsibility and delegated authority should be defined.

PMP

The PMP Chapter 2 “*Project Organization and Staffing*” provides an overview of the management requirements and systems needed to efficiently and effectively implement the H RTP.

The PMP focuses on the management structure needed to assure that the Project has adequate organization, management skills, and staff to manage and implement this project. The project blends the strengths of the project participants, including the grantee, complemented by experienced members of a Project Management Consultant (PMC), and the General Engineering Consultant (GEC).

In November, 2010, voters of the City and County of Honolulu passed an amendment to the City Charter following City Council Resolution 09-252, CD1 which set the framework for the creation of a semi-autonomous public transit authority, otherwise referred as the Honolulu Authority for Rapid Transportation (HART) to design, build, operate, maintain and expand the City’s fixed guideway mass transit system. This Charter Amendment resulted in a modification of the governing structure of the rapid transit system for Honolulu with the transfer of all Rapid Transit Department (RTD) staff and functions to HART. HART began operations as a semi-autonomous agency within the City and County of Honolulu on July 1, 2011.

HART is responsible for planning, managing and implementing the Project including applying for FTA assistance, managing FTA grant awards and overseeing compliance with FTA’s programmatic requirements. The Charter also set forth a Board of Directors that is a policy-making body consisting of 10 directors. Of the 10 directors, 9 are voting members, and 1 is a non-voting member. Three HART Board members are appointed by the Mayor and three are appointed by the City Council. Three HART Board members are ex-officio; the Director of the City Department of Transportation Services, the Director of the Hawaii Department of Transportation and the Director of the City’s Department of Planning and Permitting, who serves

as a non-voting member. The tenth Board member is selected by the Board members. The Board selects the Chairperson, Vice Chairperson, and committee chairs. The HART Executive Director is appointed by the HART Board of Directors. The HART Board of Directors also enacts policies and procedures for the authority.

HART's current version of the PMP dated June 29, 2012 supports their request for an FFGA. The HART Board selected a new Executive Director (ED) in March 2012 and the ED may recommend future changes to staff and to management approach of the HRTTP after he gets familiar with the project.

PMOC Assessment

The PMOC has determined that grantee has satisfactorily addressed this PMP requirement to a level detailed enough to support its request for an FFGA and advance into the construction phase.

The PMOC performed a Technical Capacity and Capability (TCC) review assessment in January 2011 to support entry into the final design phase. Since then, the PMOC has observed HART's ability to demonstrate TCC across all management aspects of the project. The PMOC utilized the project organizational chart to identify the staff members and consultants currently working on the project. The PMOC concentrated on the roles and responsibilities within the key project management staff. Because the blended project organization consists of several entities described above, the PMOC focused its review on organizational, responsibility, and functional relationships. The PMOC reviewed general procedures currently being implemented and discussed and general procedures used during the final design phase.

The PMOC has some concern that the grantee will encounter difficulty acquiring experienced staff needed for the long-term assignment given Hawaii's higher than average cost of living and distance from the mainland. The grantee is currently implementing a staffing and succession plan that addresses transition of PMC management and technical positions to City staff. The PMOC has included several recommendations in the technical capacity and capability report section that address transition plan details and improvements to the implementation.

The PMP Revision 5.0 includes detailed organizational charts that adequately describe the current project team members, agencies and consultants required of the Project.

3.4.2 Budget

FTA Guidance

A budget covering the project management organization, appropriate consultants, property acquisition, utility relocation, systems demonstration staff, audits, and such miscellaneous costs as the recipient may be prepared to justify should be included in the PMP.

A system should be defined for comparing the actual project costs to the planned project costs of elements of work and for analyzing any variances from the planned costs that may occur.

PMP

The PMP addresses project budget and cost reporting in Chapter 3 "*Management Control*".

The budget was initially established during the planning phase. The budget covers all aspects of the work and was initially based on the estimates developed during AA. These estimates were refined during preliminary engineering and the budget reflected above was established for the FEIS.

The grantee has established general guidelines for uniform and consistent cost estimating during planning, design, and construction that will provide decision makers with reliable and accurate cost estimates during final design. Project procedure 4.PC-06 Cost Estimating, which is referenced in the PMP, describes the development and management that applies to all cost estimates required to establish Project and Contract Budgets. In addition, project procedure 4.PC-07 Cost Control, also referenced in the PMP, describes the baseline cost estimate used to develop and refine the financial plan used to support the FFGA application and execution.

During PE, the GEC developed preliminary construction cost estimates and assisted in the scope for the subsequent final design phase. The grantee, supported by the GEC, prepares control estimates. The budget for design work is updated as the design services contracts are negotiated and awarded.

The initial budget for the final design effort has been established as an integral part of the project estimate. The final design budget may be refined by negotiations with the Engineering Design Consultants (EDC) that will eventually be developing the DBB contract packages. The EDCs are responsible for providing construction cost estimates and improving the quality of the construction cost estimates as the design is advanced. Utilizing the information provided by the EDCs, the GEC maintains a total project cost estimate. When this estimate deviates from the project budget, the GEC reports the details to the grantee and discuss options for resolution. Such options may include redesign, reductions in scope, utilization of budget contingency consistent with the Risk and Contingency Management Plan, reallocation among budget line items, or adjustments to the project budget. Any changes in scope must be presented to the FTA to ensure that they do not violate the conditions of the ROD. For each construction contract, the final estimate is the Engineer's Estimate used to evaluate the Contractor's bids.

Project risks are assessed beginning during the design phase and continuing through placement of the finished Project into service. During design, risk management activities include the identification of major risks during construction and startup, estimation of required contingency reserves, planning of procurement strategies in order to reduce, share or transfer potential risks, and implementation of insurance strategies to protect the grantee from potential damages or losses during construction and startup. Comprehensive planning, including the development of this Project Management Plan, is fundamental to the grantee's approach to risk management. Major aspects of grantee's approach to risk management include systematic risk planning and analysis, application of lessons learned, multi-organizational coordination, risk reduction during design, risk transfer and risk sharing during construction, development of insurance strategies, and contingency planning, as described in the PMP.

Lessons learned from within the transit industry are obtained by both the grantee and its consultants from other transit agencies around the USA, from FTA and from transit industry

publications and organizations. Other industry-related lessons to be considered include incorporation of economic factors into project cost and financing models, new insurance and contracting approaches, project teaming, and risk sharing methods being used elsewhere. This process is intended to reduce schedule and cost risk impact to the Project.

The grantee has established general guidelines for contingency reserves for use in project budget estimates for an FFGA. Project procedure 4.PC-09, Contingency Management, which is referenced in the PMP, describes the development and management of these contingencies. Values higher or lower than the guidelines can be used if specific conditions warrant, subject to approval by the grantee's ED.

PMOC Assessment

The PMOC has determined that grantee has satisfactorily addressed this PMP requirement to a level detailed enough to support its request for an FFGA and advance into the construction phase. The budget included in the PMP will need to be updated once the final FFGA budget is determined.

3.4.3 Design Management Process

FTA Guidance

The grantee's design management should explain the policies and procedures related to who will perform the engineering, in house or by consultants, all procurement considerations, design criteria and standards, facility requirements, environmental compliance, design configuration, value engineering, peer reviews, and the incorporation of safety, security, quality, and real estate acquisition activities related to the contract documents.

PMP

The PMP addresses design management in Chapter 6 "*Design Management.*" The PMP mentions several design management methods related to Design Build (DB), Design Bid Build (DBB), and Design Build Operate Maintain (DBOM).

The GEC for PE/EIS is organized by discipline with a hierarchy of key personnel responsible for each discipline. The GEC is assisted by subconsultant firms with specialties in a full range of disciplines. The GEC produced design documents for Preliminary Engineering and a GEC II will be selected for a similar role during Final Design. The GEC's Project Manager and Division Managers, listed in Figure 6 – Final Design Organization Chart of the PMP, work together to coordinate team efforts, to provide direction for various tasks, and to oversee and review work activities and products for compliance with the Project's requirements. Work is being conducted with regular and frequent communication and interaction among the various subconsultant firms, their employees, the grantee, and City departments. Subconsultants are responsible for conducting their designated work and producing their required work products.

The grantee is also procuring services of several EDCs for the Final Design phase. The work of these EDC's will be overseen by the GEC and the appropriate managers within the grantee Engineering and Construction organization. Oversight of design quality, safety, and security requirements by grantee is essential to the proper execution of the work.

The Compendium of Design Criteria (CDC) for the Project ensures that the Project's design activities proceed in accordance with both local and accepted industry standards. The CDC comprises 26 chapters and is utilized as a key element of the Project's Basis for Design. Representative chapters include Operations, Civil, Utilities, Structural, Architecture and Landscape Architecture, Passenger Vehicles, Maintenance and Storage Facilities, Safety and Security, and Sustainability. The CDC is to be maintained and updated throughout Preliminary Engineering and Final Design to reflect approved changes and modifications to the Project's Basis for Design.

The design oversight provided by the grantee will be a continuous process throughout the Final Design phase and FFGA for various contracts. The grantee will implement frequent design reviews, constructability reviews, peer reviews, and value engineering.

The Design Management and Coordination effort is carried out by the grantee, which is involved in coordinating the objectives of the Project as defined in the Planning Phase. The grantee effort involves coordinating with all the project stakeholders, external agencies, Department of Transportation Services (DTS) staff, and the public at large, and supervising and coordinating day-to-day design activities. The Division work force organization is described in Chapter 2.0 of the PMP. The grantee DED is responsible for all work conducted by the grantee team and reports directly to the ED.

The grantee manages the above activities by means of weekly meetings with the GEC, supplemented by meetings with individuals on specific issues and by design reviews at various control points. Coordination of the design is achieved by joint technical meetings, which are intended to resolve conflicts and result in a unified approach to problem resolution. Design reviews are explicitly included in the design schedule and are programmed as described in Chapter 6, "*Design Management*".

PMOC Assessment

The PMOC has determined that grantee has satisfactorily addressed this PMP requirement to a level detailed enough to support its request for an FFGA and advance into the construction phase.

3.4.4 Construction Schedule

FTA Guidance

An implementation schedule for the entire project is required and should include the following activities: procurement functions, design activities, real estate acquisition, site preparation and utility relocation, construction/installation, testing and start-up. Responsibility should be assigned for developing baseline schedules for the managers of work packages and for maintaining those baselines consistent with the technical, cost, and overall schedule baselines. Authority to revise the baselines should be identified.

A system should be provided for comparing actual work performed with the scheduled work to be performed and for analyzing any variances that may occur. A method for measuring both schedule variance and cost variance should be incorporated.

PMP

The PMP addresses the fundamental policy and procedure required to develop and maintain a project schedule in Chapter 3 “*Management Control.*” It also adequately distinguishes the many sub-schedules that comprise an overall integrated master project schedule (MPS). The MPS is far more than a construction schedule as it encompasses all project phases and components. The MPS is a summary schedule of the more detailed contractor and subconsultant contract schedules.

PMOC Assessment

The PMOC has determined that grantee has satisfactorily addressed this PMP requirement to a level detailed enough to support its request for an FFGA and advance into the construction phase. However, while the PMP satisfies the FTA requirement, the grantee must revise their MPS pursuant to the recommendations included with the OP34 – Project Schedule Review, which is transmitted separately.

3.4.5 Document Control Procedures and Record-Keeping Procedure

FTA Guidance

This element describes the management and control of documents. It describes how documents are created, transmitted and received, stored, and retrieved by all project participants and stakeholders.

PMP

The PMP addresses Document Control in Chapter 3 “*Management Control.*” The grantee has established a database with “City DART,” the grantee’s electronic document control system. The grantee is using that software along with Xerox DocuShare and Primavera Contract Manager, which together form the basis for the Project’s overall document control system.

The grantee developed and implemented their document control system during the preliminary engineering phase. They use Oracle Primavera Contract Manager (CMS) to create, transfer, store, and retrieve project files as provided by grantee, PMC, GEC, and third parties, within a controlled access web platform.

The document control system is accessible through a local area network and the internet. The system is managed by the grantee Document Control Group. The document control system allows team members and outside reviewers, whether in the Project office or at a remote location, to share Project information.

The grantee also developed and maintains an agency web-site that contains bus transportation system and Honolulu Rail Transit project information. The website is user friendly that is easy to navigate. The grantee public involvement and marketing departments also use the website to instill positive public awareness, education, and HRT project progress.

PMOC Assessment

The PMOC has determined that grantee has satisfactorily addressed this PMP requirement to a level detailed enough to support its request for an FFGA and advance into the construction phase.

3.4.6 Change Order Procedure

FTA Guidance

Procedures should be developed and responsibility assigned for identifying, evaluating, and accommodating changes that may occur during project design and construction. Procedures should be clear, should permit results to be achieved rapidly, and should provide for full evaluation of the impact of the changes. The avoidance of changes and the prompt settlement of change orders and potential or actual claims must be emphasized. Judicious delegation of monetary authority to approve change orders at the field level can expedite this process. A mechanism should be provided for timely resolution of claims.

PMP

The PMP addresses Change Orders in Chapter 4 “*Procurement and Contracts*” and Chapter 10 “*Construction Management*.” The Configuration Management Plan and Change Control Procedures (5.CA-02, 5.CA-05, 6.CM-03 and 6.CM-06), which are referenced in the PMP, cover the roles of grantee, the GEC and the contractors at various stages of the Project.

Furthermore, PMP Chapter 11 “*Claims Management*” further explains the process, impacts, and consequences stemming from “changes, disputes and claims,” most specifically those that occur during the construction phase. The grantee also developed a Claims Avoidance Plan, which is referenced in the PMP.

PMOC Assessment

The PMOC has determined that grantee has satisfactorily addressed this PMP requirement to a level detailed enough to support its request for an FFGA and advance into the construction phase.

While the PMOC has determined this PMP satisfies the FTA requirements, it will continue to closely monitor the change order processes and claims management once the project receives an FFGA. The PMOC has some concern with the amount of change orders that have been processed by HART in the past. The grantee hired a claims management consultant to assist HART with claims.

3.4.7 Organizational Structure

FTA Guidance

A description of organizational structures, management skills, and staffing levels required throughout the construction phase.

PMP

The PMP addresses the grantee Organizational structure in Chapter 2 “*Project Organization and Staffing*.”

The PMOC utilized the project organizational chart to identify the staff members and consultants currently working on the project. The PMOC concentrated on the roles and responsibilities within the key project management staff. Because the blended project organization consists of

several entities described above, the PMOC focused its review on organizational, responsibility, and functional relationships. The PMOC reviewed general procedures currently being implemented and discussed and general procedures proposed for the construction phase.

The PMOC is satisfied with the personnel from the grantee, PMC and the GEC identified in PMP Revision 5.0 Organization Chart and found the Project Team to be well qualified and organized to best function with the chosen hybrid contract delivery methods.

PMOC Assessment

The PMOC has determined that grantee has satisfactorily addressed this PMP requirement to a level detailed enough to support its request for an FFGA and advance into the construction phase.

The OP 21 – Technical Capacity and Capability Review Report contains the PMOC’s recommendations with regard to critical staffing for the project. However, the grantee’s primary challenges with filling key management positions are related to long-term retention, limited salary structure, isolated geography, and, in general, a shallow qualified resource base. The grantee developed a Staffing and Succession Plan dated May 25, 2012 and has begun to advertise grantee positions temporarily filled by the PMC. Inherently, the need for PMC staff will diminish as the grantee fills key management positions. Until such time, it will be necessary for the grantee to continue supplementing its staff with PMC staff. It is the PMOC’s professional opinion that the dates provided in the staffing and succession plan will provide sufficient lead-time to perform the recruitment, selection and training for replacing a portion of the PMC with grantee staff after receipt of an FFGA. The PMOC strongly recommends that the resource demands associated with an FFGA for a \$5 billion project require full time and concentrated attention and continuity within the grantee’s organization for smooth transition.

It is the PMOC’s professional opinion that the Project organization, staffing, and management approach provides the technical capability to support the grantee’s initial implementation of the project after receipt of an FFGA. While the PMOC has determined this PMP satisfies the FTA requirements, it will continue to closely monitor the staffing and succession plan for key management positions that may be considered short term (three years or less) in order to execute a “knowledge transfer” from project consultants’ expertise to the grantee.

3.4.8 Quality Assurance Program

FTA Guidance

A Quality Assurance/Quality Control (QA/QC) program is required for all FTA funded major capital projects. QA/QC functions, procedures, and responsibilities for construction, system installation and integration of system components should be included.

PMP

The PMP addresses Quality Assurance in Chapter 3 “*Management Control.*” The grantee has developed a Quality Management Plan (QMP) for the Project and noted the utilization of a Quality Assurance Manager (QAM), who reports directly to the grantee Executive Director.

PMOC Assessment

The PMOC has determined that grantee has satisfactorily addressed this PMP requirement to a level detailed enough to support its request for an FFGA and advance into the construction phase.

3.4.9 Material Testing Policies and Procedures

FTA Guidance

The PMP must contain materials testing policies and procedures as required by 49 CFR 633.

PMP

The PMP addresses the material testing procedures in Chapter 3 “*Management Control*,” however, materials testing policy and procedures are included in the grantee’s Quality Management Plan, Construction Management Plan, Contract Resident Engineers Manual for DB and DBOM and Contract Resident Engineers Manual for DBB Projects.

PMOC Assessment

The PMOC has determined that grantee has satisfactorily addressed this PMP requirement to a level detailed enough to support its request for an FFGA and advance into the construction phase.

3.4.10 Internal Reporting Requirements

FTA Guidance

The grantees shall develop a plan for internal reporting requirements including cost and schedule control procedures.

PMP

The PMP primarily addresses internal reporting in Chapter 2 “*Project Organization and Staffing*,” Chapter 3 “*Management Control*,” and Chapter 6 “*Design Management*.” Upward and downward reporting will be coordinated within the program blended organization structure. The program organization chart, project procedures, and sub plans that have been developed by the grantee and referenced in the PMP have greatly improved the requirements for internal reporting between the grantee, PMC, GEC and CE&I.

PMOC Assessment

The PMOC has determined that grantee has satisfactorily addressed this PMP requirement to a level detailed enough to support its request for an FFGA and advance into the construction phase.

The PMOC has emphasized the importance of maintaining “program oversight” of the individual contracts among the various contractors and consultants. Upwards reporting is crucial as the numerous environmental mitigations, design coordination, and construction progress reports are compiled and distributed to the grantee’s key management staff. The current internal reporting procedures referenced in the PMP have greatly improved the internal reporting requirements. However, implementation of those procedures is important for the blended organization to function together.

3.4.11 Testing the Operational Systems

FTA Guidance

The grantee shall develop criteria and procedures to be used for testing of operational systems or its major components. A testing program plan should establish the process for conducting, monitoring, and coordinating the test program; delineate the test organization and specify its authority and responsibilities; and describe the administrative requirements of the test program.

PMP

The PMP addresses testing the operational system in Chapter 16 “*Testing and Start-Up.*” The PMP indicates that more detailed testing and operational system procedures will be developed during Final Design and construction phases.

The grantee, with assistance from the GEC and contractors, will develop the System Integration Test Plan (SITP) based on grantee’s requirements. The CSC will develop a Rail Activation Plan (RAP) sufficiently in advance of the revenue operations date and will commence preparations for commissioning the new rail service and planning all start-up events at that time. The RAP, combined with the SITP and Pre-Revenue Operations Plan, will describe all activities beyond the tasks of construction and installation completion, contract acceptance testing and integration testing. As part of the planning effort, the CSC will prepare and submit the Systems Integration Test Plan and the RAP to the grantee for approval.

PMOC Assessment

The PMOC has determined that grantee has satisfactorily addressed this PMP requirement to a level detailed enough to support its request for an FFGA and advance into the construction phase.

The PMOC agrees that operational system testing procedures can be addressed during the early construction phase.

3.4.12 Periodic Updates of the Plan

FTA Guidance

This element should discuss the grantee’s commitment to make periodic updates of the plan, especially related to project budget and project schedule, financing, ridership estimates, and where applicable, the status of local efforts to enhance ridership in cases where ridership estimates are contingent, in part, upon the success of such efforts.

PMP

The grantee initially prepared the PMP near the conclusion of the Alternatives Analysis process and focused it on the PE/EIS phase of the Project. PMP Revision 1, dated November 3, 2008, described the process for the progression of the Project into PE and subsequently through the Final Design, procurement, construction, and system start-up phases. PMP Revision 2 was issued on March 1, 2009 to provide an update of the project description for the selected Airport route, master schedule, project cost, and testing. Revision 3 of the PMP provided an update as of the start of PE in November 2009. Revision 4 of the PMP dated April 2011 has been prepared

during the latter part of PE and for entry into Final Design. Revision 4.1 of the PMP dated February 2012 has been prepared for an FFGA. However, Revision 4.1 was updated as Revision 5.0 of the PMP to address staffing changes to project organization.

PMOC Comments

The PMOC has determined that grantee has satisfactorily addressed this PMP requirement to a level detailed enough to support its request for an FFGA.

3.4.13 Monthly Submission of Project Budget and Project Schedule

FTA Guidance

The PMP should state the grantee's commitment to submit a project budget and project schedule to the FTA each month.

PMP

The PMP addresses monthly cost and schedule reporting in Chapter 3 "*Management Control*." The grantee develops and distributes the grantee Monthly Project Status Report. The grantee has not consistently developed and distributed comprehensive monthly reports to date.

The grantee must issue comprehensive and timely Monthly Reports in accordance with the federal requirements. The PMOC will validate this requirement by receiving and reviewing several months of status reports when they are consistently submitted by the grantee.

PMOC Assessment

The PMOC has determined that grantee has satisfactorily addressed this PMP requirement to a level detailed enough to support its request for an FFGA and advance into the construction phase. While the PMP is written and contains an acceptable "plan", the grantee has failed to demonstrate the implementation of this PMP requirement.

3.5 Sub-Plan Document Review

Sub plan documents are referenced in the PMP but require additional detail and information, which can more easily be recorded and referenced in a stand-alone document. Table 4 below provides a listing and status of each of the subcategories of the PMP in accordance with 49 CFR 633 and FTA's *Project & Construction Management Guidelines*, May 2003 Update. The table includes the document revision and status pursuant to PMOC review and comment. Note that the table does not include the numerous Procedures that are also developed and implemented by the grantee to further support the function, integration, and execution of the various plans. These are addressed in Section 4.4.2 of this report.

Table 4. PMP Sub-Plans

Sub-Plan	Rev. No.	Date	Notes	Req. Period
Quality Management Plan (QMP)	1	15-Feb-12	Acceptable for FFGA	▲
Real Estate Acquisition and Management Plan (RAMP)	5	01-Jun-12	Acceptable for FFGA	▲
Bus Fleet Management Plan (BFMP)	3	Mar-12	Acceptable for FFGA	▲
Rail Fleet Management Plan (RFMP)	0.1	Mar-12	Acceptable for FFGA	▲
Safety and Security Management Plan (SSMP)	3A	28-Feb-12	Acceptable for FFGA	▲
Safety and Security Certification Plan (SSCP)	2A	01-Mar-12	Acceptable for FFGA	▲
Configuration Management Plan	0.2	07-Feb-12	Acceptable for FFGA	▲
Staffing and Succession Plan	5	25-May-12	Acceptable for FFGA	▲
Risk and Contingency Management Plan	0	29-Jun-12	Acceptable for FFGA	▲
Operating Plan	0.2	29-Jun-12	Acceptable for FFGA	▲
Mitigation Monitoring Program	0	15-Mar-12	Acceptable for FFGA	▲
Interface Management Plan	0.1	17-Jan-12	Acceptable for FFGA	▲
Contract Packaging Plan	3.0	30-Mar-12	Acceptable for FFGA	▲
Claims Avoidance Plan	0.1	24-Jan-12	Acceptable for FFGA	▲
Construction Management Plan (CMP)	0.1	03-Feb-12	Acceptable for FFGA	▲
Contract Resident Engineer Manuals (DB & DBOM)	0.1	Feb-12	Acceptable for FFGA	▲
Contract Resident Engineer Manuals (DBB)	A	15-Mar-12	Acceptable for FFGA	▲
Project Procedures			Refer to separate procedure matrix included in OP 21 section for status of individual procedure acceptance	▲

NOTE: ▲ – Required prior to FFGA

The PMOC provided review comments and recommendations for each of these PMP sub plans and numerous procedures. The PMOC discusses its review comments and recommendations with grantee staff during its monthly on-site meetings. The PMOC is confident that the PMP sub-plans that are under review by the PMOC or in the process of being re-submitted by the grantee will meet the requirements for consideration of an FFGA.

The PMOC referenced the FTA document *New Starts Project Planning and Development Checklist of Project Sponsor Submittals to FTA for a Full Funding Grant Agreement* dated August 10, 2007 as a guide to support the sub plan document review process. The following items are brief analyses of the sub-plan document reviews that the PMOC performed:

- (1) The PMOC noted several inconsistencies with the format, quality, and detail contained within the PMP Project Control chapter and project control sub plans and procedures as they lacked traceable and consistent functionality and content. The PMOC request to address this concern was included as a recommendation in the OP 21 – Technical Capacity and Capability Report, which has been submitted separately.

- (2) The RAMP has been developed to outline the policies and procedures that the grantee follows to comply with Federal and State requirements relating to Right of Way identification, appraisal, land acquisition, relocation, and property management activities. Any agency utilizing Federal funds to finance a public project that requires the acquisition of private property or causes displacement must comply with policies and procedures that conform to the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended, (Uniform Act), and the applicable implementing guidelines. The policies and procedures also incorporate compliance requirements of State Statutes and guidelines.

3.6 Summary of PMOC's Findings, Observations and Comments

Per OP 20, the PMOC reviewed the grantee's current PMP, Revision 5.0, dated June 29, 2012, and assessed, evaluated and characterized the PMP and considered the extent, nature, level of detail, and quality of the grantee's approach. The intent of this PMOC review report is to provide the FTA with findings, analyses, professional opinions, and recommendations in a clear and understandable format. The PMOC reviewed each element of the PMP and made determinations of acceptance, revision, or rejection, included with recommendations as noted in the various sections of this report. A summary of the PMOC's findings, observations, and comments are included below:

- (1) The grantee will continue encountering difficulty with candidate recruitment and employee retention necessary to meet the Project staffing plan. The PMOC also believes that the grantee will face challenges transitioning key PMC management positions to permanent grantee positions.
- (2) The grantee will face challenges transitioning key PMC management positions to permanent grantee positions. The PMOC will continue monitoring the grantee's project management process to ensure that the grantee is effectively managing the Project and continues to be responsible for all decisions affecting project design, cost, and schedule until all key management positions identified are transitioned to full-time grantee staff.
- (3) The PMOC has emphasized the importance of maintaining "program oversight" of the individual contracts among the various contractors and consultants. Upwards reporting is crucial as the numerous environmental mitigations, design coordination, and construction progress reports are compiled and distributed to the grantee's key management staff. The current internal reporting procedures referenced in the PMP have greatly improved the internal reporting requirements. However, implementation of those procedures is important for the blended organization to function together.

3.7 Conclusion

Through review of the grantee's PMP, the PMOC was able to assess the ability of the grantee and its project management approach to take the project successfully from final design into the FFGA process and construction phase.

The PMOC has summarized its findings and opinions and present recommendations with respect to the adequacy and soundness of the grantee's plans and procedures for:

- NEPA coordination. The PMOC should confirm that the Grantee's plan for managing and implementing mitigation actions is in place, and confirm that the environmental mitigation work is incorporated into the design documents, cost estimates, and schedules.
- Design control. The review should confirm implementation of appropriate plans and procedures for design control in all aspects. Areas of focus include level of:
 - consistency with design criteria
 - coordination and change control among design disciplines for drawings and specifications
 - completeness of soils testing and site surveys
 - coordination with third parties
 - completeness of project documents for bidding
- Project controls. The review at this stage should confirm implementation of project controls in all aspects including procedures for cost and schedule control, risk management, and dispute or conflict resolution during construction. The PMOC should again check for procedures on cost sharing (see entry to FD). Risk and contingency management policies and procedures should be in place and routinely used.
- Project delivery and procurement. The review should confirm implementation of plans and procedures for project delivery and procurement. Specifically, the review should focus on the Grantee's schedule for bidding construction packages and procuring equipment and vehicles.
- Labor Relations and Policies. The review should assess the establishment of these policies.
- Construction of Fixed Infrastructure. The review should assess the establishment of plans and procedures regarding construction administration, construction management, construction inspection, coordinating construction work by third parties, site logistics, and construction change order and shop drawing document flow and authorities.
- Start up and Revenue Operations. The review should assess the establishment of plans and procedures regarding testing/commissioning, closeout of construction contracts, and training of staff.
- PMP Sub plans. The PMOC shall review for adequacy and soundness the Grantee's PMP sub plans including the Grantee Technical Capacity and Capability, Quality Assurance / Quality Control, Safety and Security Management Plan, Real Estate Acquisition Management Plan, and Bus and Rail Fleet Management Plans. The PMOC shall analyze these sub plans and provide technical assistance to the Grantee along with recommendations for resolving issues surrounding the development and implementation of these plans.

It is the PMOC's professional opinion that PMP Revision 5.0 dated June 29, 2012 meets the FTA guidance and requirements necessary to execute an FFGA.

4.0 OP 21: TECHNICAL CAPACITY AND CAPABILITY REVIEW

4.1 Purpose

Per FTA Oversight Procedure 21, Grantee Technical Capacity and Capability Review, the PMOC will perform evaluations and render professional opinions regarding both the grantee's Technical Capacity and Capability (TCC) to successfully implement, manage, and complete a major Federal-assisted capital project as well as its ability to recognize and manage project risk factors and implement mitigation measures. The evaluations are to cover the following:

- Organization, Personnel Qualifications and Experience
- Grantee's approach to the work, ability to perform the work including its methods, policies, and procedures for developing and updating reasonable and realistic project cost estimates and schedules and the grantee's abilities to identify, analyze, manage and mitigate project risks.

4.2 Methodology

The PMOC established a methodology to comprehensively review, evaluate, and formulate recommendations and opinions based on detailed review of the grantee's organization, personnel qualifications and experience, and pertinent requirements and documents per OP 21. The PMOC previously conducted a TCC review concurrently with the PMP and sub plan (companion) document reviews prior to entry into FD. The PMOC first reviewed the PMP and latest organization charts.

The requirements and document delivery dates were recorded in a FFGA "Roadmap" document. The Roadmap document is updated monthly and discussed at monthly progress and FTA quarterly review meetings with the FTA, PMOC, and the grantee. Some of the significant FFGA Roadmap topics and actions include:

- Project Management Plan (PMP)
- Project Cost Estimate
- Master Project Schedule (MPS)
- Staffing and Succession Plan
- Real Estate and Acquisition Management Plan(RAMP)
- Quality Management Plan (QMP)
- Bus Fleet Management Plan (BFMP)
- Safety and Security Management Plan (SSMP)
- Third-Party Agreements
- Rail Fleet Management Plan (RFMP)
- Contracting Plan for FFGA
- Risk and Contingency Management Plan (RCMP)

The PMOC provided review comments as the grantee developed and submitted the various Roadmap deliverables. The documents and procedures thus evolve through several revisions during the process. The grantee and the PMOC meet on a monthly basis to discuss the deliverables and the PMOC comments and recommendations. The weekly Roadmap deliverable

review also supports the PMOC's TCC review regarding the grantee's management policies and procedures and effectiveness in delivering a high quality Project on time and under budget.

4.3 FTA References

The following are the primary references to Federal legislation, regulation, and guidance that PMOC used to conduct the TCC review:

- Regulations
 - 49 CFR Part 633, Project Management Oversight
- FTA Circulars
 - C5010.1D, Grants Management Guidelines
 - C5200.1A, Full-Funding Grant Agreements Guidance
 - C4220.1F, Third-Party Contracting Requirements
 - C5800.1, Safety and Security Management Guidance for Major Capital Projects
- Guidance
 - Terms of the FFGA and referenced documents
 - FTA's *Project and Construction Management Guidelines*, 2003 update

4.4 General Review of Technical Capacity and Capability

The following sections contain the PMOC's general review of the grantee's technical capacity and capability (TCC). The general review chapter contains two sections as contained in the FTA OP 21 Section 6.1: organization and staffing; and PMP and sub-plan review. The PMOC findings, opinions, and recommendations follow each sub-section topic and are summarized in the report conclusion.

4.4.1 Organization, Personnel Qualifications and Experience

Organization

The PMOC reviewed the complete organization of the grantee to determine the likelihood of the project management team successfully implementing the project. The PMOC also determined whether the grantee has an organizational structure conducive to effective and efficient implementation of the project. The following subsections provide a summary of the PMOC observations from this review.

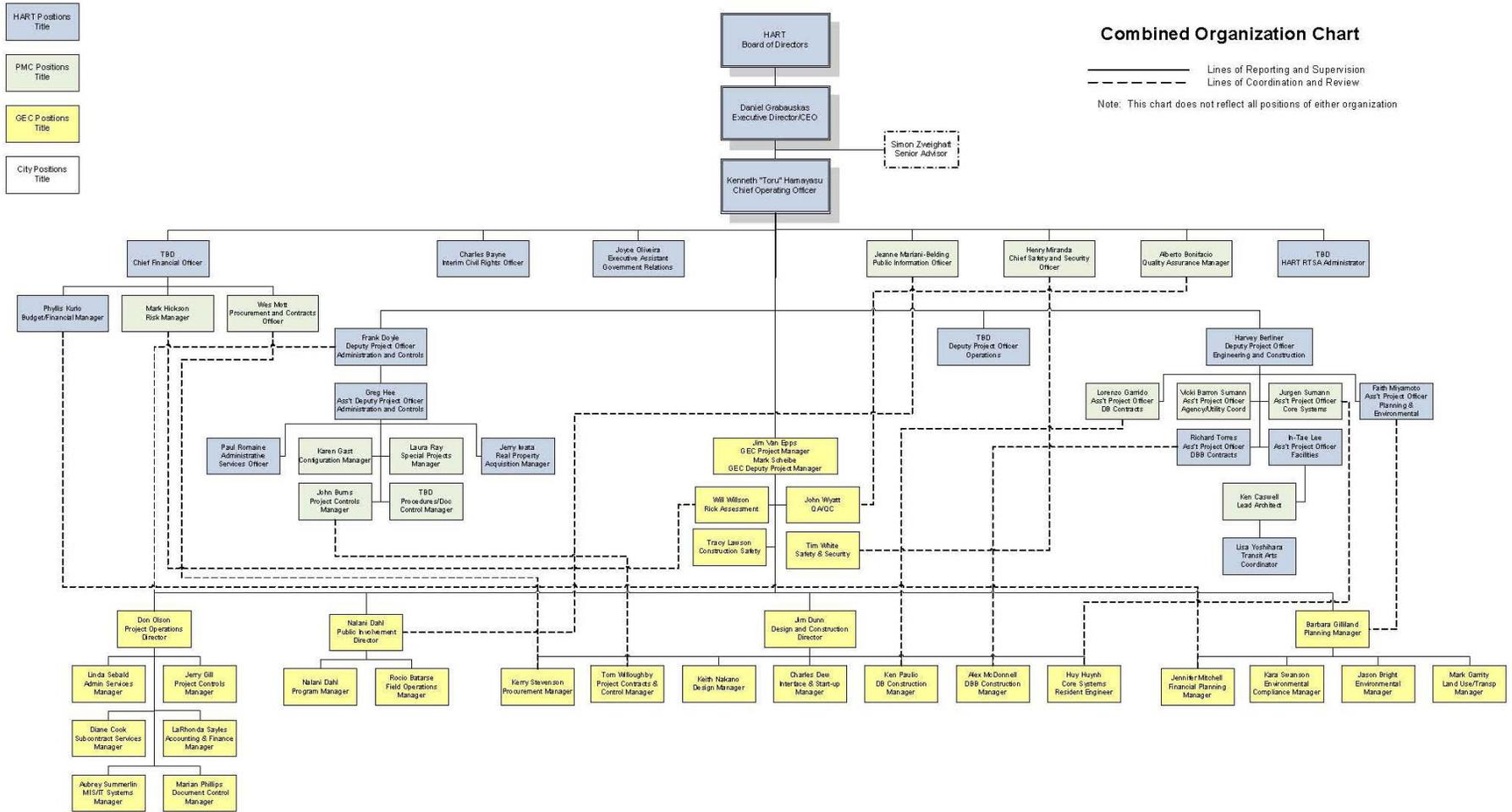
In April 2007, the Department of Transportation Services (DTS) presented a plan for 26 staff positions for the Project, 21 of which were filled by the grantee's Project Management Consultant (PMC), InfraConsult LLC. Since then, the grantee has made significant progress identifying and filling additional key management positions, which better supports and demonstrates its TCC necessary to design, construct, and operate the Project. While several key management, technical lead, and mid-level staff members are on board, several positions remain unfilled as the Project continues into the Final Design and construction phase.

The grantee awarded a contract to InfraConsult LLC in November 2009 to provide Project Management Support Services (PMC). The consultant will serve as a program manager in providing oversight of the PE, Final Design, and construction activities for all contracts. The scope of the PMC contract includes the following: assisting the grantee with specialized support

during design and construction; assisting the grantee with oversight of design, construction, manufacturing, precast concrete operations, installation, testing, and commissioning; and assisting the grantee with high-level management support for financial and political issues. In general, the PMC contract serves as a staff augmentation contract for the grantee. Based on a Fiscal Year 2010 Procurement System Review Final Report prepared for the FTA. The PMC contract was re-solicited and awarded to Infraconsult LLC on February 23, 2012 with the required Federal clauses.

Parsons Brinkerhoff (PB) is currently under contract as the General Engineering Consultant (GEC). The GEC contract scope includes assisting with the preparation of NEPA documents and conceptual engineering, and Preliminary Engineering. The GEC contract began August 2007 and has eight contract amendments totaling more than \$156 million. The grantee executed the GEC II contract with Parsons Brinkerhoff on June 30, 2011. The contract amount is \$300 million (\$150 million base amount plus \$150 million allowance amount). It is anticipated that the \$150 million allowance for additional work will be used after the initial three-year term of the contract. However, it is possible with a contract amendment to expend a portion of the allowance amount any time during the term of the contract. The GEC II will provide services related to elevated guideway engineering, systems engineering, rail station design, construction management oversight, procurement, contract administration, configuration control, claims support, scheduling, project financing and environmental planning. Figure 2 presents the Organizational Chart for the Project team. This chart represents the top-level organization. The PMP contains several lower level organizational charts as well.

Figure 2. Organizational Chart



Personnel, Qualifications and Experience

The PMOC reviewed the grantee assigned and supporting staff qualifications of key management staff in order to gain insight of their experience and background and relevant project experience, understand their conception of the roles and responsibilities, and obtain their input as to the critical path and issues related to their department and the Project as a whole.

The PMOC previously performed TCC interviews and of project staff and provided an assessment in the FD Entry Readiness Report. The grantee replaced the Project Controls Manger and the HART Board selected a new Executive Director in March 2012.

The PMOC previously used Appendix C of OP 21 – Sample Questionnaire to assess the TCC for key individuals from the grantee and PMC. The purpose of the questionnaire was to gain insight into the interviewees’ background and experience, to evaluate their understanding of their project roles and responsibilities, and to obtain their input and opinion on what they believe are the most important project critical issues and challenges.

The PMOC previously used OP 21 Appendix D – “*Summary of Staff Qualifications Experience*”, which documented the information gathered by the PMOC during the previous interview process. These reviews were used to determine whether the grantee has the appropriately qualified staff and/or third-party consultants to perform the activities identified below.

(1) Design and manage the construction of the project

The current grantee staff has demonstrated the capability of managing the work currently performed by the PMC and the GEC. As work progresses from final design the FFGA process and construction phase, the grantee will need to add staff as necessary to hold direct accountability and control of Project scope, schedule, and budget. Development of the project design will include quality review and audit of the GEC and other engineering design consultants assigned to the project, the monitoring of safety and security design requirements and implementation, and continued oversight of the real estate acquisition process.

Currently, the project’s organizational structure includes grantee staff along with PMC and GEC staff, as shown in Figure 2. The current organizational structure provides the experience and expertise to manage the project at this phase of the work and the assigned grantee staff is sufficiently qualified to manage and monitor all current project activities including the third-party consultants/contractors to be procured during final design and prior to the construction phase.

The PMOC spent additional time and attention to the Project Controls Department since it encompasses budget, cost, time, and risk management. Since 2009, the PMOC had expressed concern over the technical capability of the Project Controls Manager (PCM), a position filled by the PMC. This position is responsible for providing oversight on all project control elements as related to scope, schedule, and budget, including cost control, cost estimating, schedule management, document management, quality control interface, and risk assessment analysis. The PMOC’s concern stemmed from observing a chronic issuance of fundamentally unsound

project schedules and procedures. Further investigation and observance of poor project control deliverables led to the PMOC discovery that the grantee Project Control team was not collaborating effectively with the GEC and other grantee consultants. Since September 2008, the PMOC conducted four project control and schedule management workshops in an effort to support and stimulate the grantee's project control department. The PMOC shared numerous lessons learned, procedures, and report examples. However, many of the PMOC's recommendations were not properly implemented

At the direction of the grantee, the PMC replaced the Project Controls Manager (PCM) in May 2011. The PMOC will continue to monitor the deliverables and staff collaboration as the project advances. The grantee senior management staff and project controls department staff continue to struggle with fundamental federal reporting requirements and the PMOC has continually expressed its disappointment with the lack of improvement and progress with said project control deliverables. While the master project schedule has greatly improved, other function and program wide reporting are not consistently and comprehensively developed and distributed to the project team members and the FTA.PMOC.

While the PMOC believes the grantee has improved its staff, organization and procedures, close attention and monitoring will continue as the FTA evaluates execution of an FFGA application.

The project staff exhibits a high degree of professional maturity and expertise. The Project staff benefits from the fact that several of the lead managers have worked together on other large, successful projects. The PMOC also observed, through the document review processes, that key management staff is experienced, has established basic defined roles and responsibilities, and can work together as a team. All are essential qualities for a competent and effective project management organization. While certain challenges are inherent with a blended organizational approach, the PMOC has determined that the management team is fundamentally sound and capable.

- (2) *obtain support and incorporate requirements from the multiple jurisdictions through which the project may pass*
- (3) *obtain cooperation and incorporate requirements from third parties including railroads, utility companies, and adjacent parcel owners*

The entire project alignment falls within the jurisdiction of the City and County of Honolulu. The grantee's Project communications and public relations organization accounts for the coordination and working relationship with the various interest groups, communities, cultures and neighborhood groups, business owners' and related stakeholders. Other related coordination efforts include the extensive amount of interagency agreements and partnerships with various federal, state, and local agencies as listed in the "Agreements" section of this report.

- (4) *Deliver the project, given the form of project delivery method(s) it plans to use, e.g. design/bid/build, design/build, Construction Management/General Contractor (CM/GC), etc.*

The grantee's Work Breakdown Structure (WBS) and Organizational Breakdown Structure (OBS) account for the planning and execution of the Project's multiple contract delivery methods: design-build, design-bid-build, and design-build-operate-maintain. The organization includes a GEC to perform NEPA documentation support, conceptual planning, and PE, Final Design, engineering services during construction, and construction management support through the distillation of Contract Resident Engineering teams. The GEC Resident Engineer teams will also be supported by a separate Construction Engineering and Inspection (CE&I) consultant. The grantee project management organization has been strategically aligned to provide oversight of each contract delivery method by assigning an Assistant Project Officer over each group of contracts according to contract delivery method.

The grantee's GEC, Resident Engineering teams and CE&I consultant are aligned according to the contract delivery method and report to the respective Assistant Project Officer. The PMOC previously interviewed each of the Assistant Project Officer's and determined they possess the experience and qualifications to execute and oversee the multiple contracts and contract types within the overall Project.

(5) *develop and implement a sound Project Management Plan and its required sub-plans,*

The grantee initially prepared the PMP near the conclusion of the AA process and focused it on the PE/ EIS phase of the Project. PMP Revision 1, issued on November 3, 2008, described the PMP process for the progression of the Project into PE and subsequently through the Final Design, procurement, construction, and system start-up and testing phases. PMP Revision 2 was issued on March 1, 2009 to account for a major corridor re-alignment that deleted the Salt Lake segment and shifted to the Airport Alternative route. Revision 2 also accounted for revisions to the master schedule, project cost, and testing. PMP Revision 3 included changes specific to commencement of PE in November 2009. Revision 4 of the PMP was issued April 2011 to support entry into the final design. PMP Revision 4.1, issued February 2012 to support an FFGA award. However, Revision 4.1 was updated as Revision 5.0 of the PMP on June 29, 2012 and supports the grantee's FFGA application and execution process and entry into the construction phase.

The grantee has sufficiently addressed the FTA's required PMP elements contained in 49 CFR 633 necessary to continue the project into the construction phase. However, both the PMOC and the grantee recognize that PMP revisions will be necessary since HART was established and whenever changes to project delivery methods, construction, startup, or testing arise. The PMOC does not prejudice these secondary requirements and has concentrated on the primary requirements needed for FTA approval for an FFGA.

The PMOC used the FTA document *New Starts Project Planning and Development Checklist of Project Sponsor Submittals to FTA for a Full Funding Grant Agreement* dated August 10, 2007 as a guide to support the TCC document review process. It also provides a listing and status of the subcategories of the PMP in accordance with 49 CFR 633 and FTA's *Project & Construction Management Guidelines*, May 2003 Update. Table 4 provides a summary of the status of the grantee sub-plans.

Following are PMOC observations on specific sub-plans:

- Real Estate Acquisition and Management Plan (RAMP) – RAMP outlines the policies and procedures necessary to comply with Federal and State requirements for real estate and easement identification, appraisal, acquisition, relocation, and property management activities. Its policies and procedures comply with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended, (Uniform Act), and the applicable implementing guidelines. The policies and procedures also incorporate compliance requirements of state statutes and guidelines.
- Interface Management Plan and Interface Management Procedure – The PMOC reviewed the grantee’s initial Interface Management Plan and Interface Management Procedure and provided a significant number of review comments. This plan is one of the most important plans for this project. It is an integral document used to describe the coordination between design engineers and construction contractors, the Core Systems Contractor, and the grantee’s management team. The PMOC has expressed concern that several DB contracts are underway while the Interface Management Plan is not fully synthesized with the management staff.
- Construction Management Plan (CMP) – The CMP was provided to the PMOC for review in February 2012. The CMP is generally acceptable for FFGA/Construction.
- Quality Management Plan (QMP) – The grantee has incorporated the PMOC review comments and has submitted an acceptable QMP.
- Safety and Security Management Plan (SSMP) – The FINAL DRAFT of Revision 3A of the SSMP was submitted to the PMOC for review on February 28, 2012 and Revision 2A of the SSCP was submitted on March 1, 2012. The grantee has incorporated the PMOC review comments and has submitted an acceptable SSMP and SSCP.
- The CMP, QMP, and SSMP are documents primarily used during the construction phase. The grantee developed Design-Build, Design-Build-Operate-Maintain and Design-Bid-Build Resident Engineer Manuals to support the GEC and CEI oversight services during construction. The issuance and implementation of these three Plans will also better support the grantee’s two LONP approvals.
- Risk & Contingency Management Plan (RCMP) – This plan is a result of the FTA PMOC Risk Assessment process and replaces the previous FTA Project Execution Plan requirement. The RCMP, which was provided to the PMOC on June 29, 2012, is under review. The RCMP will be required to be finalized prior to FFGA.

In addition to the sub-plans listed above, the PMOC reviewed the Policies and Procedures developed by the grantee and its consultants as identified in Table 5. Some document development evolved through several revisions during the PMOC review; PMOC noted some documents that require further revision as the project proceeds into construction. The PMOC recommends that the grantee develop a Project Responsibility Assignment Matrix similar to Figure 7 in the PMP in order to better document and clarify the roles and responsibilities, functions, and interface required among the blended organization of city department, city Project, and consultant staff.

Table 5. Procedure Documents

Procedure	Rev. No.	Date	Status	Requirement Period
1.PP-01 – Procedures Index	0	15-Mar-12	Acceptable	▲
1.PP-02 – Procedure Development Process	0.1	12-Mar-12	Acceptable	▲
1.PP-03 – Standard Terms, definitions, and Acronyms	0.1	12-Mar-12	Acceptable	▲
1.PP-04– Baseline Documents Revision and Control	0.1	12-Mar-12	Acceptable	▲
1.PP-05– Identification of Badge Policy	0.1	15-Mar-12	Acceptable	▲
2.PA-01 – Security Sensitive Information (SSI)	0.1	12-Mar-12	Acceptable	▲
2.PA-02 – Procurement Control	0.1	12-Mar-12	Acceptable	▲
2.PA-03 – Email Management	0.1	12-Mar-12	Acceptable	▲
2.PA- 04- Project Wide Document Control	0.1	12-Mar-12	Acceptable	▲
2.PA-05 – Project Library	0.1	12-Mar-12	Acceptable	▲
2.PA-06 – Community Relations and Media Contacts	0.1	12-Mar-12	Acceptable	▲
2.PA-07 – RTD Training Procedure	0.1	12-Mar-12	Acceptable	▲
2.PA-08 – Policy for Safeguarding Protected Information	0.1	12-Mar-12	Acceptable	▲
2.PA-09 – Permits Procedure	0	15-May-12	Acceptable	▲
3.PM-01 – Contract Management System	1.1	14-Mar-12	Acceptable	▲
3.PM-04 – Public Information Communication	0.1	15-Mar-12	Acceptable	▲
3.PM-05 Meeting/Minutes	2.1	12-Mar-12	Acceptable	▲
4.PC-02 Project Management Control	0.1	15-Mar-12	Acceptable	▲
4.PC-03 – Project Progress Reports	0.1	15-Mar-12	Acceptable	▲
4.PC-04 – Program Scheduling	0.1	15-Mar-12	Acceptable	▲
4.PC-05 – Project Accounting	0.1	12-Mar-12	Acceptable	▲
4.PC-06 – Cost Estimating	0.1	12-Mar-12	Acceptable	▲
4.PC-07 – Cost Control	0.1	12-Mar-12	Acceptable	▲
4.PC-08 – Risk Management	0.1	12-Mar-12	Acceptable	▲
4.PC-09 – Contingency Management	1	15-Mar-12	Acceptable	▲
5.CA-01 – Contract Administration	0.1	15-Mar-12	Acceptable	▲
5.CA-02 – Contract Change Management	0.1	14-Mar-12	Acceptable	▲
5.CA-03 – Contractor Progress Payments	0.1	13-Mar-12	Acceptable	▲
5.CA-04 – Contractor Progress Reports	0.1	13-Mar-12	Acceptable	▲
5.CA-05 – Contract Change Orders	0.1	13-Mar-12	Acceptable	▲
5.CA-06 – Contract Closeout	0.1	13-Mar-12	Acceptable	▲
5.CA-07 – Claims and Disputes Resolution	0.2	14-Mar-12	Acceptable	▲
5.CA-08 – CACO and Contract Amendment Procedure	0	14-Mar-12	Acceptable	▲
6.CM-01 – Submittal Procedure	1.1	14-Mar-12	Acceptable	▲
6.CM-02 – RFI Procedure	2.1	14-Mar-12	Acceptable	▲
6.CM-03 – RFC Procedure	0.2	14-Mar-12	Acceptable	▲
6.CM-05 – Interface Management and Coordination Procedure	0.1	12-Mar-12	Acceptable	▲

Procedure	Rev. No.	Date	Status	Requirement Period
7.GA-01 – Board – Staff Interaction	0	17-July-11	Acceptable	▲
7.GA-04 – Petty Cash Fund	0	17-July-11	Acceptable	▲
7.GA-06 – Travel	0	17-July-11	Acceptable	▲
7.GA-07 – Preparation of Board Materials	0	20-July-11	Acceptable	▲

NOTE: ▲ – Required Prior to FFGA

(6) *Secure and administer the required local funding*

The Project is primarily funded through two sources: FTA Section 5309 New Starts Funds and revenues from the dedicated 0.5 percent (General Excise Tax) GET surcharge. Because the Project consists of multiple contract delivery methods including design-build, design-bid-build, and design-build-operate and maintain, the grantee intends to accomplish much of the Project with local funds while retaining eligibility for future FTA participation. The grantee has successfully secured and administered local funding for the Project and continues to advance the Project for the past several years. The grantee anticipates executing an FFGA by late 2012.

(7) *Maintain the grantee’s existing transit system with the addition of the Project*

The grantee is the City and County of Honolulu. The current transit system is a fixed route bus system and complementary paratransit service. The Public Transit Division (PTD) is responsible for planning and directing the system. The PTD oversees a bus management services contractor responsible for operating the bus and paratransit systems.

In November 2010 voters passed an Amendment to the City Charter that set the framework for the creation of a semi-autonomous public transit authority referred to as the Honolulu Authority for Rapid Transportation (HART). The existing City’s governance structure will be modified since HART is now established. The grantee expects some staff to transfer from RTD to HART. The current bus and paratransit systems will be separated from HART and Project-specific management and operation duties.

Staffing and Succession Plan Review

The PMOC reviewed the grantee’s project staffing and succession plan and assessed the reasonableness of hours for each project component over the life of the project and whether the costs for professional services in the estimate accurately reflects the labor required.

The strategy identified in the Staffing and Succession Plan is comprised of hiring locally and training the staff using the PMC and consultant team’s expertise. As the abilities of grantee staff increase, the need for PMC staff will diminish. Currently, the grantee has a four-year timetable for replacing the PMC with grantee staff.

The PMOC has some concern that the grantee may encounter difficulty acquiring the experienced staff needed for long-term assignments, given Hawaii’s high cost of living and distance from the mainland. The PMOC is satisfied that, at present, the grantee does have a succession plan that addresses the transition of the positions currently held by the PMC to grantee staff, and the dates by which the grantee intends to staff each of the positions.

The PMOC identified “capacity” issues as key grantee and PMC positions remained unidentified, vacant or vacated due to employee retention challenges. The grantee has noted that retention challenges include the geographic isolation from the US mainland, salary constraints, capability issues, and other related issues. The grantee must fill the following key positions early during the construction phase and no later than immediately after receiving an executed FFGA:

- Project Labor Agreement Manager
- Deputy Project Officer Operations
- Procedures/Document Controls Manager
- Design Build Contract Administrator
- Design Contract Administrator
- Human Resources Specialist DBE
- Human Resources Specialist EEO
- CSC Configuration Management Specialist

The grantee filled the Real Estate Acquisition Manager position, which is one of two key management positions listed above. Its second position, Contracts Administrator, was filled by the PMC. It is the grantee’s responsibility to ensure that all key management positions are ultimately filled by its own competent and well-trained employees. While the grantee has made great strides in identifying filling key staff positions, it continues to rely heavily on the PMC to fill the needed positions. It is the PMOC’s professional opinion that the grantee should gain more ownership and control by focusing more attention on recruiting and filling its long term positions as the project enters the FFGA/construction, both for long term interests and as a means to reduce costs and consultant fees.

Some of the challenges with regard to key management positions are long term retention, limited salary structure, isolated geography, and, in general, a lack of qualified resource base. The grantee developed a Staffing and Succession Plan dated May 25, 2012 and continues exhaustive recruiting and hiring for City (grantee) positions. Inherently, the need for PMC staff will diminish as the grantee fills key management positions. Until such time, it will be necessary for the grantee to continue supplementing its staff with PMC staff. It is the PMOC’s professional opinion that the grantee’s current Organizational Breakdown Structure and filled staff positions are sufficient to effectively manage the current awarded DB contracts. During the execution of these contracts, the grantee has enough time to continue ramping up staff in order to meet the peak demands of the Project as it continues over the next seven to eight years. This time will also provide an opportunity to recruit, train and transition PMC staff to permanent grantee positions. The PMOC also believes that the resource demands associated with an FFGA for a \$5 billion project require full time and concentrated attention and continuity within the grantee’s organization for smooth transition as the grantee matures and nears revenue operations on the starter system.

The grantee staffing is based on the following budgeted positions:

- Fiscal Year (FY) 2008 – 35 positions
- FY 2009 – 35 positions
- FY 2010 – 79 positions
- FY 2011 – 110 positions

- FY 2012 – 136 positions
- FY 2013 – 142 positions

The grantee has made an improvement in hiring additional staff needed for the project since the FD Entry Readiness Report. The grantee has 142 positions budgeted for FY 2013. The maximum number of employees will most likely peak in the next two to three years. It is anticipated at the peak, HART will have approximately 160 to 170 Full Time Employees (FTEs).

The PMOC believes the trend will continue through the FFGA process and early construction phase. It is the PMOC's professional opinion that the passage of the November 2010 Transit Authority Resolution for the creation of a public transit authority will assist the grantee in accelerating the hiring process.

In order to address the optimum staffing composition and organization, HART has initiated an effort to create a Human Resources Management Plan (HRMP) in cooperation with the City and County of Honolulu Department of Human Resources (DHR) that will function as a blueprint for the organization development of HART. The plan will be implemented in three different stages:

1. Organization, Classification and Compensation
2. Recruitment and Employment
3. Training and Development

Although the grantee has done an acceptable job of filling key management positions, a few staff positions remain vacant. The PMOC has observed that the grantee rarely achieves internal milestone dates set for the development of procedures and issuance of contracts. However, the PMOC is encouraged that HART is creating an HRMP that will function as a blueprint to assist them with filling key management positions.

Physical Resources

The PMOC is to review and determine whether the grantee has the physical resources, adequate office space and equipment, IT architecture, equipment and support, and furnishings to effectively and efficiently manage the Project.

The grantee reached an agreement to lease the 11th floor and suite 150 on April 1, 2012. The grantee previously reached an agreement for a 10-year lease on the 23rd floor of its building on December 1, 2010, which provided an additional 17,000 square feet of office space. The grantee, PMC, and a portion of the GEC staff will continue to be co-located and will jointly utilize the additional office space. Some project staff moved into this new office space in early January 2011. The main office contains adequate conference room space and is equipped with WIFI internet connections. The office space on the 17th and 23rd floors is well furnished with high-grade finishes, at a reduced cost, as the previous tenant was a law firm on the 17th floor and a financial firm on the 23rd floor and the office space finish-out required only minor tenant improvements.

The grantee and its consultants are using new computers with the latest computer operating software, WIFI internet connectivity, internet virtual conference/meeting platforms, MS office, and related engineering and document control software versions. The Local Area Network

system contains a backup system and appropriate disaster recovery systems located off-site. The project computer systems support the grantee's document management system.

History of Performance, Financial Stability, Adequacy of Management Systems, Conformance

The PMOC reviewed the agency's history of performance, financial stability, adequacy of managements systems, and conformance with the terms and conditions of previous contract awards.

The grantee has never managed a New Starts capital improvement project, and for this reason, the grantee has relied heavily on a robust blended organization of expert transit, engineering, and construction management consultants. Similar projects consisting of a varied scope, schedule and budget failed in years past as the public was unwilling to carry the project forward. Public perception and opinion has changed as the public voted in favor of the project and some federal funds have been secured. While the Project has not proceeded as quickly as the grantee and public would like, the FTA and PMOC have acutely monitored and supported the grantee and made appropriate assessment and recommendations when needed.

The Project office and management staff is using new project control management systems as the current City database is too antiquated to meet the latency restrictions and data transfer demands of the Project. The grantee has developed and implemented a new document management and control system and new schedule management database. They are currently developing and refining a budget and cost reporting system that will interface with the document and schedule management systems.

The grantee has never managed a similar design and construction project in the past and therefore the PMOC is not able to compare or evaluate the grantee's contract conformance of previous terms and conditions.

4.4.2 Grantee's Approach, Understanding, and Ability to Perform Work

Project Controls (schedule, budget, and risk management)

Project control includes the development, update and variance analysis of the project scope, schedule, and budget. Subset project control components that interface closely with the primary control categories include contract administration, document control, configuration management and risk management. The PMOC reviewed numerous project control plans and procedures as part of the OP 34 (Schedule Review), OP 40 (Risk and Contingency Review), the OP 20 (PMP Review), and the OP 21 (TCC Review). The PMOC and the grantee concentrated heavily on the development and review of the project control procedures, as they were required early on to support the various FTA PMOC deliverable reports. Consequently, the grantee has successfully developed a sufficient set of project control procedures to adequately cover scope, schedule, and budget controls. The grantee has yet to implement all of the procedures but has establish a well-grounded plan to do so as they are completing revisions to the MPS and finalizing Cost Report formats in preparation of entering the FFGA application process and construction phase. The PMOC emphasized the importance of developing a robust and flexible cost and schedule WBS to support the implementation of performance measurement and variance reporting tailored for the multiple reporting audiences among the Project. The PMOC is closely monitoring the grantee's

project control department and has included several recommendations in the schedule review and risk assessment reports to the FTA.

FTA Reporting Requirements

The grantee has demonstrated thus far a cognitive and responsive protocol to FTA and PMOC requests. They have complied all FTA and PMOC guidelines, circulars and CFR's during the PE and FD phase in order to sustain federal eligibility. The grantee and their consultant team have established a good working relationship with the PMOC and have demonstrated a positive attitude and cooperative spirit during the document review process in support of and FFGA.

The grantee, however, has not consistently developed and distributed comprehensive monthly reports to date. The grantee must issue comprehensive and timely Monthly Reports in accordance with the federal requirements. The PMOC will validate this requirement by receiving and reviewing several months of status reports when they are consistently submitted by the grantee.

Procurement and Compliance

Administration of contracts is the responsibility of the Procurement/Contract Officer (PCO) under the supervision of the Deputy Project Officer, Administration and Control. With the exception of the PMC contract, which is the subject of a Procurement Systems Review finding, the PMOC has determined the grantee has complied with the procurement of architectural and engineering service contracts in accordance to the FTA Circular 4220.1F, Third Party Procurement Guidelines. Equipment and materials services are procured through Request for Proposal or Request for Bid.

While the FTA and PMOC have questioned the timing of design-build contract procurements in the past, prior to receiving an ROD, the PMOC has determined the grantee has complied with all federal requirements.

Community Relations Program

The Department of Customer Service (DCS) is responsible for providing the public with information about City programs and is the primary liaison with community groups and organizations that are or may be affected by the Project. The DCS and grantee work closely with the Hawaii Community Development Authority and neighboring communities along the corridor. The grantee's Public Information Officer (PIO) oversees all project related outreach and canvasses information using mailers, brochures, radio and television, blogs and internet media. The PIO also coordinates with the Oahu Metropolitan Planning Office (MPO) public involvement program through the Citizen Advisory Committee (CAC). The CAC members include community organizations, professional associations, neighborhood boards, special interest groups, and transportation providers.

The PIO and the grantee have been very proactive with public outreach efforts as demonstrated by their monthly reports to the FTA and PMOC.

Project Property Management

The grantee, City and County of Honolulu, accounts and manages property as a routine business protocol so the transition of managing such property and inventory for the Project was not difficult. They track and records property inventory maintained on the City database. Real property and easements along the corridor are managed by the real estate acquisition department and coordinated with the HDOT and City right of way maintenance department responsibilities.

Force Account Plan

Per FTA C5010.1D Grants Management Guidelines a Force Account Plan is not required since the grantees force account is under \$100,000.

Safety and Security

The FINAL DRAFT of Revision 3A of the SSMP was submitted to the PMOC for review on February 28, 2012 and Revision 2A of the SSCP was submitted on March 1, 2012. The PMOC is in the process of providing review comments to HART.

HDOT has been designated as the State Oversight Agency (SOA). An interim HDOT State Oversight Agency (SOA) Project Manager has been working part-time since April 2011. HDOT anticipates hiring a full-time SOA Project Manager by summer 2012. FTA had identified that this position be filled by February 2012 in the final design approval letter. Given the status of this project, it is critical that a permanent lead be identified as soon as possible.

A revised program schedule and a safety and security roadmap was provided to the PMOC on October 11, 2011. The PMOC provided comments to the FTA. HDOT is in the process of updating the roadmap based on a conference call held on January 3, 2012. FTA, HART and PMOC participated in the first monthly roadmap call with HDOT on March 6, 2012 and subsequent roadmap calls are scheduled the first Tuesday of every month. HDOT provided a letter to FTA on January 3, 2011 identifying a funding source for the SOA once the project is in operations.

The grantee and HDOT executed the Memorandum of Agreement (MOA) on December 23, 2011. However, the MOA needed to be revised due to a potential conflict of interest and for HART to provide the technical funding directly to HDOT, which, in turn, will contract directly with the SOA consultant. The revised MOA was executed between HART and HDOT on February 3, 2012, removing the potential conflict of interest and providing the technical funding from HART directly to HDOT, which will then contract directly with the SOA consultant.

The PMOC identified technical capacity issues as key grantee and PMC safety and security positions remained vacant or have been vacated due to recruitment and employee retention challenges. The grantee cited geographic isolation from the US mainland, salary constraints, and technical capability issues are the primary reasons. The grantee must fill the following key safety and security positions early during the construction phase and no later than immediately after receiving an executed FFGA:

- Rail System Safety and Security Certification Manager
- System Safety and Security Engineer
- System Security Specialist

- Occupational Health/Construction Safety and Security Manager
- Construction Safety and Security Compliance Officer

Full Funding Grant Agreement (FFGA)

The grantee plans submitted a request for FFGA on June 29, 2012. An FFGA Roadmap was developed to serve as a reference baseline to track progress as the FFGA application and attachments are assembled.

Grantee Understanding of Title VI Requirements, Real Estate Acquisition, and Agreements

It is the PMOC's professional opinion that the grantee is adhering to Title VI requirements. The procurement department has thoroughly evaluated opportunities to include small business and disadvantage business in their contract packaging and delivery method strategies. The DTS Public Transit Division is currently responsible for preparing and submitting the Title VI program required by FTA Circular 4702.1A once every three years, unless otherwise requested by the FTA. As a recipient of Federal funds, the DTS is responsible for ensuring that the information is submitted to the FTA as part of its Title VI Program.

The PMOC has monitored and witnessed an extensive amount of Americans with Disabilities Act (ADA) considerations through the preliminary engineering process evident by the standards, drawings, and consideration of transit station configurations, strategic location of platform station elevators, incorporation of emergency egress from elevated platforms, parking proximity to stations, and preliminary train boarding configurations.

The PMOC and its real estate acquisition expert consultant interviewed the grantee's Real Estate Acquisition Manager and key department staff and determined have demonstrated a clear and thorough understanding of the Uniform Property Acquisition and Relocation Act of 1970. The grantee has developed an approved RAMP and has developed a detailed schedule network specific to the acquisition of partial and full takes, and easements. The PMOC did determine the grantee's real estate acquisition department has capacity limitations and requires additional resources to meet peak demands. During a Real Estate Workshop, the PMOC recommended that the grantee hire a consultant to assist with real estate activities. The grantee issued a Request for Proposals (RFP) for Real Estate Professional Services on November 17, 2010. The RFP was subsequently canceled because of language in RFP Part I that prevented the grantee from developing a Priority List. Re-solicitation of RFP Part 1 was issued on April 1, 2011 and submittals were received in early May 2, 2011. The grantee enhanced the RFP Part 2 to reflect the Project organization and staffing requirements related to the Real Estate Acquisition Manager position and department staff, RFP Part 2 was issued on September 8, 2011 and the grantee issued NTP in March 2012.

The grantee's PMP best documents their understanding and policies for agreements and have established a clear organization breakdown structure and responsibility assignment matrix to distinguish how federal, state and local agreements will be developed and managed. The HART Executive Director is responsible for project level interface between agencies where necessary.

Key cooperating agencies include:

- Federal Highway Administration (FHWA)
- Federal Aviation Administration (FAA)

- U.S. Department of Defense (USDOD) – U.S. Army Garrison Hawaii & U.S. Naval Base Pearl Harbor
- Hawaii Department of Transportation (HDOT)

Participating federal agencies include:

- U.S. Department of Agriculture (Natural Resource Conservation Service)
- U.S. Department of the Interior (Fish & Wildlife Service, National Park Service, U.S. Geological Survey Pacific Island Ecosystems Research Center)
- U.S. Department of Homeland Security (U.S. Coast Guard)
- U.S. Army Corps of Engineers
- U.S. Environmental Protection Agency
- U.S. Federal Emergency Management Agency

Participating state agencies include:

- Hawaii Community Development Authority
- Department of Education
- Department of Accounting and General Services
- Department of Land and Natural Resources
- Department of Defense
- Department of Hawaiian Home Lands
- Department of Health
- Department of Business
- Office of Hawaiian Affairs
- University of Hawaii
- Oahu Metropolitan Planning Organization

The Department of Planning and Permitting (DPP) Building Code Branch reviews designs for compliance with building codes and ADA requirements prior to permit issuance. The DPP Building Code Branch has requested that the grantee and its third-party consultants review the designs for building code and ADA compliance as a part of the design review process. The determination of whether City building permits are to be issued will be made jointly by the DPP Director and the DTS Director. The City must ensure that the staffing levels proposed by the GEC for the Project will not be used to perform any of the DPP reviews. The PMOC recommends that a separate and distinct group be utilized by the GEC so that TCC is not compromised on the project.

Honolulu Authority for Rapid Transportation (HART)

On July 1, 2007, the City and County of Honolulu formed the Rapid Transit Division (RTD), which falls under the Department of Transportation Services (DTS). The RTD is responsible for the management and oversight of the project from PE through construction, including all actions and project deliverables required by the FTA New Starts Program, and will interface with other grantee departments as needed. The project staff consists of full-time grantee employees supplemented with staff from the PMC. The grantee anticipates transitioning some of the PMC staff, or positions held by the PMC, to the grantee once the project is complete and operational.

This transition process includes mentor-protégé type collaboration and training during the last several years of the Project in preparation for management and operation of the starter system.

During the November 2010 election, an amendment to the Revised Charter of the City and County of Honolulu 1972 (as amended) was approved by voters to allow for the creation of a public transit authority. The new authority will be responsible for the planning, construction, operation, maintenance, and expansion of the grantee’s fixed guideway mass transit system. This authority, which is named the Honolulu Authority for Rapid Transportation (HART), became effective on July 1, 2011. PMP Revision 4.1, which was submitted for review in March 2012, supports the grantee’s request for an FFGA.

The new transit authority was configured similar to the Board of Water Supply (BWS). The BWS has full and complete authority to manage, control, and operate the public water systems on Oahu and the properties of these systems. As a semi-autonomous city agency, HART is governed by seven appointed members of its Board of Directors. The Board will set policies and prescribe regulations for the planning, construction, operation, maintenance, and expansion of the grantee’s fixed guideway mass transit system. The Board also appointed an Interim Executive Director and eventually selected an Executive Director on March 1, 2012. The Board, whose members will have five-year staggered terms, will include three members appointed by the Mayor, three members appointed by the City Council and one member appointed by the voting members. The remaining three directors are ex-officio (by virtue of office or position): The State Director of Transportation (voting member), the Director of Transportation Services (voting member) and the Director of Planning and Permitting (non-voting member). The grantee and the PMOC expect an increase in resource demand and some strain on certain staff members as the HART Board and new staff members develop and implement new procedures and policies. A new set of risks and challenges associated with the HART Board and its interface with grantee staff will soon be injected into the Project. Such risks may adversely affect cost or time and will be carefully monitored by the PMOC.

The HART Board selected Mr. Daniel Grabauskas as the permanent Executive Director on March 1, 2012. Mr. Grabauskas began his tenure as Executive Director on April 9, 2012.

4.5 Document Checklist

The table below summarizes the TCC requirements for FFGA and the PMOC’s opinion of whether those requirements have been sufficiently addressed by the grantee.

Table 6. TCC Checklist

TCC Documents Checklist	FFGA	Req’t. Satisfied	Comment
Description of Grantee's Project Approach:			
AA through PE and approval into FD			
Entry to FD through FFGA and Bidding of Major Contracts	•	Yes	
Bidding of Major Contracts through Construction, Testing, Start-up, Revenue Operations	•	Yes	
Organizational Charts			

TCC Documents Checklist	FFGA	Req't. Satisfied	Comment
Agency	●	Yes	Must be updated in early FFGA
Project Team (agency staff and consultants)	●	Yes	Must be updated in early FFGA
Staff Qualifications/Experience Chart	●	Yes	With noted exceptions for vacant positions
Description of roles, responsibilities, interfaces among key project team members through responsibility matrix	●	Yes	
Staffing Plan - Labor Hour Distribution over Life of Project	●	Yes	
Copies of Relevant RFPs / Contracts / Agreements	▲	Yes	
Description of Management Processes and Procedures:			
Agency Board decision-making authority	●	Yes	Additional action required by HART Board
Agency Leadership and Executive Staff decision-making authority	●	Yes	Additional action required by HART Board
Project Leadership and Executive Staff decision-making authority	●	Yes	
Legal services for contracts, ADR	●	Yes	
Financial Management, Funding Approval processes and authorities	○	Yes	Additional action required by HART Board
Procurement services	●	Yes	
Community outreach and relations, interface with State and Local Agencies and Media; Public Hearings	●	Yes	
Resumes of project team members			
Project Management:			
Project Labor Agreement Lead	●	No	Position vacant
Operations Lead	●	Yes	
Document Control Lead	●	Yes	
Financial Management and Funding Leads	●	Yes	
Environmental Assessment and Mitigation Leads:			
Environmental study and NEPA document			Complete
Environmental Coordination with Design / Monitoring	●	Yes	
Environmental Mitigation Monitoring During Construction	●	Yes	
Travel Forecasting Lead:	●	Yes	
Operations Planning, Fleet Management Planning Leads	●	Yes	
Design Team Lead:			
Civil	●	Yes	
Structural	●	Yes	
Guideway and Track Design	●	Yes	
Architectural	●	Yes	
Mechanical	●	Yes	
Electrical	●	Yes	
Plumbing	●	Yes	
Communications	●	Yes	
Vehicle Design and Manufacture	●	Yes	
Special Equipment Design and Manufacture	●	Yes	
Investigation and Testing lead	●	Yes	
Coordination with Third Parties Lead	●	Yes	
Quality Assurance and Quality Control lead	●	Yes	

TCC Documents Checklist	FFGA	Req't. Satisfied	Comment
Project Controls:			
Project controls lead	●	Yes	
Cost Estimating and Cost Estimating Review Leads	●	Yes	
Scheduling and Schedule Review Leads	●	Yes	
Risk Assessment and Mitigation Lead	●	Yes	
Construction, Permits, Testing, Start-up Leads:			
Construction Administration	●	Yes	
Construction Management	●	Yes	
Acquisition of Permits	●	Yes	
Testing of systems and vehicles	●	Yes	
Start-up/Transition into Revenue Operations:			
Real Estate Lead	●	Yes	
Safety Review Lead	●	Yes	

NOTE: ▲ – Preliminary information required;

● – Element to be completed;

○ – Element to be modified or augmented with additional information as necessary.

4.6 Conclusion

It is the PMOC's professional opinion that the grantee has demonstrated sufficient technical capacity and capability during the preliminary engineering and final design phases. HART has implemented several staff and procedural adjustments, many a result of FTA or PMOC recommendations that have improved HART's technical capacity and capability in preparation of the FFGA.

The PMOC has some concern that the grantee may continue experiencing difficulty attracting and retaining the experienced staff needed for long-term project assignment and permanent grantee employment (post-Project) given Hawaii's geographic isolation, salary limits, and high cost of living relative to the mainland. The grantee should adhere to the staffing plan to address the transition of staff during the final design and construction phases for positions currently occupied by PMC staff to grantee staff.

The PMOC will continue monitoring the grantee's project management process to ensure that it is effectively managing the project and continuing fiscal responsibility and accountability for all decisions affecting project design, cost, and schedule. The transition from PMC staff to full-time grantee staff must be closely monitored by the PMOC after receipt of an FFGA.

The grantee must issue comprehensive and timely Monthly Reports in accordance with the federal requirements. The PMOC will validate this requirement by receiving and reviewing several months of status reports when they are consistently submitted by the grantee.

It is the PMOC's professional opinion that the grantee has demonstrated sufficient Technical Capacity and Capability necessary to execute an FFGA. However, the PMOC has identified several recommendations the grantee must address as noted in Section 1.7.

5.0 OP 24: QA/QC REVIEW

The purpose of section of the report is to provide the PMOC's assessment of the grantee's *Quality Management Plan*, Revision 1.A, dated February 15, 2012.

The objective of this review is to assess and evaluate the adequacy and soundness of the grantee's QA/QC program and the grantee's implementation of such program over the course of the Project. The following are objectives of the OP 24 review:

- Quality Management
 - verify that the grantee has established a documented Quality Management Program of procedures and activities to support the entire grantee organization, as well as the project
 - verify that the program can ensure satisfaction of project quality objectives related to the control of documents, design, procurement, construction, start-up, and operations
 - evaluate the grantee's plan for quality management activities, capabilities regarding the establishment of quality systems, identification and evaluation of quality problems, and provision of solutions
 - verify that quality activities are/were carried out
 - evaluate the grantee's actual implementation of quality management activities and the documentation thereof
 - verify and assess that the grantee has adequately defined its quality policy and the quality responsibilities of the project team
 - ensure that the grantee has assigned qualified personnel, independent of those having direct responsibility for the work being performed, to be responsible for QA/QC functions within the project
 - verify and ensure that such personnel are implementing and maintaining the grantee's quality policy
 - verify that the grantee has established an internal audit to ensure that the elements of the quality management program are functioning as intended
 - review the grantee's quality control and assurance procedures and determine the adequacy of such procedures
- Document Control
 - ensure that the grantee has an established document control program within its QA/QC plan and assess the adequacy of such control and assurance procedures and requirements
 - ensure that the grantee has specified a document control procedure, including document review, distribution, and storage, that incorporates the design consultants and various construction contractors
 - confirm that the grantee has in place adequate quality assurance procedures to ensure that document controls are in place and are being implemented
- Design Control
 - ensure that the grantee has an established Design Control Plan within its QA/QC plan and assess the adequacy of such quality control and assurance procedures and requirements

- ensure that the grantee has specified procedures for design verification and design review and assess the adequacy and efficacy of these control and assurance procedures
- confirm that the consultant(s) responsible for design have established procedures for controlling their design processes
- confirm that the grantee has specified design review procedures for all design consultants and procedures for design and/or specification changes, including signoff and documentation of such changes
- ensure that the grantee has documented procedures and requirements regarding “as-built” documents
- Procurement
 - ensure that the grantee has procedures to ensure competition in the bidding
 - review and assess the grantee’s procedures for ensuring that quality control requirements are included within proposals/bids and formally communicated to potential consultants/contractors/subcontractors
 - review the grantee’s procedures for ensuring that procurement documents are reviewed and approved by a designated authority prior to release, with special attention to the review of the grantee’s construction contract documents, including general and special conditions and quality control requirements
 - review the grantee’s requirements for product identification and traceability to be placed in contract documents, where appropriate, for equipment manufacturers or others supplying products for the project
 - review and assess the adequacy of the grantee’s requirements for product identification and traceability for products and materials turned over to the owner at project conclusion
- Construction/Inspection
 - review and assess the adequacy of the grantee’s requirements for a quality control inspection and testing program through all phases of the work, including inspection and testing procedures for special processes and requirements for calibration and maintenance of inspection, measuring, and/or test equipment
 - ensure that the grantee’s QA/QC plan adequately indicates and describes the types of inspection and testing required and the standards to be met and provides reference to such testing and standards requirements within the project specifications
 - review and assess the adequacy of the grantee’s procedures for handling nonconforming work
 - verify that such procedures define responsibilities and/or conditions that would cause work to stop and documentation procedures to record nonconforming work
 - review and assess the adequacy of the grantee’s procedures for taking corrective action
- Operations, Startup, and Testing
 - review and assess the adequacy of the grantee’s control procedures for the testing of systems, vehicles, and service equipment, as well as the grantee’s training procedures for operating and maintenance to ensure a smooth transition to operations
 - confirm that the grantee has in place adequate quality assurance procedures to ensure successful implementation of the training program

5.1 PMOC Assessment

The PMOC followed the FTA OP 24 to perform a review of grantee’s QMP, whose Table of Contents is presented below.

Table 7. QMP Table of Contents

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

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

5.1.1 Quality Management Program

Requirement

Verify that the grantee has established a documented Quality Management Program of procedures and activities to support the entire grantee organization, as well as the project.

PMOC Assessment

The grantee has prepared and issued the Quality Management Plan, Revision 1.A dated February 15, 2012. The QMP is structured around the 15 essential elements of the FTA QA/QC Guidelines, which describes and documents the quality policy that will be used throughout the project (see Table 8). The roles and responsibilities of the Executive Director, System Safety and Security Manager, Quality Assurance Manager, Chief Project Officer, Deputy Chief Project Officer of Administration and Controls, and the Deputy Chief Project Officer of Engineering and Construction are identified along with inclusion of an overall project organization chart.

Table 8. FTA QA/QC Guidelines – 15 Essential Elements

FTA Element	OP 24 Requirement	QMP
Management Responsibility	6.1 Quality Management Program	2 – Management Responsibility
Documented Quality Management System	6.1 Quality Management Program	3 – Documented Quality Management System
Design Control	6.3 Design Control	4 – Design Control
Document Control	6.2 Document Control	7 – Document Control
Purchasing	6.4.1 Procurement	5 – Purchasing
Product Identification and Traceability	6.4.1 Procurement	9 – Product Identification and Traceability
Process Control	6.4.1 Procurement	10 – Process Control
Inspection and Testing	6.4.2 Construction/Inspection	11 – Inspection and 12 – Testing
Inspection, Measuring, and Test Equipment	6.4.2 Construction/Inspection	13 – Inspection, Measuring, and Test Equipment
Inspection and Test Status	6.4.2 Construction/Inspection	15 – Inspection and Test Status
Nonconformance	6.4.2 Construction/Inspection	16 – Nonconformance
Corrective Action	6.4.2 Construction/Inspection	17 – Corrective Action
Quality Records	6.2 Document Control	18 – Quality Records
Quality Audits	6.1 Quality Management Program	19 – Quality Audits
Training	6.5 Operations, Startup and Training	20 – Training

Requirement

Verify that the program can ensure satisfaction of project quality objectives related to the control of documents, design, procurement, construction, start-up, and operations.

PMOC Assessment

The QMP fully identifies and describes the procedures that are/will be used for document control, design, procurement, construction, start-up, and operations.

Requirement

Evaluate the grantee’s plan for quality management activities, including capabilities regarding the establishment of quality systems, identification, and evaluation of quality problems, and provision of solutions.

PMOC Assessment

The QMP fully identifies and describes the quality management activities regarding the establishment of quality systems, identification, and evaluation of quality problems, and provision of solutions throughout the QMP. The identification and evaluation of quality

problems is found in Chapter 15, *Inspection and Test Status*, Chapter 16, *Nonconformance*, and Chapter 17, *Correction Action*.

Requirement

Verify that quality activities are/were carried out.

PMOC Assessment

The grantee submits a monthly report to the FTA that provides a summary of all quality activities for the month.

Requirement

Evaluate the grantee's actual implementation of quality management activities and the documentation thereof.

PMOC Assessment

Implementation of quality management activities is documented through the quality audit process. This process is fully identified and described in Chapter 19, *Quality Audits*. A summary of Surveillance Audits is included in each monthly report prepared by the grantee and submitted to FTA.

Requirement

Verify and assess that the grantee has adequately defined its quality policy and the quality responsibilities of the project team.

PMOC Assessment

The quality policy is defined throughout the QMP. The roles and responsibilities of the Executive Director, System Safety and Security Manager, Quality Assurance Manager, Chief Project Officer, Deputy Chief Project Officer of Administration and Controls, and the Deputy Chief Project Officer of Engineering and Construction are identified along with inclusion of an overall project organization chart. The quality policy and responsibilities identified in this QMP are acceptable and conform to FTA guidelines.

Requirement

Ensure that the grantee has assigned qualified personnel, independent of those having direct responsibility for the work being performed, to be responsible for QA/QC functions within the project. Verify and ensure that such personnel are implementing and maintaining the grantee's quality policy.

PMOC Assessment

The grantee has engaged the use of a Program Management Consultant (PMC), InfraConsult LLC, and a GEC, PB Americas, to assist in the day-to-day management of the Project and supplement the grantee team. The grantee and consultant staff assigned to this project is comprised of qualified personnel, independent of those having direct responsibility for the work being performed. The RTD team is responsible for implementing and maintaining the quality policy, as defined throughout this QMP.

Requirement

Verify that the grantee has established an internal audit to ensure that the elements of the quality management program are functioning as intended. Review the grantee's quality control and assurance procedures and determine the adequacy of such procedures.

PMOC Assessment

The internal audit procedures are identified and defined in Chapter 19, *Quality Audits*, and Appendix 10, *QIP 19 – AUDIT PROCEDURE*, of the QMP. Procedures include planning, procedure, and result reporting requirements. A sample checklist and audit report is included to assist the auditors in conducting consistent audits. The quality control procedures identified in this QMP are acceptable and conform to FTA guidelines.

PMOC Assessment of the Quality Management Program

The PMOC finds that this QMP provides the information necessary to understand the grantee's quality management program objectives and is acceptable to advance the project into the FFGA/Construction phase.

5.1.2 Document Control

Requirement

Ensure that the grantee has an established document control program within its QA/QC plan and assess the adequacy of such control and assurance procedures and requirements.

PMOC Assessment

The document control program is identified and defined in Chapter 7, *Document Control*, and in Appendix 9, *Project Wide Document Control Procedure (No. 2, PA-04)* of the QMP. The document control procedures identified in this QMP are acceptable and conform to FTA guidelines.

Requirement

Ensure that the grantee has specified a document control procedure, including document review, distribution, and storage, that incorporates the design consultants and various construction contractors.

PMOC Assessment

The document control procedures are identified and defined in Chapter 7, *Document Control*, and in Appendix 9, *Project Wide Document Control Procedure (No. 2, PA-04)* of the QMP. These procedures apply to all project documents, including those generated by the design consultants and construction contractors.

Requirement

Confirm that the grantee has in place adequate quality assurance procedures to ensure that document controls are in place and are being implemented.

PMOC Assessment

The quality assurance procedures included in this QMP ensure that document controls are in place and are being implemented by project staff.

PMOC Assessment of Document Control

The PMOC finds that this QMP provides the information necessary to understand the grantee's document control objectives and is acceptable to advance the project into the FFGA/Construction phase.

5.1.3 Design Control

Requirement

Ensure the grantee has an established Design Control Plan within its QA/QC plan and assess the adequacy of such quality control and assurance procedures and requirements.

PMOC Assessment

The design control procedures are identified and defined in Chapter 4, *Design Control*, and in Appendix 1, Contract SP 4.7, *Quality Management*, of the QMP. The design control procedures identified in this QMP are acceptable and conform to FTA guidelines.

Requirement

Ensure that the grantee has specified procedures for design verification and design review and assess the adequacy and efficacy of these control and assurance procedures.

PMOC Assessment

Design verification and design review procedures are identified in Chapter 4, *Design Control*, and further defined by Appendix 1, Contract SP 4.7, *Quality Management*, of the QMP. The adequacy and efficacy of these control and assurance procedures are evident in the quality audits that will be performed on project documents. The quality audit procedures are identified and defined in Chapter 19, *Quality Audits*, and Appendix 10, *QIP 19 – Audit Procedure*. Submittals of the design documents are stipulated to occur at specific points during the design process and a detailed review plan is outlined in Appendix 1. The procedures identified for design verification and review in this QMP are acceptable and conform to FTA guidelines.

Requirement

Confirm that the consultant(s) responsible for design have established procedures for controlling their design processes.

PMOC Assessment

Chapter 3, *Documented Quality Management System*, requires that contractors, consultants, and suppliers providing design, engineering, construction, items, and services to the grantee shall be required to submit a Quality Assurance Plan (QAP) that meets the requirements of this QMP. The submitted QAPs will be reviewed by the grantee, through the GEC, and must be approved prior to use. This is an ongoing process as the grantee is currently in the process of awarding the various project contracts.

Requirement

Confirm that the grantee has specified design review procedures for all design consultants and procedures for design and/or specification changes, including signoff and documentation of such changes.

PMOC Assessment

Design review procedures, along with a template of the standard review comment form, is found in Appendix 12, *CMS Reviewer Comment Sheet*, of the QMP. A “Review Comments Log” of all review comments received is kept in the Contract Management System, which is maintained by the grantee. A separate “Change Management Log” is also maintained to track the cost of design changes.

Requirement

Ensure that the grantee has documented procedures and requirements regarding “as-built” documents.

PMOC Assessment

Procedures and requirements for as-built documents are identified and defined in Appendix 9, *Project Wide Document Control Procedure*, of the QMP.

PMOC Assessment of Design Control

The PMOC finds that this QMP provides the information necessary to understand the grantee’s document control objectives and is acceptable to advance the project into the FFGA/Construction phase.

5.1.4 Procurement

Requirement

Ensure that the grantee has procedures to ensure competition in the bidding.

PMOC Assessment

Procurement procedures for both professional services and construction contracts are included in Appendix 7, *Procurement Code 01.4 – Construction Contracts*, and Appendix 8, *Procurement Code 01.5 – Professional Services Contracts*.

Requirement

Review and assess the grantee’s procedures for ensuring that quality control requirements are included within proposals/bids and formally communicated to potential consultants, contractors, and/or subcontractors.

PMOC Assessment

Quality control requirements expected of potential consultants, contractors, and/or subcontractors are clearly defined in Appendix 1, *Contract SP 4.7 Quality Management*. A Quality Assurance Plan is to be submitted to grantee within 30 days of receipt of the Notice to Proceed (NTP) and must be reviewed and accepted by the grantee prior to use. The procurement procedures identified in this QMP are acceptable and conform to FTA guidelines.

Requirement

Review the grantee’s procedures for ensuring that procurement documents are reviewed and approved by a designated authority prior to release, with special attention to the review of the grantee’s construction contract documents, including general and special conditions and quality control requirements.

PMOC Assessment

The grantee procurement procedures are identified in Chapter 5, Purchasing, Appendix 7, *Procurement Code 01.4 – Construction Contracts*, and Appendix 8, *Procurement Code 01.5 – Professional Services Contracts*. Language from the design/build contract is included in Appendix 1, *Contract SP 4.7 Quality Management*, which outlines all quality control requirements expected of the design/build team.

Requirement

Review the grantee’s requirements for product identification and traceability to be placed in contract documents, where appropriate, for equipment manufacturers or others supplying products for the project.

PMOC Assessment

Requirements for product identification and traceability are included in Chapter 9, *Products Identification and Traceability*. Identification requirements will be determined during the development of the specifications and design drawings by the consultants. The Deputy Chief Officer of Engineering and Construction (DEC) will assure that verification of identification and control of materials, parts, and components are performed during the design, construction, and testing.

Requirement

Review and assess the adequacy of the grantee’s requirements for product identification and traceability for products and materials turned over to the owner at project conclusion.

PMOC Assessment

Closeout procedures, including required deliverables from the Contractors, Consultants, and Suppliers, are identified in Chapter 18, *Quality Records*, and in Procedure No. 5.CA-06, *Project Contract Closeout Procedures*.

PMOC Assessment of Procurement

The PMOC finds that this QMP provides the information necessary to understand the grantee’s document control objectives and is acceptable to advance the project into the FFGA/Construction phase.

5.1.5 Construction/Inspection

Requirement

Review and assess the adequacy of the grantee’s requirements for a quality control inspection and testing program through all phases of the work, including inspection and testing procedures for special processes and requirements for calibration and maintenance of inspection, measuring, and/or test equipment.

PMOC Assessment

Requirements for the grantee’s inspection and testing program, including special processes, are identified in Chapter 10, *Process Control*, Chapter 11, *Inspection*, and Chapter 12, *Testing*. Chapter 13, *Inspection, Measuring and Test Equipment*, includes the requirements for calibration

and maintenance of inspection, measuring, and test equipment. The inspection and test procedures identified in this QMP are acceptable and conform to FTA guidelines.

Requirement

Ensure that the grantee's QA/QC plan adequately indicates and describes the types of inspection and testing required and the standards to be met and provides reference to such testing and standards requirements within the project specifications.

PMOC Assessment

As identified in Chapter 12, *Testing*, and Chapter 13, *Inspection, Measuring and Test Equipment*, the QMP requires that the DEC provide the inspection and test requirements that will be performed by contractors, suppliers, GEC, and/or Construction Engineering and Inspection (CE&I) firms. These requirements are to be included in the procurement documents and contracts. The contractors and/or suppliers are responsible for the control of all measuring and testing equipment in accordance with their grantee-approved QAP.

Requirement

Review and assess the adequacy of the grantee's procedures for handling nonconforming work. Verify that such procedures define responsibilities and/or conditions that would cause work to stop and documentation procedures to record nonconforming work. Review and assess the adequacy of the grantee's procedures for taking corrective action.

PMOC Assessment

The procedures for handling nonconforming work are identified in Chapter 16, *Nonconformance*. Corrective action procedures are defined in Chapter 17, *Corrective Action*. Both the nonconformance and corrective action procedures identified in this QMP are acceptable and conform to FTA guidelines.

PMOC Assessment of Construction/Inspection

The PMOC finds that this QMP provides the information necessary to understand the grantee's document control objectives and is acceptable to advance the project into the FFGA/Construction phase.

5.1.6 Operations, Startup, and Testing

Requirement

Review and assess the adequacy of the grantee's control procedures for the testing of systems, vehicles, and service equipment, as well as the grantee's training procedures for operation and maintenance to ensure a smooth transition to operations.

PMOC Assessment

The Core Systems Design/Build Contract will establish the control procedures for the testing of systems, vehicles, and service equipment. As of this review, the Core Systems Contract had not been awarded. Training procedures are identified in Chapter 20, *Training*. The procedures included in this QMP are acceptable and conform to FTA guidelines. The QMP requires that all consultants, contractors, and suppliers include training requirements in each of the respective QAPs submitted and approved by the grantee.

Requirement

Confirm that the grantee has in place adequate quality assurance procedures to ensure successful implementation of the training program.

PMOC Assessment

Documentation for the training program is identified in Chapter 20, *Training*, with details included in Appendix 11, *Training Procedure (No, 2 PA-07)*. Appendix 11 also contains a sample log indicating how training will be documented and tracked. The QMP requires that all consultants, contractors, and suppliers include training requirements in each of the respective QAPs submitted and approved by the grantee.

PMOC Assessment of Operations, Startup, and Testing

The PMOC finds that this QMP provides the information necessary to understand the grantee's document control objectives and is acceptable to advance the project into the FFGA/Construction phase.

5.2 FTA References

The following are the principal references to Federal legislation, regulations, and guidance with which the PMOC should review and develop a solid understanding as related to the grantee's QMP being reviewed under OP 24:

- Legislative
 - The Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users, or SAFETEA-LU, P.L. 109-59
- United States Code
 - FTA statutes, 49 U.S.C. Chapter 53
- Regulations
 - Project Management Oversight, 49 C.F.R. Part 633
- FTA Circulars
 - C5200.1A, Full-Funding Grant Agreements Guidance, 12-05-02
- Guidance
 - FTA's Quality Assurance/Quality Control Guidelines, 2002 update

5.3 Conclusion

It is the PMOC's professional opinion that QMP Rev. 1.A dated February 15, 2012 meets the FTA guidance and requirements necessary to execute an FFGA.

6.0 RECOMMENDATIONS

Required Prior to Execution of FFGA

- (1) The grantee must consistently issue comprehensive and timely Monthly Reports to the FTA and PMOC. The reports must be provided prior to monthly and quarterly progress meetings.
- (2) The grantee must finalize the RCMP. The grantee must strictly adhere to the policies and procedures identified in the RCMP.
- (3) Fill following key position:
 - Rail System Safety and Security Certification Manager.

Required Within Three Months of Execution of FFGA

- (4) Update PMP Figure 4 – Project Organization Chart to include the names of the new HART Executive Director, Deputy Executive Director and Chief Financial Officer.
- (5) Fill following open key positions:
 - Project Labor Agreement Manager
 - Procedures/Document Control Manager
 - Design Build Contract Administrator
 - Design Contract Administrator
 - Human Resources Specialist DBE
 - Human Resources Specialist EEO
 - CSC Configuration Management Specialist
 - System Safety and Security Engineer
 - System Security Specialist
 - Occupational Health/Construction Safety and Security Manager
 - Construction Safety and Security Compliance Officer
- (6) Develop Baseline Project Procedures that are To Be Determined and are critical to proper execution of construction.
- (7) Ensure a separate and distinct group within the GEC is utilized to perform the reviews for building code and ADA compliance, per the request of the City’s Department of Planning and Permitting (DPP) Building Code Branch.
- (8) Follow the staffing and succession plan for those key management positions that may be considered short term (three years or less) in order to ensure a successful “knowledge transfer” of project consultants’ expertise to the grantee.
- (9) The PMP, companion documents, and Project Control procedure documents must use consistent and traceable vernacular such as correct position titles, deliverable document titles, procedure titles, etc.
- (10) Develop a Human Resources Management Plan (HRMP) that will function as a blueprint for the organization development of HART to assist with transition of PMC positions to HART.
- (11) Update sub-plans to the PMP to reflect implementation of cost reduction measures related to redundancy of staffing between HART, PMC, GEC, CE&I and EDCs.

7.0 APPENDICES

Appendix A: List of Acronyms

A	▪ Ampere
AA	▪ Alternatives Analysis
AACE	▪ Association for the Advancement of Cost Engineering
AC	▪ Alternating Current
ACT ID	▪ Activity Identification
ADA	▪ Americans with Disabilities Act
AHJV	▪ Ansaldo Honolulu Joint Venture
ANSI	▪ American National Standards Institute
APB	▪ Absolute Permissive Block
APS	▪ Adjusted Project Schedule
APTA	▪ American Public Transportation Association
ASCE	▪ American Society of Civil Engineers
ASHRAE	▪ American Society of Heating, Refrigerating and Air-Conditioning Engineers
ASME	▪ American Society of Mechanical Engineers
ASTM	▪ ASTM International, nee, American Society for Testing and Materials
ATC	▪ Alternative Technical Concept
ATC	▪ Automatic Train Control
ATO	▪ Automatic Train Operation
BAFO	▪ Best and Final Offers
BCE	▪ Base Cost Estimate
BEA	▪ Bureau of Economic Analysis
BFMP	▪ Bus Fleet Management Plan
BLS	▪ Bureau of Labor Statistics
BOS	▪ Basis of Schedule
BRF	▪ Beta Risk Factor
BRIC	▪ Brazil, Russia, India and China
CBTC	▪ Communications-Based Train Control
CC	▪ Community College
CE&I	▪ Construction Engineering and Inspection
CER	▪ Cost Estimating Relationship
CIH	▪ Central Instrument Hut
CIL	▪ Central Instrument Location
CIR	▪ Central Instrument Room
CMP	▪ Configuration Management Plan
CMS	▪ Document Management System
COTS	▪ Commercial off-the-Shelf
CPI	▪ Consumer Price Index
CPM	▪ Critical Path Method
CPP	▪ Contract Packaging Plan
CPS	▪ Construction Project Schedule
CPS	▪ Current Probable Schedule
CSC	▪ Core Systems Contract
DB	▪ Design-Build
DBB	▪ Design-Bid-Build
DBEDT	▪ Hawaii Department of Business Economic Development and Tourism
DBOM	▪ Design-Build-Operate-Maintain
DC	▪ Direct Current
DEIS	▪ Draft Environmental Impact Statement
DHHL	▪ Department of Hawaiian Homelands
DOT	▪ United States Department of Transportation
DTS	▪ Department of Transportation Services

ECP	▪ Environmental Condition of Property
EDC	▪ Engineering Design Consultant
EIS	▪ Environmental Impact Statement
ENR	▪ Engineering News Record
ERTMS	▪ European Rail Traffic Management System
EUM	▪ Estimate Uncertainty Model
FAA	▪ Federal Aviation Administration
FAQ	▪ Frequently Asked Questions
FD	▪ Final Design
FEIS	▪ Final Environmental Impact Statement
FF	▪ Finish-Finish
FFGA	▪ Full Funding Grant Agreement
FMOC	▪ Financial Management Oversight Consultant
FS	▪ Finish-Start
ft	▪ Foot
FTA	▪ Federal Transit Administration
FY	▪ Fiscal Year
GBS	▪ Gap Breaker Station
GDP	▪ Gross Domestic Product
GEC	▪ General Engineering Consultant
GET	▪ General Excise Tax
GPRM	▪ Great Pacific Rocky Mountain
HART	▪ Honolulu Authority for Rapid Transportation
HDOT	▪ Hawaii Department of Transportation
HECO	▪ Hawaiian Electric Company
HHCTC	▪ Honolulu High Capacity Transit Corridor
HHCTCP	▪ Honolulu High Capacity Transit Corridor Project
HNL	▪ Honolulu International Airport
HVAC	▪ Heating, Ventilating, and Air Conditioning
ICD	▪ Interface Control Document
IEEE	▪ Institute of Electrical and Electronics Engineers
IPS	▪ Integrated Project Schedule
IRM	▪ Impacted Risk Model
KH (or KHG)	▪ Kamehameha Highway (or Kamehameha Highway Guideway)
kW	▪ Kilowatt
LCD	▪ Liquid Crystal Diode
LONP	▪ Letter of No Prejudice
LPA	▪ Locally Preferred Alternative
LV	▪ Low Voltage
M&I	▪ Manufacture and Install
MDBCF	▪ Mean Distance between Component Failure
MFPR	▪ Multifunction Protective Relay
MIL	▪ Military Specification
MOS	▪ Minimum Operating Segment
MOT	▪ Maintenance of Traffic
mph	▪ Miles Per Hour
mphps	▪ Miles Per Hour Per Second
MPS	▪ Master Project Schedule
MS	▪ Microsoft
MSF	▪ Maintenance and Storage Facility
MSS	▪ Master Summary Schedule
MTTR	▪ Mean Time to Repair
MVA	▪ Mega Volt Ampere
MW	▪ Megawatt
NBER	▪ National Bureau of Economic Research
NEMA	▪ National Electrical Manufacturers Association

NEPA	▪ National Environmental Policy Act
NFPA	▪ National Fire Protection Association
NGD	▪ Negative Grounding Device
NTP	▪ Notice to Proceed
O&M	▪ Operations and Maintenance
OBS	▪ Organizational Breakdown Structure
OCC	▪ Operations Control Center
OCIP	▪ Owner Controlled Insurance Program
OCS	▪ Overhead Contact System
OD	▪ Original Duration
OD	▪ Original Duration
OP	▪ Oversight Procedure
PA	▪ Programmatic Agreement
PB	▪ Parsons Brinckerhoff
PE	▪ Preliminary Engineering
PHF	▪ Peak Hour Factor
PLA	▪ Project Labor Agreement
PLC	▪ Programmable Logic Controller
PMBOK	▪ Project Management Institute's Body of Knowledge
PMC	▪ Project Management Support Consultant
PMO	▪ Project Management Oversight
PMOC	▪ Project Management Oversight Contractor
PMP	▪ Project Management Plan
PPI	▪ Producer Price Index
QA/QC	▪ Quality Assurance/Quality Control
QMP	▪ Quality Management Plan
RA	▪ Risk Assessment
RAM	▪ Responsibility Assignment Matrix
RAMP	▪ Real Estate Acquisition and Management Plan
RBC CBTC	▪ Radio Block-Centered Communications-Based Train Control
RCMP	▪ Risk and Contingency Management Plan
RFMP	▪ Rail Fleet Management Plan
RFP	▪ Request for Proposals
rms	▪ Root Mean Squared
ROD	▪ Record of Decision
ROW	▪ Right-of-Way
RSD	▪ Revenue Service Date
RTD	▪ Rapid Transit Division
SBS	▪ Schedule Breakdown Structure
SCC	▪ Standard Cost Category
SF	▪ Start-Finish
SOA	▪ State Oversight Agency
SS	▪ Start-Start
SSCP	▪ Safety and Security Certification Plan
SSMP	▪ Safety and Security Management Plan
TC	▪ Train Control
TC&C	▪ Technical Capacity and Capability
TCCR	▪ Train Control and Communications Room
TCRP	▪ Transit Cooperative Research Program
TES	▪ Train Electrification System
TPM	▪ Office of Program Management
TPSS	▪ Traction Power Substation
TRB	▪ Transportation Research Board
TRU	▪ Transformer-Rectifier Unit
TVM	▪ Ticket Vending Machine
UH	▪ University of Hawaii

UHERO	▪ University of Hawaii Economic Research Organization
UL	▪ Underwriters Laboratories
UPS	▪ Uninterruptible Power Supply
US	▪ United States of America
USB	▪ Universal Service Bus
USDOT	▪ United States Department of Transportation
USN	▪ United States Navy
V	▪ Volt
UITP	▪ International Association of Public Transport and
UTO	▪ Unattended Train Operation
VDC	▪ Volts, Direct Current
VE	▪ Value Engineering
VTA	▪ Verification, Test, and Acceptance
WBS	▪ Work Breakdown Structure
WOFH	▪ West Oahu/Farrington Highway
YOE	▪ Year of Expenditure

Note: The above list includes all acronyms identified in the various OP deliverables.

Appendix B: Documents Reviewed

Document	Rev. No.	Date
Management Plans/Administrative		
Final Environmental Impact Statement (FEIS)	-	25-Jun-10
Programmatic Agreement (PA)	-	18-Jan-11
Record of Decision (ROD)	-	18-Jan-11
Project Management Plan (PMP)	5.0	29-Jun-12
Quality Management Plan (QMP)	1	05-Feb-12
Real Estate Acquisition and Management Plan (RAMP)	5	31-Jan-12
Bus Fleet Management Plan (BFMP)	3	Mar-12
Rail Fleet Management Plan (RFMP)	0.1	Mar-12
Safety and Security Management Plan (SSMP)	3A	28-Feb-12
Safety and Security Certification Plan (SSCP)	2A	01-Mar-12
Configuration Management Plan	0.2	07-Feb-12
Staffing and Succession Plan	5	25-May-12
Operating Plan	0.2	29-Jun-12
Force Account Plan	0.3	05-Jan-12
Mitigation Monitoring Program	0	15-Mar-12
Interface Management Plan	0.1	17-Jan-12
Risk and Contingency Management Plan	0	29-Jun-12
Contract Packaging Plan	3	30-Mar-12
Claims Avoidance Plan	0.1	24-Jan-12
Construction Management Plan (CMP)	0.1	03-Feb-12
Contract Resident Engineer Manuals (DB & DBOM)	0.1	Feb-12
Contract Resident Engineer Manual (DBB)	A	15-Feb-12
1.PP-01 – Procedures Index	0	15-Mar-12
1.PP-02 – Procedure Development Process	0.1	12-Mar-12
1.PP-03 – Standard Terms, definitions, and Acronyms	0.1	12-Mar-12
1.PP-04 – Baseline Documents Revision and Control	0.1	12-Mar-12
1.PP-05 – Identification of Badge Policy	0.1	15-Mar-12
2.PA-01 – Security Sensitive Information (SSI)	0.1	12-Mar-12
2.PA-02 – Procurement Control	0.1	12-Mar-12
2.PA-03 – Email Management	0.1	12-Mar-12
2.PA-04 – Project Wide Document Control	0.1	12-Mar-12
2.PA-05 – Project Library	0.1	12-Mar-12
2.PA-06 – Community Relations and Media Contacts	0.1	12-Mar-12
2.PA-07 – RTD Training Procedure	0.1	12-Mar-12
2.PA-08 – Policy for Safeguarding Protected Information	0.1	12-Mar-12
2.PA-09 – Permit Procedures	0	15-May-12
3.PM-01 – Contract Management System	1.1	14-Mar-12
3.PM-04 – Public Information Communication	0.1	15-Mar-12
3.PM-05 Meeting/Minutes	2.1	12-Mar-12
4.PC-02 – Project Management Control	0.1	15-Mar-12
4.PC-03 – Project Progress Reports	0.1	15-Mar-12
4.PC-04 – Program Scheduling	0.1	15-Mar-12
4.PC-05 – Project Accounting	0.1	12-Mar-12
4.PC-06 – Cost Estimating	0.1	12-Mar-12
4.PC-07 – Cost Control	0.1	12-Mar-12
4.PC-08 – Risk Management	0.1	12-Mar-12
4.PC-09 – Contingency Management	1	15-Mar-12
5.CA-01 – Contract Administration	0.1	15-Mar-12

Document	Rev. No.	Date
5.CA-02 – Contract Change Management	0.1	14-Mar-12
5.CA-03 – Contractor Progress Payments	0.1	13-Mar-12
5.CA-04 – Contractor Progress Reports	0.1	13-Mar-12
5.CA-05 – Contract Change Orders	0.1	13-Mar-12
5.CA-06 – Contract Closeout	0.1	13-Mar-12
5.CA-07 – Claims and Disputes Resolution	0.2	14-Mar-12
5.CA-08 – CACO and Contract Amendment Procedure	0	14-Mar-12
6.CM-01 – Submittal Procedure	1.1	14-Mar-12
6.CM-02 – RFI Procedure	2.1	14-Mar-12
6.CM-03 – RFC Procedure	0.2	14-Mar-12
6.CM-05 – Interface Management and Coordination Procedure	0.1	12-Mar-12
7.GA-01 – Board – Staff Interaction	0	17-July-11
7.GA-04 – Petty Cash Fund	0	17-July-11
7.GA-06 - Travel	0	17-July-11
7.GA-07 – Preparation of Board Materials	0	20-July-11
Technical		
Design Criteria		
Chapter 1 – General		15-Mar-12
Chapter 2 – Operations		15-Mar-12
Chapter 3 – Environmental Considerations		15-Mar-12
Chapter 4 – Track Alignment and Vehicle Clearances		14-Feb-12
Chapter 5 – Trackwork		15-Mar-12
Chapter 6 – Civil		15-Mar-12
Chapter 7 – Traffic		15-Mar-12
Chapter 8 – Utilities		15-Mar-12
Chapter 9 – Structural		15-Mar-12
Chapter 10 – Architecture		10-Feb-12
Chapter 11 – Landscape Architecture		15-Mar-12
Chapter 12 – Passenger Vehicles		10-Feb-12
Chapter 13 – Traction Electrification		15-Mar-12
Chapter 14 – Train Control		15-Mar-12
Chapter 15 – Communications and Control		15-Mar-12
Chapter 16 – Fare Vending		15-Mar-12
Chapter 17 – Corrosion Control		15-Mar-12
Chapter 18 – Maintenance & Storage Facilities (MSF)		14-Feb-12
Chapter 19 – Facilities Mechanical		15-Mar-12
Chapter 20 – Facilities Electrical		15-Mar-12
Chapter 21 – Fire and Intrusion Alarm Systems		15-Mar-12
Chapter 22 – Elevators and Escalators		15-Mar-12
Chapter 23 – Fire/Life Safety		15-Mar-12
Chapter 24 – Systems Assurance		10-Feb-12
Chapter 25 – System Safety and Security		15-Mar-12
Chapter 26 – Sustainability		14-Feb-12
HART Directive Drawings		3-Nov-10
H RTP Standard Specifications		15-Feb-12
West Oahu/Farrington Station Highway Final Design Drawings		Various
Geotechnical Data Report (WOFH)		27-Mar-09
Supplement to Geotechnical Data Report (WOFH)		15-May-09
Geotechnical Baseline Report (WOFH)	2.0	Aug-09
Kamehameha Highway Interim Design, Advanced Interim Design, and Final Design Drawings		Various
Kamehameha Highway Segment Geotechnical Baseline Report	1.1	07-May-10

Document	Rev. No.	Date
Kamehameha Highway Geotechnical Data Report		16-Feb-10
Kamehameha Highway Geotechnical Data Report Addendum		7-May-10
Airport Preliminary Engineering Drawings, Volumes 1-3		1-Oct-10
Airport Geotechnical Data Report		8-Feb-10
Airport Fixed-Guideway Foundation Technical Memorandum		6-Feb-10
City Center Preliminary Engineering Drawings, Volumes 1-4		6-Oct-10
City Center Geotechnical Data Report		26-Feb-10
City Center Fixed-Guideway Foundation Technical Memorandum		26-Feb-10
East Kapolei Station Updated Design Plans		9-Mar-12
UH West Oahu Station Updated Design Plans		9-Mar-12
Hoopili Station Updated Design Plans		9-Mar-12
West Loch Station In-Progress Submission		29-Feb-12
Waipahu Transit Center Station In-Progress Submission		29-Feb-12
Leeward Community College Station In-Progress Submission		29-Feb-12
Pearl Highlands Station Updated Design Plans		9-Mar-12
Pearlridge Station Updated Design Plans		9-Mar-12
Aloha Stadium Station Updated Design Plans		9-Mar-12
Airport Station Group Updated Design Plans		9-Mar-12
Dillingham Station Group Undated Design Plans		9-Mar-12
Kaka'ako Station Group Updated Design Plans		9-Mar-12
Ala Moana Station Updated Design Plans		9-Mar-12
Guideway Superstructure Study – Summary Report		22-May-08
Structures Workshop Summary Report		7-10-Jan-08
Systems Workshop Presentation		22-Aug-08
Transportation Technical Report		1-Aug-08
Construction Workshop Frequently Asked Questions (FAQ)		12-Jun-08
Construction Workshop Presentation		12-Jun-08
Environment Condition of Property, NAVFAC (Navy Drum Site)		Mar-09
Final Evaluation of Project Delivery Options		2-Nov-06
Fixed Guideway Fleet Sizing Report		Jun-09
Value Engineering – Stations Report		Sep-10
Value Enhancement Summary Report		Sep-10
Contracts		
West Oahu/Farrington Highway Design-Build – RFP, Addenda, Proposal and Contract Documents		Various
Kamehameha Highway Design-Build – RFP, Addenda, Proposal and Contract Documents		Various
Maintenance and Storage Facility Design-Build – RFP, Addenda, Proposal and Contract Documents		Various
Core Systems DBOM – RFP, Addenda, Proposal and Contract Documents		Various
General Conditions of Design-Build Contracts, Honolulu		Feb-09
Financial/Cost		
FFGA Capital Cost Estimate Basis and Assumptions		9-May-12
FFGA Main Worksheet – Build Alternative		14-May-12
FFGA Cash Flows Worksheet		14-May-12
FFGA H RTP SCC Cost Workbook		14-May-12
HART Capital Cost by Contract by SCC Workbook		20-Mar-12
Price Proposals (post bid) Kiewit WOFH		11-Nov-09
Price Proposals (post bid) Kiewit MSF		16-Mar-11
Price Proposals (post bid) Kiewit Kamehameha		16-Mar-11
Price Proposals (post bid) Ansaldo Core Systems		16-Mar-11
General Excise and Use Tax in Hawaii		16-Feb-06

Document	Rev. No.	Date
Schedule		
HRTP Baseline Progress Schedule REV.04.xer		13-Jun-12
HART FFGA BASELINE PMOC Review.plf		13-Jun-12
Basis of Schedule 062012.pdf (Rev 3.0)	3.0	20-Jun-12

Note: The above list includes all key documents reviewed by the PMOC for preparation of the various OP deliverables.