
PROJECT MANAGEMENT PLAN

for the

HONOLULU HIGH-CAPACITY TRANSIT CORRIDOR PROJECT



City and County of Honolulu

Approved by:

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City and County of Honolulu

REVISIONS

The Project Management Plan for the Honolulu High-Capacity Transit Corridor Project is a dynamic, evolving document. As major revisions occur, the entire manual will be reproduced, bound, and distributed. For minor revisions, only the affected pages will be issued. Upon receipt, previous revisions of the document shall be destroyed.

Rev. #	Date	Pages	Description

TABLE OF CONTENTS

1.0	GENERAL INFORMATION.....	1-2
1.1	Introduction.....	1-2
1.2	Project Background and Planning	1-2
1.3	Project Description	1-4
1.3.1	Alignment	1-4
1.3.2	Stations.....	1-5
1.3.3	System-wide Elements.....	1-7
1.3.4	Fare Collection.....	1-8
1.3.5	Operating Plan	1-8
1.3.6	Ridership Estimates	1-8
1.4	Project Delivery.....	1-8
1.4.1	Delivery Strategy	1-8
1.4.2	Environmental Impact Statement and Preliminary Engineering	1-9
1.4.3	Phase I Delivery	1-9
1.4.4	Phase II Delivery.....	1-10
1.5	Schedule and Cost.....	1-11
1.6	Goals and Objectives	1-12
1.7	Legal and Statutory Authority	1-12
1.7.1	Agency Background and Overview	1-12
1.7.2	Statutory Authority	1-14
1.8	Project Management Plan Maintenance.....	1-14
2.0	PROJECT ORGANIZATION AND STAFFING	2-16
2.1	Organizational Approach.....	2-16
2.2	City & County of Honolulu.....	2-17
2.3	Organization of the City and County of Honolulu	2-18
2.3.1	Key City Departments and Entities.....	2-19
2.3.2	Project Organization	2-26
2.4	Project Management Organization.....	2-29
2.4.1	Project Staffing	2-31
2.5	Key Position Descriptions and Responsibilities	2-31
2.5.1	DTS Director.....	2-31
2.5.2	Project Executive (PExec)	2-32
2.5.3	Manager of System Safety & Security.....	2-32

2.5.4	Manager of Quality Assurance	2-33
2.5.5	Manager of Project Procedures	2-34
2.5.6	Chief Project Officer	2-34
2.5.7	Chief Public Information Officer	2-35
2.5.8	Chief of Planning & Environmental Studies	2-35
2.5.9	Chief Administrative Officer	2-35
2.5.10	Chief of Project Controls	2-36
2.5.11	Chief Facilities Engineer	2-36
2.5.12	Chief Architect	2-36
2.5.13	Chief Systems Engineer	2-37
2.5.14	Configuration Management Chief	2-37
2.6	Use of Consultants.....	2-37
2.6.1	Project Management Support Consultant (PMC)	2-37
2.6.2	PE/EIS General Engineering Consultant (GEC)	2-37
2.6.3	Before and After Study Consultant (BASC)	2-38
2.6.4	Engineering Design Consultants (EDCs)	2-38
2.6.5	General Construction Manager (GCM)	2-38
2.6.6	System Suppliers and Construction Contractors	2-39
2.7	Interface with Other Agencies	2-39
2.7.1	Cooperating and Participating Agencies	2-39
2.7.2	Federal Agencies	2-41
2.7.3	State of Hawaii	2-41
2.7.4	Oahu Metropolitan Planning Organization (OahuMPO)	2-42
3.0	MANAGEMENT CONTROL.....	3-1
3.1	Functional and Technical Control.....	3-1
3.1.1	General	3-1
3.1.2	Technical Baseline/Configuration Control	3-2
3.1.3	Quality Assurance and Quality Control	3-2
3.2	Work Breakdown Structure	3-5
3.3	Schedule Management.....	3-5
3.3.1	Master Project Schedule Overview	3-6
3.3.2	Schedule Types and Definitions	3-7
3.3.3	Cost Loading the Master Project Schedule	3-10
3.3.4	Master Project Schedule Updates	3-11
3.3.5	Recovery Plans	3-11
3.3.6	Interface of Schedule with Cash Flow Report	3-12
3.3.7	Use of CPM Activity Codes	3-12
3.4	Cost Management	3-12
3.4.1	Responsibility	3-13

3.4.2	Budgets and Cost Estimates.....	3-13
3.4.3	Estimating	3-15
3.4.4	Cost Control Report	3-15
3.4.5	Cash Flow Report	3-16
3.4.6	Changes Report.....	3-17
3.4.7	Budget Revision Procedures and Authority to Authorize Changes.....	3-17
3.4.8	City Grant Accounting.....	3-18
3.4.9	Processing Payables	3-19
3.4.10	City Labor	3-20
3.4.11	Accounting for Construction Contracts	3-20
3.4.12	Contingency	3-21
3.4.13	Funding Sources.....	3-21
3.5	Progress Reporting	3-21
3.5.1	Responsibility	3-21
3.5.2	Monthly Progress Reports.....	3-22
3.5.3	Quarterly Progress Reports for FTA Grants	3-22
3.5.4	DBE Program Reports	3-23
3.6	Progress Review Meetings.....	3-23
3.6.1	Coordination Meetings/Progress Meetings.....	3-23
3.6.2	FTA Quarterly Project Management Meetings.....	3-24
3.6.3	Outside Agencies	3-24
3.6.4	Design Coordination / Progress Meetings	3-24
3.7	Document Control.....	3-24
3.7.1	General.....	3-24
3.7.2	Contract Document Transmittal Reviews (CDTs).....	3-25
3.7.3	Project Record Documents	3-25
4.0	PROCUREMENT AND CONTRACTS.....	4-1
4.1	General.....	4-1
4.2	Responsibility	4-1
4.2.1	Organization/Interfaces.....	4-1
4.3	Procurement	4-2
4.3.1	Procurement of Professional Services	4-2
4.3.2	Procurement of Equipment and Materials	4-2
4.4	Construction Contract Preparation and Award.....	4-3
4.5	Processing of Invoices	4-4
4.6	Processing of Change Orders.....	4-4
4.7	Grants Administration	4-6
4.7.1	Budget Revisions and Amendments	4-6

4.8	Project Closeout	4-6
4.9	Contract and Wage Rates Compliance	4-7
5.0	ENVIRONMENTAL ASSESSMENT AND MITIGATION	5-1
5.1	General	5-1
5.1.1	Alternative Analysis/Draft Environmental Impact Statement	5-1
5.1.2	Final Environmental Impact Statement	5-2
5.1.3	NEPA Development in Preliminary Engineering	5-2
5.2	Environmental Coordination	5-2
5.3	Planning Consultant Team	5-3
5.4	Codes and Standards	5-3
5.5	Planning and Environmental Activities	5-3
5.6	Study Review and Records Control	5-4
5.7	Brief Description of the Role of the General Engineering Consultant Team (GEC)	5-5
5.8	Environmental Mitigation Monitoring	5-6
6.0	DESIGN MANAGEMENT	6-1
6.1	General	6-1
6.2	Design Phases	6-1
6.2.1	Preliminary Engineering	6-1
6.2.2	Final Design	6-2
6.3	Design Management and Coordination	6-2
6.4	Engineering and Design Consultants	6-3
6.5	Basis for Design	6-3
6.5.1	Compendium of Design Criteria (CDC)	6-3
6.5.2	CADD Specification and Plans Preparation Guide	6-4
6.5.3	Codes and Standards	6-4
6.5.4	Facility Program Requirements	6-5
6.5.5	General Plans & Outline Specifications	6-5
6.5.6	Directive Drawings and Standard Drawings.....	6-5
6.6	Design Reviews	6-6
6.6.1	Formal Design Reviews	6-6
6.6.2	Timing, Purpose and Procedure for Design Reviews	6-7
6.6.3	Bi-Weekly Design Coordination / Progress Meetings	6-8
6.6.4	Quality Assurance Audits	6-8
6.6.5	Safety and Security Reviews	6-9

6.7	Design Change Control	6-9
6.8	Principal Design Interface Review	6-9
6.8.1	Hawaii Department of Transportation (HDOT)	6-9
6.8.2	Federal Highway Administration (FHWA)	6-9
6.8.3	Utilities.....	6-10
6.8.4	DTS – Public Transit Division, Operations Review and Input.....	6-10
6.9	Value Engineering	6-11
6.10	Peer Review	6-12
6.11	Permits	6-12
6.12	Contract Document Preparation	6-12
7.0	CONFIGURATION MANAGEMENT	7-1
7.1	Configuration Management Plan and Policy	7-2
7.1.1	Conformance of Contract Documents	7-2
7.1.2	As-Built Documents.....	7-2
7.2	Responsibility	7-3
7.3	Program Components	7-3
7.3.1	Baseline Management.....	7-3
7.3.2	Change Control	7-3
7.3.3	Interface Control	7-4
7.3.4	Design Review Management	7-5
7.3.5	Document Control.....	7-6
7.3.6	Conformance of Contract Documents	7-7
8.0	PROJECT COMMUNICATIONS	8-1
8.1	Communications/Media Relations	8-1
8.1.1	External Communications.....	8-1
8.1.2	Internal Communications.....	8-4
8.2	Public Involvement	8-5
8.2.1	General	8-5
8.2.2	The Public Involvement Plan.....	8-5
9.0	RIGHT-OF-WAY ACQUISITION	9-1
9.1	Overview	9-1
9.2	Outline of the RAMP	9-2
10.0	CONSTRUCTION MANAGEMENT	10-1
10.1	Responsibility	10-1

10.1.1	Organization.....	10-1
10.1.2	Safety	10-1
10.1.3	Construction Management Guidelines.....	10-2
10.1.4	Construction Engineering and Inspection Services	10-2
10.1.5	Inspecting Guidelines.....	10-3
10.1.6	Change Order Estimating.....	10-3
10.1.7	Value Engineering During Construction	10-3
10.1.8	Other Construction Management Activities	10-3
11.0	CLAIMS MANAGEMENT	11-1
11.1	Claims Prevention.....	11-1
11.1.1	Design	11-1
11.1.2	Contract Clauses	11-1
11.2	Claims Avoidance During Construction.....	11-3
11.3	Claims Resolution and Administration.....	11-4
11.4	Change Orders	11-5
12.0	LABOR RELATIONS AND POLICY	12-1
12.1	Statutory and Regulatory Requirements.....	12-1
12.2	Federal Requirements	12-1
12.2.1	Civil Rights Requirements.....	12-1
12.2.2	Wage and Hour Requirements	12-6
12.3	State and Local Requirements.....	12-6
12.4	Local Labor Conditions.....	12-6
12.4.1	Existing Labor Agreements for City and OTS Employees.....	12-6
12.4.2	In-State Construction	12-7
12.4.3	Out-of-State Manufacture/Assembly Within the United States.....	12-7
13.0	RISK MANAGEMENT	13-1
13.1	General.....	13-1
13.2	Major Sources of Risk	13-2
13.2.1	Design Risks	13-2
13.2.2	Construction Risks.....	2
13.2.3	Financing and Economic Risks.....	13-3
13.2.4	External Political and Social Risks.....	13-4
13.3	Approach to Risk Management.....	13-5
13.3.1	Risk Planning and Analysis	13-5
13.3.2	Application of Lessons Learned	13-5

13.3.3	Multi-Organizational Coordination	13-6
13.3.4	Risk Reduction During Design	13-6
13.3.5	Risk Transfer and Sharing During Construction	13-7
13.3.6	Insurance Coverage.....	13-7
13.3.7	Contingency Planning.....	13-9
13.4	Organizational Responsibilities for Risk Management.....	13-9
13.4.1	Engineering, Planning and Development Department.....	13-9
13.4.2	Risk Management	13-10
13.4.3	Contract Services	13-10
13.4.4	Budget and Fiscal Services (BFS)	13-10
13.4.5	Other RDT and City Organizations	13-11
13.4.6	Pre-Revenue Security Risks.....	13-11
14.0	PUBLIC ART PROGRAM.....	14-1
14.1	Background	14-1
14.2	Objectives.....	14-1
14.3	Budget and Funding	14-2
14.4	Responsibilities.....	14-2
14.5	Selection Process and Conceptual Design.....	14-5
14.5.1	Acquired Artwork – Consideration of Acceptability	14-5
14.5.2	Commissioned Artwork – Selection Process.....	14-5
14.5.3	Commissioned Artwork – Conceptual Design Phase.....	14-6
14.6	Design Development and Implementation.....	14-6
14.6.1	Acquired Artwork – Incorporation of Requirements into Construction Documents.....	14-6
14.6.2	Acquired Artwork – Installation.....	14-6
14.6.3	Commissioned Artwork – Design Development Phase.....	14-7
14.6.4	Commissioned Artwork - Installation.....	14-7
14.7	Maintenance of Project Art Elements.....	14-7
15.0	SAFETY AND SECURITY	15-1
15.1	General.....	15-1
16.0	TESTING AND START-UP.....	16-1
16.1	Start-Up Preparations	16-1
16.2	Integrated Test Management Plan.....	16-1
16.3	Activation Planning	16-3
16.4	Operations and Maintenance Period	16-5

16.5	Systems Testing Procedures, Analysis and Results	16-6
16.5.1	Objectives	16-6
16.5.2	Types of Tests.....	16-6
16.5.3	Test Management Approach	16-7
16.6	Modifications or Retrofits	16-12
16.7	Start-Up Planning	16-12
16.7.1	Start-Up Plan.....	16-13
16.7.2	Start-Up Schedule	16-13
16.7.3	Start-Up Target Date.....	16-14
16.8	Operations Planning	16-14
16.8.1	Basic Operating Plan.....	16-14
16.8.2	Rail Transportation Plan	16-14
16.8.3	Rail Maintenance Plan	16-15
16.9	Operations Staffing.....	16-15
16.10	Training	16-15
16.10.1	Rail Transportation Training.....	16-16
16.10.2	Rail Maintenance Training	16-16
16.10.3	Training Provided by Supply Contractors	16-17
16.10.4	Orientation for Employees.....	16-21
16.11	Spare Parts and Inventory Control.....	16-22
16.12	Pre-Revenue Operations	16-22
16.13	Safety Certification	16-23
16.14	Warranty Management.....	16-23
17.0	JOINT DEVELOPMENT PROGRAM	17-1
17.1	Honolulu High-Capacity Transit Project Joint Development Program	17-2
Appendix A:	Glossary of Acronyms and Definitions	1
	Acronyms.....	1
	Definitions	4
Appendix B:	Qualifications of Key Staff	1
Appendix C:	Work Breakdown Structure (WBS).....	1
Appendix D:	Master Project Schedule.....	1

LIST OF FIGURES

Figure 1:	Minimum Operable Segment (First Project).....	1-3
Figure 2:	Organization Chart – City and County of Honolulu	1-13
Figure 3:	Project Relationship Structure.....	2-18
Figure 4:	DTS Organization Chart.....	2-27
Figure 5:	PE/EIS Project Organization Chart	2-30
Figure 6:	Master Summary Schedule.....	3-8
Figure 7:	City Chart for Processing Construction Contracts and Change Orders	4-5

LIST OF TABLES

Table 1:	Phase I – East Kapolei to Leeward Community College.....	1-6
Table 2:	Phase II – Leeward Community College to Puuloa Road (Salt Lake)	1-6
Table 3:	Phase II – Puuloa Road (Salt Lake) to Nimitz Highway	1-6
Table 4:	Phase II – Nimitz Highway to Ala Moana Center	1-7
Table 5:	Phase II – Ala Moana Center	1-7
Table 6:	Phase I – Line Segment and Stations Design-Build Contract Unit	1-10
Table 7:	Phase II – Line Segment and Stations Design-Bid-Build Contract Units	1-11
Table 8:	Project Estimate	3-13
Table 9:	Title VI Requirements.....	12-3

1.0 GENERAL INFORMATION

1.1 Introduction

This Project Management Plan (PMP) has been prepared to describe and document the overall management approach for the Honolulu High-Capacity Transit Corridor Project (Project). It will be used both as a management tool to guide the City and County of Honolulu (City) and as an informational overview for project participants and interested parties. This plan has three main purposes:

- To identify the Project's management procedures and organizational structure;
- To provide a guide for the interaction of agencies, organizations, and staff within the Project; and
- To fulfill the Federal Transit Administration's (FTA's) requirement for a PMP pursuant to Title 49 Code of Federal Regulations (CFR) Part 633.

The development of this PMP is an evolutionary process. It will be reviewed and revised as the Project progresses.

This iteration of the PMP has been prepared near the conclusion of the Alternatives Analysis process and focuses on the Preliminary Engineering (PE) / Environmental Impact Statement (EIS) phase of the Project. This document describes the extent to which the City has evaluated the management and administrative needs of the Project at the start of PE and describes an outline of a project management plan process for the progression of the Project into PE and subsequently through the Final Design, procurement, construction, and system start-up phases.

1.2 Project Background and Planning

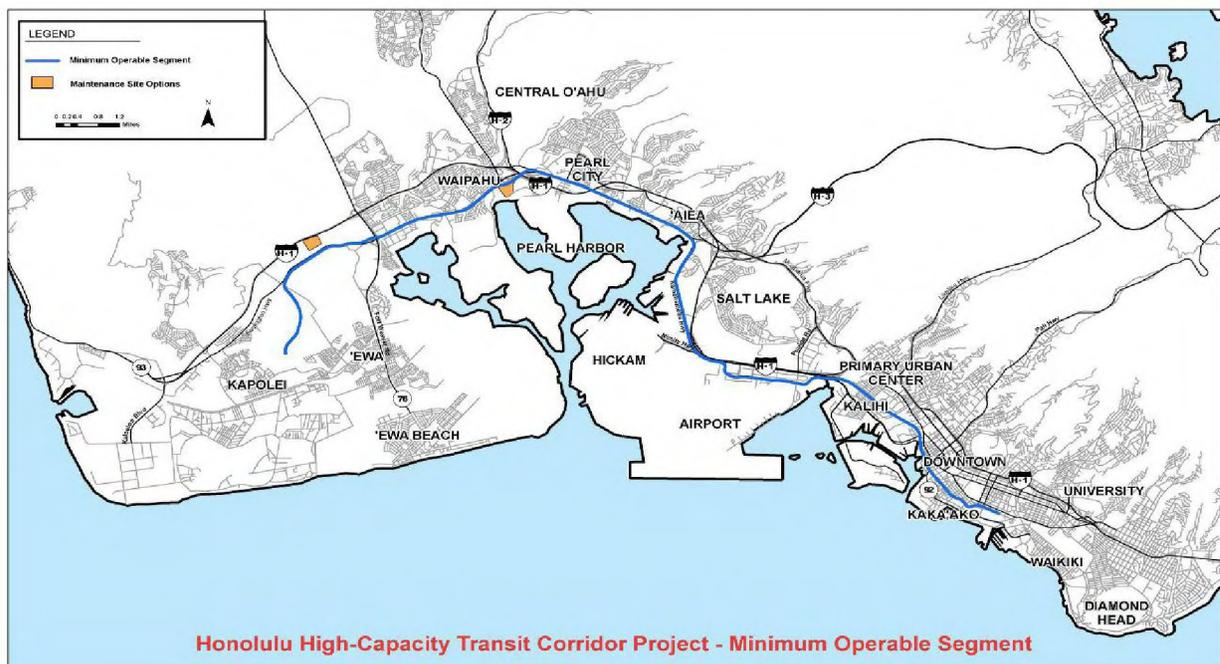
The Alternatives Analysis (AA) for the Project was initiated in August 2005 and the *Honolulu High-Capacity Transit Corridor Project Alternatives Analysis Report* was presented to the Honolulu City Council in October 2006. The purpose of the report was to provide the City Council with the information necessary to select a mode and general alignment for high-capacity transit service on Oahu. The report summarized the results of the AA that was conducted following the FTA's planning guidance. The report provided information on the costs, benefits, and impacts of four alternatives: No Build Alternative, Transportation Systems Management Alternative, Managed Lane Alternative, and Fixed-Guideway Alternative.

During November and December 2006, public meetings were held on the AA. On December 22, 2006, the Honolulu City Council enacted Ordinance No. 07-001 which

selected a fixed-guideway alternative from Kapolei to the University of Hawaii at Manoa and Waikiki as the Locally Preferred Alternative (LPA) for the Project. Ordinance 07-001 identified a specific alignment for the majority of the corridor but left options open in two locations. At the western end of the corridor, the LPA selection identified two alignments (described in the AA Report as Section I – Saratoga Avenue/North-South Road and Kamokila Boulevard), with the notation “as determined by the city administration before or during preliminary engineering.” In the center of the corridor, the LPA selection also identified two alignments (described in the AA Report as Section III – Salt Lake Boulevard and Aolele Street), also with the notation “as determined by the city administration before or during preliminary engineering.”

The LPA selection was made recognizing that currently-identified revenue sources, including revenues from the 0.5 percent General Excise Tax (GET) surcharge in place from January 1, 2007 through December 31, 2022, and a reasonable expectation of FTA New Starts funds, would not be sufficient to fund the capital cost of the LPA. Thus a financially feasible Minimum Operable Segment (MOS) needed to be chosen. On February 27, 2007, the Honolulu City Council selected as the MOS, East Kapolei to Ala Moana Center, via Salt Lake Boulevard (Resolution 07-039, FD1(c)). The MOS, also referred to as the “First Project” (see Figure 1), is described in Section 1.3, Project Description, below.

Figure 1: Minimum Operable Segment (First Project)



Following selection of the First Project, the City began discussions with FTA concerning alternatives to be included in the documents to be prepared pursuant to the National Environmental Policy Act of 1969, as amended, and the joint regulations at Title 23 CFR Part 771 and Title 49 CFR Part 622 (collectively, NEPA) These discussions resulted in the decision that the EIS should examine the LPA with emphasis on the First Project.

1.3 Project Description

1.3.1 Alignment

The First Project is a 19.5-mile portion of the LPA extending from East Kapolei in the west to Ala Moana Center in the east (Figure 1). The alignment is a dual guideway of which 18.0 miles are elevated, 1.2 miles are at-grade, and 0.3 mile is below-grade.

The First Project is planned to be delivered in two phases, described below and discussed more fully in Section 1.4, Project Delivery.

- Phase I
 - East Kapolei to Navy Drum Site Maintenance Base/Leeward Community College.
- Phase II
 - Leeward Community College to Puuloa Road (Salt Lake)
 - Puuloa Road (Salt Lake) to Nimitz Highway
 - Nimitz Highway to Ala Moana Center Terminus

The description of the proposed alignment and stations that follows is organized by these phases.

Phase I – East Kapolei to Leeward Community College

East Kapolei is the western terminus of the First 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 a combination of elevated and at-grade 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 at- and below-grade at the Navy Drum Site Maintenance Base and Storage Facility and from there continues on to Leeward Community College.

Phase II – Leeward Community College to Puuloa Road (Salt Lake)

The alignment returns to an elevated structure in order to cross the H-1 Freeway. North of the freeway, the alignment turns eastward along Kamehameha Highway. The alignment continues in an elevated structure along Kamehameha Highway to Aloha Stadium.

Leaving Aloha Stadium, the alignment turns from Kamehameha Highway to follow Salt Lake Boulevard until it crosses Puuloa Road onto Pukoloa Street.

Phase II – Puuloa Road (Salt Lake) to Nimitz Highway

From Pukoloa Street, the alignment crosses over the Moanalua Stream, turning south to follow the Koko Head bank of Moanalua Stream until it turns southeast, crossing over the H-1 Freeway onto Dillingham Boulevard. The alignment is elevated throughout this section. The alignment proceeds southeast following Dillingham Boulevard and crosses Kapalama Canal, leaving Dillingham Boulevard at Kaaahi Street, and crosses Iwilei Road. The alignment is elevated throughout this section.

Phase II – Nimitz Highway to Ala Moana Terminus

After crossing Iwilei Road the alignment follows the Nimitz Highway to Halekauwila Street and continues southeast along Halekauwila Street past Ward Avenue where it transitions onto Queen Street. At the end of Queen Street the alignment crosses Waimanu Street and property on the north side of Waimanu Street that will be acquired to allow the alignment to cross over to Kona Street. The alignment then goes through Ala Moana Center and ends with a tail track along Kona Street. The alignment is elevated throughout this section.

1.3.2 Stations

The First Project would be served by 19 stations. The name, location, type and features of each station are summarized in Tables 1 through 5 by the planned Phase I and Phase II station groups discussed in Section 1.4, Project Delivery.

Table 1: Phase I – East Kapolei to Leeward Community College

Station No.	Name/Planned Location	Planned Station Type	Planned Station Features
1.	East Kapolei @ North-South Road	Aerial, Side, Mezzanine	<ul style="list-style-type: none"> • Surface Park & Ride: 1,400 spaces • Major bus interface
2.	UH West Oahu @ North-South Road	Aerial, Side, Mezzanine	<ul style="list-style-type: none"> • Surface Park & Ride: 1,400 spaces • Major bus interface
3.	Hoopili @ Farrington Highway	Aerial, Split Side, No Mezzanine	
4.	Farrington Highway @ Leoku	Aerial, Side, Mezzanine	<ul style="list-style-type: none"> • Major bus interface
5.	Farrington Highway @ Mokuola	Aerial, Side, Mezzanine	<ul style="list-style-type: none"> • Major bus interface
6.	Leeward Community College	Below grade, cut “at grade station”	

Table 2: Phase II – Leeward Community College to Puuloa Road (Salt Lake)

Station No.	Name/Planned Location	Planned Station Type	Planned Station Features
7.	Kamehameha Highway @ Kuala	Aerial, Side, Mezzanine	<ul style="list-style-type: none"> • Structured Park & Ride: 1,600 spaces • Major bus interface
8.	Kamehameha Highway @ Kaonohi	Aerial, Side, Mezzanine	<ul style="list-style-type: none"> • Major bus interface
9.	Salt Lake Boulevard @ Kahuapaani (Aloha Stadium)	Aerial, Side, Mezzanine	<ul style="list-style-type: none"> • Surface Park & Ride: 1,650 spaces • Major bus interface
10.	Salt Lake Boulevard @ Ala Nioi Place	Aerial, Stacked Platforms	

Table 3: Phase II – Puuloa Road (Salt Lake) to Nimitz Highway

Station No.	Name/Planned Location	Planned Station Type	Planned Station Features
11.	Dillingham Boulevard @ Middle	Aerial, Side, Mezzanine	<ul style="list-style-type: none"> • Major bus interface
12.	Dillingham Boulevard @ Mokauea	Aerial, Side, Mezzanine	
13.	Dillingham Boulevard @ Kokea	Aerial, Side, Mezzanine	
14.	Kaaahi	Aerial, Side, Mezzanine	

Table 4: Phase II – Nimitz Highway to Ala Moana Center

Station No.	Name/Planned Location	Planned Station Type	Planned Station Features
15.	Nimitz Highway @ Kekaulike	Aerial, Side, Mezzanine	
16.	Nimitz Highway @ Fort	Aerial, Side, Mezzanine	
17.	Halekauwila @ South	Aerial, Side, No Mezzanine	
18.	Halekauwila @ Ward Avenue	Aerial, Side, Mezzanine	

Table 5: Phase II – Ala Moana Center

Station No.	Name/Planned Location	Planned Station Type	Planned Station Features
19.	Ala Moana Center on Kona Street	Aerial, Side, Mezzanine	<ul style="list-style-type: none"> • Major bus interface

1.3.3 System-wide Elements

Details of the system-wide elements will be finalized after the City selects the technology of the LPA. Accordingly, the descriptions below are illustrative and subject to change following technology selection.

The traction power distribution system will consist of substations and main line track power distribution facilities. The substations will be spaced at approximately one-mile intervals along the alignment with ratings in the range of 2 megawatt (MW) to 5 MW. The power distribution system will be based on a 750-volt direct current (DC) third rail system.

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

There will be 60 to 100 or more guideway vehicles (depending on the transit technology selected) to accommodate 6,000 passengers per hour per direction.

The maintenance base may be constructed on 43 acres of land at the Navy Drum site, east of Farrington Highway to the south of Leeward Community College, to service and store the transit vehicles. An alternative site also under consideration is further west along Farrington Highway near the University of Hawaii West Oahu Campus.

1.3.4 Fare Collection

The fare system will be integrated with the fare structure on the City's existing bus system, TheBus. The First Project is contemplated to be barrier-free and operate on an honor basis. Fare vending machines would be placed in all stations and continued use of standard fare boxes is assumed for TheBus. Under the barrier-free concept, no gate or fare inspection points would be installed at the stations. Fare inspectors would ride the system and check that passengers have valid tickets or transfers. Violators would be cited and fined.

The following assumptions were made for the fixed guideway system:

- Fares for the fixed guideway system will be consistent with the fare structure for TheBus. Pass products will work interchangeably on both modes and transfers between modes will be seamless and free.
- Current City policy requires that the bus fares be adjusted so that the farebox recovery ratio does not fall below 27% or exceed 33%. It is assumed that future fare increases will keep fare levels consistent with the 2006 inflation-adjusted fare level.

1.3.5 Operating Plan

The First Project is planned to operate in revenue service seven days a week. Weekday service would operate between 4 a.m. and midnight. Saturday service would run from 5 a.m. to midnight, and Sunday service would run from 6 a.m. to midnight. Vehicle headways in each direction would range from 3 minutes during peak periods to 10 minutes in the late night hours ("owl" period). A train would arrive in each direction at the station every six minutes during base periods. The operating plan assumes a vehicle loading standard of one standee per 2.7 square feet of floor space. The system is planned to operate with multi-car or articulated vehicles approximately 175-200 feet in length, with each train able to carry a minimum of 300 passengers. The peak capacity would be 6,000 passengers per hour per direction. The system would be expandable to allow for a 50% increase in capacity.

1.3.6 Ridership Estimates

Current opening year travel forecasts anticipate 66,000 average weekday boardings. The forecast for ridership in 2030 is 90,000 riders per weekday.

1.4 Project Delivery

1.4.1 Delivery Strategy

The City intends to implement the First Project in phases. Phase I of the First Project (Phase I) is planned to be from the western end of the alignment at East Kapolei to

Leeward Community College, and is scheduled to begin operations by the end of 2012. Phase II of the First Project (Phase II) consists of the remaining sections of the First Project, and is scheduled for operation in 2017.

Phase I is planned to be constructed using the Design-Build method of delivery. The City intends to finance Phase I with local funds.

Phase II of the First Project is planned to be delivered using the Design-Bid-Build delivery method with FTA New Starts assistance.

Vehicles and systems elements are planned to be manufactured and delivered in two increments to meet the specific needs of each phase. The number of contracts to be used in these procurements has not yet been established.

1.4.2 Environmental Impact Statement and Preliminary Engineering

The City has engaged a General Engineering Consultant (GEC), with a combined scope of work and with separate written Notices to Proceed (NTPs).

- NTP #1 encompasses work required to prepare the draft EISs required by NEPA and Hawaii Revised Statutes (HRS) Chapter 343, and to support the City's request to FTA to enter PE. NTP #1 was issued on August 24, 2007.
- NTP #2 is anticipated to be issued after FTA has approved entry into PE. Under NTP #2, the GEC will conduct PE and prepare the final EISs. A Record of Decision (ROD) is expected by mid 2009.
- NTP #3 will be issued for all remaining work not covered by NTP #1 and NTP #2, e.g., work related to construction and procurement contractor selection such as vehicle procurement document preparation and design-build contract document preparation.

FTA's authorization for Final Design is anticipated in early 2010.

1.4.3 Phase I Delivery

Design-Build documents for the Phase I utility relocation (not performed by utility owners), line segment and stations, and the maintenance base Design-Build contracts are scheduled to be prepared in 2008. Design-Build construction is planned to begin in the latter half of 2009, after the ROD is issued, through 2012. The planned Phase I line segment and stations contract unit is described in Table 6. Other contract units for Phase I construction is planned to include the maintenance base and storage facility, vehicles, and systems elements. A final breakdown for the systems elements will be determined during PE.

Table 6: Phase I – Line Segment and Stations Design-Build Contract Unit

Line Segment and Stations	<ul style="list-style-type: none"> • Guideway <ul style="list-style-type: none"> - East Kapolei to Leeward Community College. • Stations: <ul style="list-style-type: none"> - East Kapolei @ North-South Road - UH West Oahu @ North-South Road - Hoopili / Farrington Highway - Farrington Highway @ Leoku - Farrington Highway @ Mokuola - Leeward Community College
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Right-of-Way (ROW) certification will begin with entry into PE and ROW acquisition is scheduled to be completed early in 2010. Utility relocation agreements (performed by utility owners) for design are scheduled to start during 2008 followed by construction from mid 2009 through 2011.

The decision on the vehicle technology, including selection and design, is scheduled to be made in mid 2008 with procurement in late 2008. NTP for Phase I vehicle manufacture and delivery is projected to begin in mid 2009 through early 2012, followed by testing. Systems design would occur in 2010. Phase I systems supply, installation and testing will take place in 2011 through 2012.

Following integrated testing, Phase I is scheduled to start operations by the end of 2012.

1.4.4 Phase II Delivery

The City intends to contract for Final Design by engineering design consultants following FTA authorization to enter into Final Design, scheduled for early 2010. Construction contracts would be awarded beginning in 2011 through 2012. Construction is scheduled to be completed by mid 2016.

Phase II is planned to be packaged for design and construction into three line segments and three station groups, as shown in Table 7.

Table 7: Phase II – Line Segment and Stations Design-Bid-Build Contract Units

Line Segment 1	Leeward Community College to Puuloa Road (Salt Lake)
Station Group 1	Kamehameha Highway @ Kuala Kamehameha Highway @ Kaonohi Salt Lake Boulevard @ Kahuapaani (Aloha Stadium) Salt Lake Boulevard @ Ala Nioi Place
Line Segment 2	Puuloa Road (Salt Lake) to Nimitz Highway
Station Group 2	Dillingham Boulevard @ Middle Dillingham Boulevard @ Mokauea Dillingham Boulevard @ Kokea Kaaahi
Line Segment 3	Nimitz Highway to Ala Moana Center
Station Group 3	Nimitz Highway @ Kekaulike Nimitz Highway @ Fort Halekauwila @ South Halekauwila @ Ward Avenue

Due to its complexity, the terminus station at Ala Moana Center would be a separate design and construction package.

Phase II Right-of-Way acquisition and relocation, and utility relocations would take place in 2011 through 2012.

Manufacture and delivery of vehicles for Phase II would take place between mid 2013 and mid 2016. Phase II systems supply, installation and testing would take place between early 2014 and the end of 2016.

Following integrated testing, Phase II revenue service is planned to start in early 2017.

1.5 Schedule and Cost

As discussed previously, technical work to support the preparation of the NEPA document commenced in mid 2007 and will be followed by PE. The Project's Phase I is scheduled to commence operations by the end of 2012 and Phase II in 2017. Additional details on the schedule are set out in Section 3.3, Schedule Management, and Appendix D.

The current cost estimate for the First Project, expressed in 2007 dollars, excluding finance charges, is \$3,727 million, and in year of expenditure dollars, \$4,684 million. Additional details on the estimated cost are set forth in Section 3.4, Cost Management.

1.6 Goals and Objectives

The City's goal for the Project is to provide fast, reliable public transportation services to a rapidly developing area and to ease congestion in the east-west transportation corridor between Kapolei and the University of Hawaii at Manoa. The Project is also intended to provide basic mobility in areas with diverse populations. The Project supports the goals of Oahu's General Plan and the 2030 Oahu Regional Transportation Plan by serving areas designated for urban growth. The goals used to select the LPA during the AA included:

- Improve corridor mobility;
- Encourage patterns of smart growth and economic development;
- Cost effective solution;
- Feasible solution;
- Minimize community and environmental impacts; and
- Achieve consistency with other planning efforts.

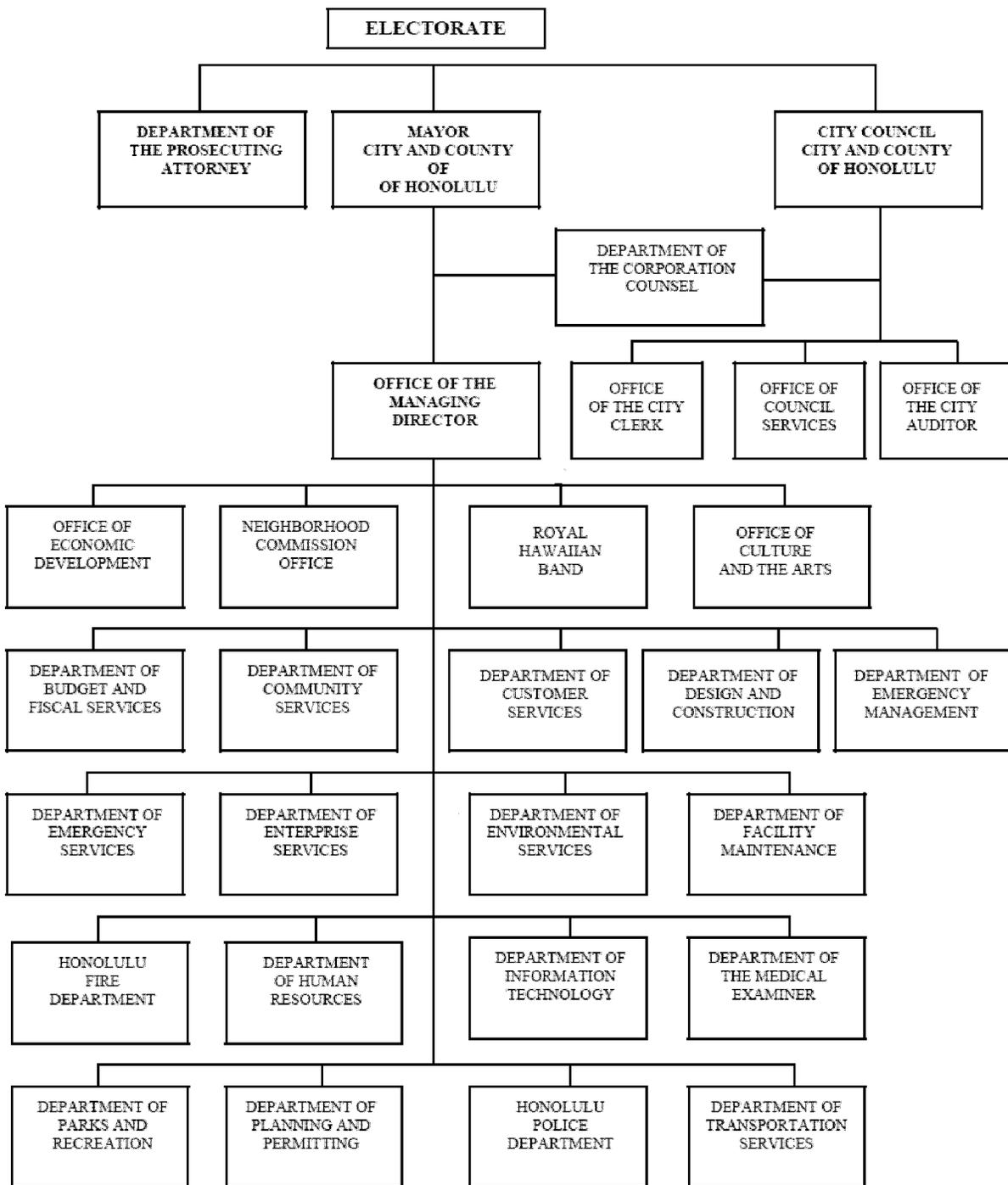
This Project will contribute to moderating the growth in anticipated traffic congestion in the corridor, improve transit linkages within the corridor, and provide an alternative to private automobile usage.

1.7 Legal and Statutory Authority

1.7.1 Agency Background and Overview

The City is a body politic and corporate, as provided in Section 1-101 of the Revised Charter of the City and County of Honolulu 1973 (RCH). The City's structure of government is presented in Figure 2 on the following page.

Figure 2: Organization Chart – City and County of Honolulu



1.7.2 Statutory Authority

The City is authorized under Chapter 51 of the Hawaii Revised Statutes (HRS) to “acquire, condemn, purchase, lease, construct, extend, own, maintain, and operate mass transit systems, including, without being limited to, motor buses, street railroads, fixed rail facilities such as monorails or subways, whether surface, subsurface, or elevated, taxis, and other forms of transportation for hire for passengers and their personal baggage.” This authority may be carried out either directly, jointly, or under contract with private parties.

A Department of Transportation Services (DTS) is authorized under RCH Chapter 17. The DTS consists of a DTS Director who is the administrative head of the department, a transportation commission, and necessary staff. The DTS Director’s powers, duties, and functions include planning, operating, and maintaining transportation, including transit, systems “to meet public transportation needs, in accordance with the general plan and developments plans, and advising on the design and construction thereof”. Section 2-12.1 of the Revised Ordinances of Honolulu, as amended (ROH), assigns to the DTS Director the responsibility for planning, designing, operating, and maintaining the automated fixed guideway rapid transit system. Furthermore, ROH Section 2-12.1 assigns to the DTS the responsibility of planning, administering, and coordinating those programs and projects which are proposed to utilize federal transit funds.

A Rapid Transit Division (RTD) of the DTS was established on July 1, 2007 upon enactment of the City’s Fiscal Year 2008 Executive Operating Budget and Program. RTD will be responsible for managing the Project. The RTD is headed by the Second Deputy Director who reports to the DTS Director. The Second Deputy Director is referred to as the Project Executive (PExec) for purposes of this Project Management Plan.

1.8 Project Management Plan Maintenance

Responsibility for Modifying the PMP. Revisions to the PMP may be initiated at any time by the RTD. The PExec authorizes the revisions to be included in text of the Plan.

Procedures for Modifying the PMP. The revisions to the PMP will be managed by the RTD Manager, Project Procedures. The revisions are documented in the Revision Record of the Plan and revised pages are then distributed to all recorded holders of the PMP.

Periodic Updates of the PMP. The PMP will be reviewed annually for potential revisions. At a minimum, the PMP will be revised to reflect the current management approach at the following key milestones:

- Entrance into PE;
- Entrance into Final Design;
- Start of Phase I construction;
- Start of Phase I system start-up and testing;
- Start of Phase II construction;
- Phase II system start-up and testing; and
- Close out.

These updates include organizational changes and the status of ridership estimates, project budget, schedule and financing.

2.0 PROJECT ORGANIZATION AND STAFFING

This chapter of the PMP describes the Project organization and staffing approach. Topics include organizational approach, organization, staffing, key personnel functions and responsibilities, use of consultants, and interface with other agencies. As implementation of the First Project advances, the organization will evolve to maximize the efficient use of personnel and adjust to the changing workload. The PMP will be updated prior to those phases to reflect any changes in the organization.

2.1 Organizational Approach

Successful implementation of the Project will involve a number of entities. As further described in this section, the City will implement the Project using its own forces and the services of third-party consultants and contractors. An initial list of entities involved to manage, oversee, and/or carry-out work on the Project includes the following:

- Federal Transit Administration (FTA), lead federal agency;
- FTA's Project Management Oversight Contractor (PMOC);
- City and County of Honolulu (City), Project Sponsor and FTA Grantee;
- Project Management Support Consultant(s) (PMC);
- PE/EIS General Engineering Consultant (GEC);
- Engineering Design Consultants (EDC);
- General Construction Manager(s) (GCM); and
- System Supplier(s) and Construction Contractors.

The organizational principles established for carrying out the Project are as follows:

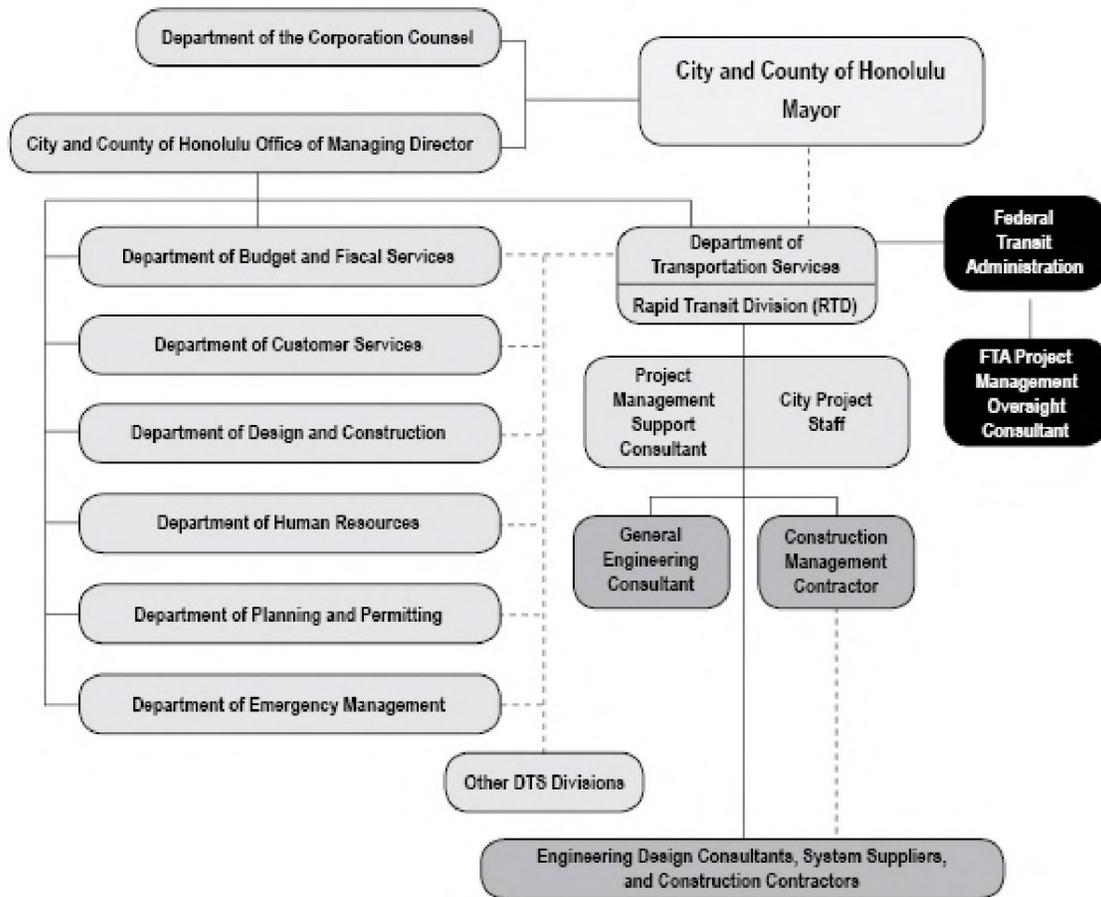
1. Decision-Making and Coordination of Planning:
 - a. Coordinate with senior managers from key City departments on a continuing basis.
 - b. Coordinate with State and Federal cooperating and participating agencies on a continuing basis.
 - c. Involve senior managers from City departments when policy and programmatic decisions are made related to their departmental jurisdictions.

- d. The Mayor will determine overall Project policies which are not otherwise established by Ordinance.
2. Project Implementation:
 - a. The DTS Director will be primarily responsible for the Project. The DTS Director will retain control of the Project's third-party contracts as the contracts' Officer-in-Charge. The DTS RTD will control all technical aspects and phases of the work, and will be the primary point of contact for the Project.
 - b. The RTD is supplementing its staff during the PE/EIS phase of project development through a contract with a PMC. The PMC approach permits the immediate mobilization of an experienced project management team and additional staff as needed while the City recruits employees. The City may procure services of a PMC for the Final Design phase if the City's staffing level needs to be supplemented.
 - c. Work to conduct PE and to prepare the requisite EIS(s) will be provided by a single GEC overseen by the RTD.
 - d. The RTD will function as an integrated project organization during the PE/EIS phase, with key staff from the City, PMC, and GEC co-located within the Project office. A determination will be made during the PE phase whether RTD continues as an integrated project organization in subsequent phases.
 - e. EDCs and a GCM will be procured during PE.
 - f. System Suppliers and Construction Contractors will be procured during the construction phase.
 - g. The City will operate and maintain the First Project fixed guideway system through a management services contract.

2.2 City & County of Honolulu

This section describes the organizational structure of the City and the responsibilities of key City departments as they relate to the Project. These relationships are illustrated in Figure 3.

Figure 3: Project Relationship Structure



2.3 Organization of the City and County of Honolulu

The City’s governmental structure consists of the Legislative Branch and the Executive Branch. Figure 2 in Section 1.7.1 depicts the City’s organizational structure.

The legislative power of the City is vested in and exercised by an elected nine-member City Council whose terms are staggered and limited to no more than two consecutive four-year terms. Every legislative act of the City Council is made by ordinance. Every proposed ordinance is initiated as a bill and is passed only after three readings on separate days. A public hearing is required for each bill. Non-legislative acts of the City Council are made by resolution, and except as otherwise provided, no resolution has the force or effect of law.

The executive power of the City is vested in and exercised by an elected Mayor, whose term is limited to no more than two consecutive full four-year terms. The executive agencies involved with the Project are further described in this section.

The City is the designated recipient of FTA Section 5307 funds apportioned to the Honolulu and Kailua-Kaneohe urbanized areas. The City has been an FTA grantee since 1970 and the grants are managed by the DTS. The DTS will also apply for and manage New Starts funds awarded to the City.

The overall responsibility for implementing the Project is with DTS.

2.3.1 Key City Departments and Entities

This section describes the functions and responsibilities of the key City departments that will be involved in the Project.

2.3.1.1 Office of the Mayor

The Mayor is the chief executive officer of the City. The Mayor directly supervises the Department of the Corporation Counsel, and through the Managing Director, supervises all other executive agencies of the City, except for the Board of Water Supply (BWS) and the Department of the Prosecuting Attorney. The Mayor's powers include:

- Create or abolish positions within the Executive Branch;
- Make temporary transfers of positions between departments or between subdivisions of departments;
- Submit annual operating and capital programs and budgets, and proposed budget ordinances to the City Council;
- Call special sessions of the City Council; and
- Veto ordinances, resolutions authorizing proceedings in eminent domain, and resolutions adopting or amending the general plan.

2.3.1.2 Office of the Managing Director

The Managing Director is the principal administrative aide to the Mayor. The Managing Director is appointed by the Mayor and confirmed by the City Council. All executive departments and agencies of the City report directly to the Managing Director, except for the Board of Water Supply and the Departments of the Corporation Counsel and Prosecuting Attorney.

2.3.1.3 Department of Transportation Services (DTS)

The DTS is the lead City department for the Project. The DTS plans and designs projects related to streets, highways, and transit systems under the jurisdiction of the

City. The department provides for the safe and efficient movement of vehicles, pedestrians, bicycles and other modes of transportation through the city's transportation infrastructure and oversees the provision of public transit on Oahu. There are six divisions within the DTS, including the Rapid Transit Division (RTD) which will conduct the day-to-day management of the Project. The DTS is further described in Section 2.2.3.

2.3.1.4 Department of the Corporation Counsel (COR)

The COR serves as the chief legal advisor and legal representative for all agencies, the City Council, and all officers and employees in matters relating to their official powers and duties. The department represents the City in all legal proceedings and performs all other legal services, including reviewing third-party contracts, issuing legal opinions, and providing guidance.

2.3.1.5 Department of Budget and Fiscal Services (BFS)

The BFS is the City's central financial agency. It is responsible for all aspects of the City's finances, including billing; collection; keeping accurate and complete account of receipts and disbursements; and management of the City's treasury and funds. It provides long-range financial planning; prepares and manages the City's operating and capital program and budget; provides information pertaining to the financial affairs of the City; and reviews the manner in which public funds are received and expended. The key BFS divisions are described below.

- Administration Division: administers the City's risk management and insurance program.
- Treasury Division: collects and receives revenues including the 0.5% GET surcharge from the State of Hawaii Department of Taxation; manages the monies in the City treasury; prepares and issues warrants for third-party contractor payments; issues, sells, and pays interest on and redeems bonds of the City;
- Accounting Division: responsible for accounting of city funds; reviews the manner in which public funds are received; administers the central preparation of payroll; and ensures that expenditures are in accordance with the city's budget ordinances and allotment schedules.
- Purchasing Division: acts as the centralized purchasing agency for the City (except for the BWS) by contracting for services of independent contractors and purchasing materials, supplies, and equipment; conducts relocations pursuant to requirements set forth in 49 CFR Part 24; maintains a perpetual inventory of all lands and equipment owned or controlled by the City; disposes of property not needed by any City agency; rents or leases City property (except property controlled by the BWS); and awards concessions.

- Real Property Assessment Division: assesses, for tax purposes, all real property in the City.
- Budgetary Administration Division: provides centralized budgetary services which include the preparation and administration of the annual operating budget; formulates and administers budgetary policies consistent with administration objectives; and provides organizational review and budgetary review of city programs and activities.
- Fiscal/CIP Administration Division: oversees citywide financial planning and analysis; and formulates, reviews, prepares, and implements the annual capital program and budget.

2.3.1.6 Department of Customer Services (DCS)

The DCS is responsible for providing the public with information about City programs. This department maintains liaison with community groups and organizations which are or may be affected by the Project. The DCS's Public Communication Division provides information related to government programs and policies, provides in-house printing services, and manages the Honolulu Municipal Television (HMTV) operations providing public information on City activities. The Satellite City Hall Division provides 10 offices on the island of Oahu for the purposes of disseminating information to the general public on government programs. The Municipal Reference Center provides for the management, preservation, and disposal of records from City departments.

The DCS will work closely with the Project's Chief Public Information Officer, described further in Section 2.4.9, in helping meet the requirements of public outreach throughout the project and specifically during legally required hearings and meetings.

2.3.1.7 Department of Human Resources (DHR)

The DHR is responsible for all City personnel actions related to the Project including overseeing of hiring, classifications and pay, equal opportunity, performance reviews, transfers and terminations. The DHR administers the City's civil service rules and regulations. The DHR also develops, promotes, coordinates and maintains a safety program for the City to comply with the Hawaii Occupational Safety and Health Law.

- Employment and Personnel Services Division: develops and administers the City's recruitment, examination, and employee services programs; recruits personnel for City jobs; evaluates candidates' qualifications and suitability; develops and administers examinations to establish eligible lists; refers names of qualified candidates to fill departmental personnel requirements; assists departments and coordinates with other personnel management processes in

resolving problems regarding recruitment, examinations, selection, placement, personnel transactions, benefits, and related matters.

- Health Services Division: conducts pre-employment and annual medical evaluations of current and prospective employees including examinations mandated under the Hawaii Occupational Safety and Health Division and Federal Department of Transportation rules; conducts and oversees programs that are designed to promote health, reduce risks, and prevent injury; and administers a drug screening program for new hires and random testing for selected employees.

2.3.1.8 Department of Design and Construction (DDC)

The DDC is responsible for planning, design, and construction management of the City's Capital Improvement Program (CIP). For this Project, the DDC will be providing support and input to RTD, including design review. The DDC's responsibilities related to the Project may include:

- All divisions will participate in design reviews relative to their respective areas of responsibility, as follows:
 - Civil Division: providing civil engineering, environmental services and soils/materials testing oversight support.
 - Facilities Division: providing support during the planning, design and construction of facilities related to municipal buildings, parks and park structures.
 - Land Division: conducting land and engineering surveys, title searches, real property appraisals, negotiations, and documentation preparation services in connection with the acquisition of lands and easements (temporary or permanent).
 - Mechanical/Electrical Division: providing management and monitoring support to the project.
 - Wastewater Division: providing support to the Project related to collection systems.

2.3.1.9 Department of Planning and Permitting (DPP)

The DPP is responsible for the City's long-range and community planning efforts, and for the administration and enforcement of permits required for the development and use of land. It is also responsible for the administration and enforcement of codes pertaining to the construction of buildings, and for the administration and enforcement of City standards and regulations pertaining to infrastructure requirements.

- Building Division:

- *Mechanical Code Branch*: responsible for plumbing code compliance and inspections, building energy efficiency standards, and plumbing code plan review.
- *Building Code Branch*: responsible for building code compliance and inspections, and issues certificates of occupancy.
- *Research Branch*: provides approvals on alternative methods and materials.
- *Electrical Code Branch*: insures electrical code compliance and inspections, and provides electrical code plan review.
- Planning Division: responsible for preparing, evaluating, and revising the Oahu General Plan and eight long-range regional development plans; processes applications for public infrastructure map amendments, zone changes and state special use permits; monitors the status of unilateral agreement conditions, including affordable housing program requirements; develops community-based special area plans; prepares an annual report on current status of land use; provides forecasts of population, housing, visitor units, and employment for city and state infrastructure planning, and assistance to the Oahu Metropolitan Planning Organization with respect to land use and population planning issues; and assists infrastructure agencies in preparing functional plans to assure that infrastructure plans are consistent with land use plans. The Planning Division will also be responsible for developing and implementing Transit-Oriented Development (TOD) guidelines and procedures related to the Project.
- Site Development Division:
 - *Traffic Review Branch*: reviews construction plans for compliance with City streets and traffic standards, egress and ingress for park-and-ride lots, and drop-offs at stations; provides plan review and coordination for street lights and traffic signals.
 - *Wastewater Branch*: provides approvals to build over sewer easements, and issues industrial wastewater discharge permits.
 - *Civil Engineering Branch*: provides grading, stockpiling, grubbing, and trenching permits; and provides drain connection and dewatering permits.
- Normally, the DPP Building Code Branch reviews designs for compliance with building codes prior to permit issuance. This would include ADA review. It has not yet been determined whether building permits will be issued for this project. If they are, then DPP Building Code Branch will be responsible. If they are not, then the RTD and its consultants will review for 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.

2.3.1.10 Department of Parks and Recreation (DPR)

The DPR maintains and operates the City's park system and associated programs and services. If the First Project impacts any City park, the DPR will assist in coordinating operational issues, especially during the construction phase.

The DPR's Urban Forestry Division manages the botanical garden and horticulture programs, including the Exceptional Trees Program. The horticulture programs plant, prune, trim, water, and maintain shade trees, palms, shrubs, and other plants along public roadways and in parks and malls; keep street lights, power lines, traffic control devices, and rights-of-way free of imposing branches; and grow plants for beautification projects and public flower gardens. During the PE/EIS phase, the Urban Forestry Division will coordinate with the GEC's arborist to identify any exceptional trees along the alignment and assess their conditions. This Division will review plans regarding the tree preservation program and landscaping plans for the First Project.

2.3.1.11 Department of Environmental Services (ENV)

The ENV plans, directs, operates and administers the City's wastewater and solid waste programs. This includes operation and maintenance of the wastewater collection, treatment and disposal systems; management, collection, and disposal of solid waste; and management of the storm water program.

The Storm Water Quality Branch within the Environmental Quality Division is responsible for administering the municipal storm water management program. This branch investigates and enforces against illegal discharges, performs water quality monitoring in streams, issues effluent discharge permits for hydrotesting, well drilling and other sources, and reviews environmental assessments and EIS documents for storm water quality impacts.

2.3.1.12 Honolulu Fire Department (HFD)

The HFD is responsible for providing fire fighting, search and rescue, emergency medical care, and hazardous materials response for the City. The HFD will participate in the Project's Safety and Security Oversight and Review Committee and will be involved in reviewing the design of the system to provide input on station and park-and-ride design, safety walkways, and emergency exiting of trains at stations and along the alignment.

- The Fire Prevention Bureau reviews and adopts fire codes, rules, and laws; conducts fire code compliance inspections; reviews building construction fire plans; and investigates fires to determine origin and cause.

- The Fire Operations Division provides fire protection, suppression, rescue and emergency services; conducts dwelling and commercial building inspections; and provides commercial and industrial pre-fire planning for the entire island of Oahu.

2.3.1.13 Honolulu Police Department (HPD)

The HPD is the primary law enforcement agency for the City. The HPD will participate in the review of the Project upon request and will provide traffic control during the construction phase. The HPD will participate in the Project's Safety and Security Oversight and Review Committee which will oversee and assist in the planning for emergency response situations. For more information on the Safety and Security Oversight and Review Committee, refer to the Project's System Safety Management Plan (SSMP).

2.3.1.14 Department of Emergency Management (DEM)

The DEM formulates emergency plans and procedures; coordinates the use of all available resources for the protection of life and property in the event of a disaster; provides for the continuity of government operations; coordinates the provision of essential elements of operational capabilities required to sustain operations in an emergency; assesses damage to public and private property; and coordinates recovery activities. The DEM will participate in the design review process, commenting on plans and specifications at various stages of completion to ensure the accommodation of emergency procedures. The DEM will be represented on the Project's Safety and Security Oversight and Review Committee.

2.3.1.15 Department of Facilities Maintenance (DFM)

The DFM's responsibilities include maintenance of public roads, streets, bridges, and drainage and flood control systems; street lighting and electrical systems of parks and other facilities, traffic signs and markings, public buildings, city vehicles and equipment (except for Board of Water Supply, Fire and Police). The DFM Director serves as an ex-officio member of the Board of Water Supply's board of directors.

- The Road Maintenance Division maintains city roadways, sidewalks, storm drains, bridges, striping, signs, outdoor municipal parking lots, bike paths, pedestrian malls, bus stops/shelters and downtown Honolulu parks. The Division also has the responsibility for maintaining City-owned streams, channels, ditches and other flood control facilities as well as enforcing the maintenance of privately-owned streams. In addition, it maintains litter containers at bus stops and pedestrian malls, and removes graffiti within the roadway right-of-way.
- The Public Building and Electrical Maintenance Division plans, directs, coordinates, and administers the repair, maintenance, and renovation programs for public buildings and appurtenant structures, and street, park, mall, outdoor and other City lighting and electrical facilities. The Division also administers

activities including property management, parking garage management, City employees' parking, motor pool, and security for City Hall, Kapolei Hale, the Frank F. Fasi Municipal Building and certain other facilities.

2.3.1.16 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, the BWS is governed by a seven-member board of directors. The board of directors sets policies and prescribes regulations for the management, control, and operation of the public water systems, and fixes and adjusts rates and charges for the furnishing of water services. The board also appoints the BWS' Manager and Chief Engineer. There are seven board members, with five-year staggered terms. Five members are appointed by the Mayor and approved by the City Council. The remaining two directors are ex-officio (by virtue of office or position): the Director of the State Department of Transportation and the Chief Engineer of the City Department of Facility Maintenance.

The BWS' involvement will depend on whether the Project affects the public water system. The RTD and the BWS will coordinate their respective construction schedules.

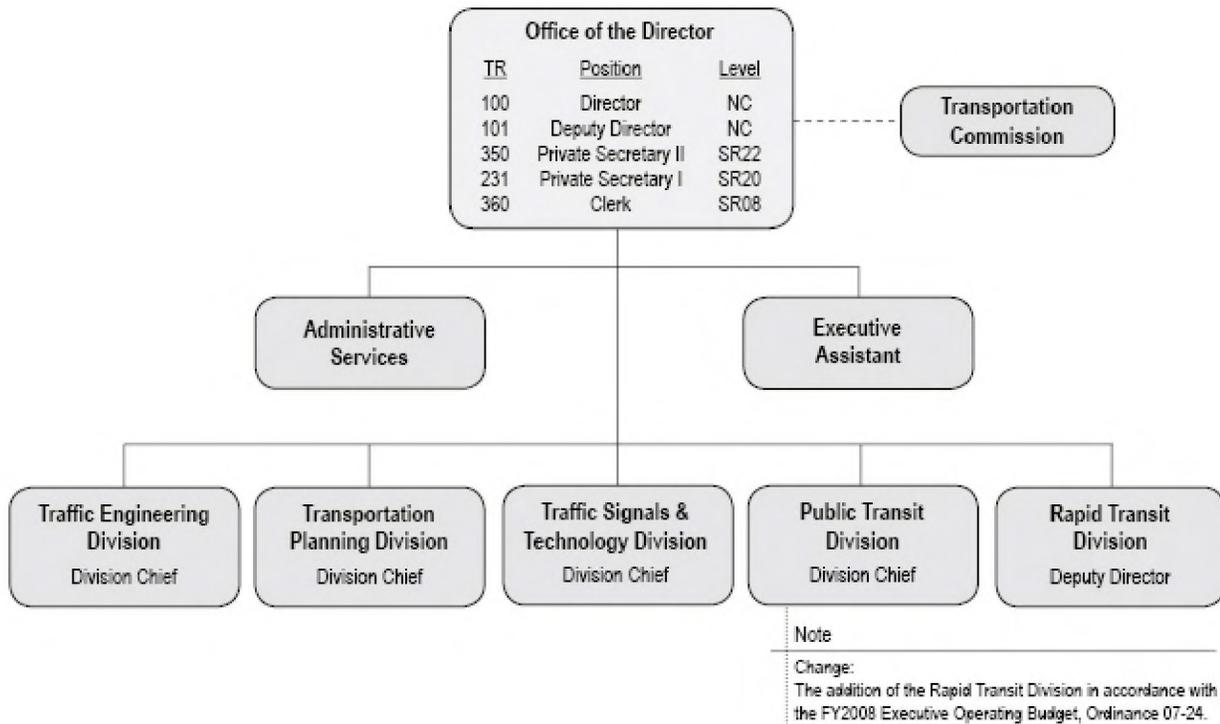
2.3.2 Project Organization

2.3.2.1 Department of Transportation Services (DTS)

The DTS is the City agency responsible for applying for FTA assistance, managing FTA grant awards, and overseeing compliance with FTA's programmatic requirements. The DTS is responsible for planning, managing, and implementing the Project. The DTS Director is appointed by the Mayor and is subject to confirmation by the City Council. The DTS Director is assisted by a Deputy Director who is appointed by the Mayor but is not subject to Council confirmation and a Second Deputy Director, who is a civil service employee. There are six divisions within the DTS, which are further described in this section, except for the Administration Division. The DTS' organization chart is shown in Figure 4.

The Deputy Director assists the DTS Director with managing the day-to-day activities of the department except for the RTD, which is managed by the Second Deputy Director. The Deputy Director assumes the responsibilities of the DTS Director in the DTS Director's absence.

Figure 4: DTS Organization Chart



- Rapid Transit Division (RTD)** – The RTD is responsible for Project development, management, and implementation. This division was established on July 1, 2007 upon enactment of the City’s Fiscal Year 2008 Executive Operating Budget and Program. The RTD will function within the administrative and operating procedures of the DTS. The RTD is headed by the DTS Second Deputy Director who will function as the Project Executive and will oversee the integrated project office staff and the GEC contract during the PE/EIS phase. This division will be responsible for preparing all Project-related documents required by FTA, and applying and administering Project-related FTA New Starts grants. The RTD will coordinate directly with FTA staff and the PMOC on Project-related matters. The RTD will be responsible for the Final Design phase and construction of the First Project. The RTD will develop plans for bus/rail integration.
- Transportation Planning Division (TPD)** - This division supports the DTS Director on the federally-required statewide and metropolitan transportation planning processes. The TPD will support the Project by applying for and administering any non-FTA New Starts grant funds for the Project; monitoring and assuring compliance with the Disadvantaged Business Enterprise (DBE) Program requirements of 49 CFR Part 26; developing and monitoring DTS’

Capital Improvement Program and projects; and programming the Project in the metropolitan transportation improvement program. The TPD will be responsible for implementing RTD's plans for bus/rail integration.

- **Public Transit Division (PTD)** – The PTD is responsible for planning and directing the City's island-wide fixed-route bus system and complementary paratransit services; procuring new buses and paratransit vehicles; overseeing the planning, design, construction and maintenance of transit centers and bus maintenance facilities; installing and maintaining bus shelters and bus stops; and reviewing and determining eligibility for paratransit services in accordance with the Americans with Disabilities Act of 1990, as amended (ADA).

The PTD manages Oahu Transit Services, Inc., the bus management services contractor responsible for managing and operating TheBus and TheHandi-Van (the City's paratransit service). The PTD will support the Project by providing information relating to TheBus and TheHandi-Van. The PTD will implement the integrated feeder bus system developed by the RTD.

- **Traffic Engineering Division (TED)** - This division provides for the safe, efficient and effective operation of City streets, roadways, and intersections; recommends and implements standards for signs, pavement markings and warning devices; establishes and administers the Traffic Code Ordinance; analyzes and determines warrants for traffic signals; and represents DTS in legal matters related to traffic engineering issues. The TED will provide traffic engineering support to the Project.
- **Traffic Signals and Technology Division (TSTD)** – The TSTD operates and maintains the City's Traffic Management Center and over 782 traffic signals on Oahu. Through the Traffic Management Center, the TSTD optimizes traffic signal operations for maximum throughput volumes and provides real time traffic conditions information networked to the internet, DEM, HFD, HPD, local television and radio stations, and other transportation-related agencies. The division includes the Street Usage Section, which reviews and issues traffic control permits for parades, special events, construction and other street usage.

2.3.2.2 Transportation Commission

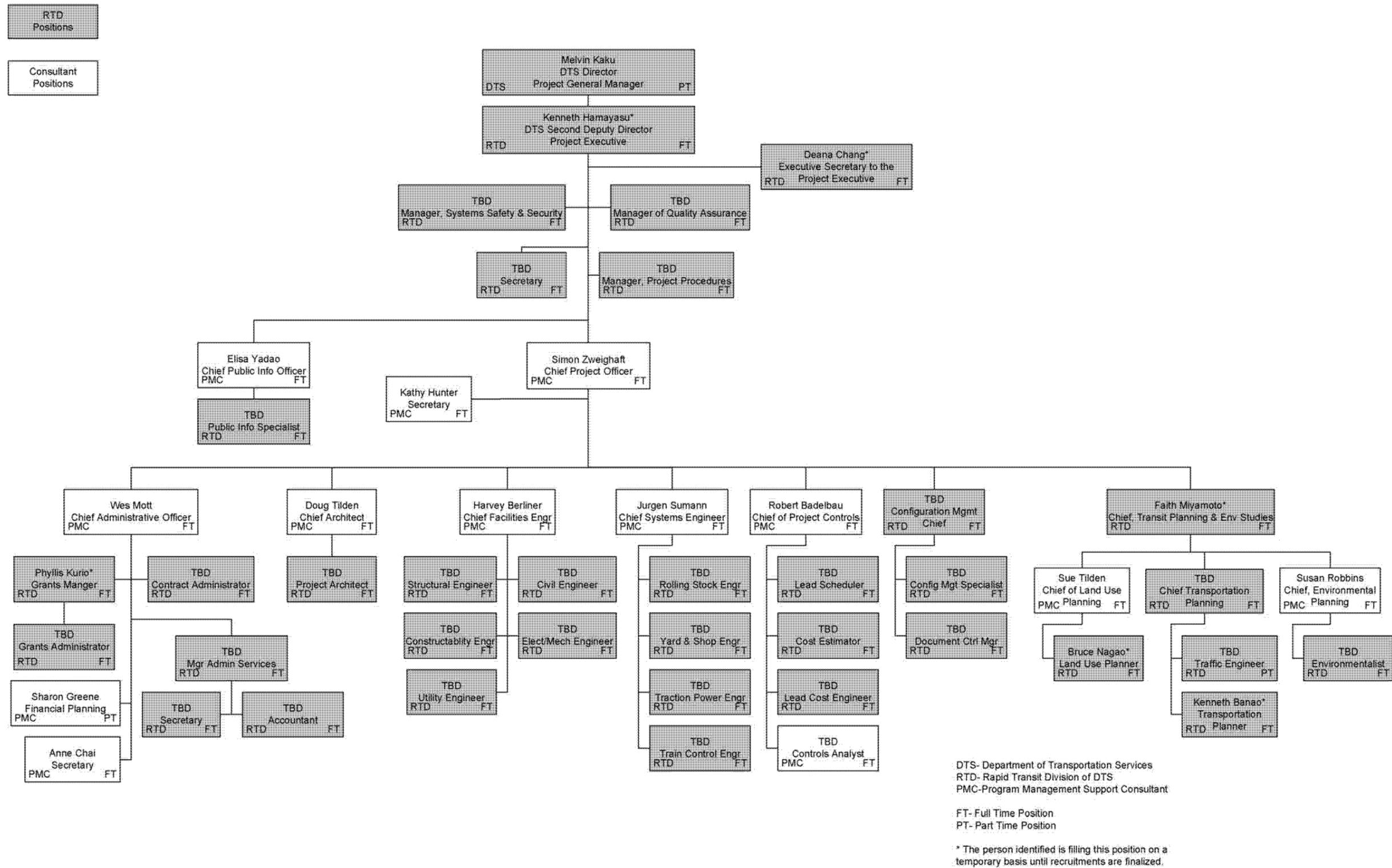
The Transportation Commission evaluates the DTS Director's performance and reviews and makes recommendations to the DTS Director, the Mayor, and the City Council on rules concerning the administration and operation of the DTS, DTS' annual budget, changes to the public transit fare structure when deemed necessary, and the performance of public transit and other transportation system contractors under the jurisdiction of the DTS. The Transportation Commission consists of seven members who serve five-year terms. Three members are appointed by the Mayor without necessity of City Council confirmation. Three members are appointed by the City Council. One member is nominated and, upon Council confirmation, is

appointed by the Mayor. Neither the Transportation Commission nor its individual members can interfere in any way with the DTS' administrative affairs.

2.4 Project Management Organization

Based on the principles outlined in Section 2.1, Figure 5 shows the RTD's organization structure adopted for the Project.

Figure 5: PE/EIS Project Organization Chart



2.4.1 Project Staffing

The RTD was effectuated on July 1, 2007, through the enactment of the City's Fiscal Year 2008 Executive Operating Program and Budget Ordinance. Thirty-five positions are currently authorized, of which 15 positions are permanent civil service positions. The City has engaged a PMC to act as an extension of and supplement to City personnel while employees are hired for the Project.

During the PE/EIS phase, the RTD will function as an integrated project office, with City employees co-located with the PMC and a select number of GEC staff. The organization chart for the integrated project office is presented in Figure 6. Continuation of an integrated project office for the Final Design and construction phases will be determined during PE and Final Design, respectively. Accordingly, the total number of personnel engaged in the Project at any one time will vary with the phase in progress and the specialties required for that particular phase.

2.5 Key Position Descriptions and Responsibilities

Management level and other selected key RTD position descriptions and responsibilities are summarized in this section.

2.5.1 DTS Director

The DTS Director is responsible for the performance of the entire department and reports to the Managing Director of the City. The DTS Director's authority includes powers, duties, and functions of planning, operating, and maintaining transportation, including transit, systems to meet public transportation needs within the City. The DTS Director will be the person primarily responsible for coordination with other City departments and outside agencies. Unless otherwise delegated, the DTS Director is the Officer-in-Charge of the DTS' third-party contracts. (The BFS Director is the City's Chief Procurement Officer.) The DTS Director is a member of the Oahu Metropolitan Planning Organization's Policy Committee.

There are six divisions within the DTS, including the RTD. The DTS Director has delegated to the PExec the responsibility of managing the RTD and conducting the day to day management of the project. With respect to this delegation, the DTS Director has retained responsibility for the following elements:

- Formal communications with other City Department Directors, the COR and the Managing Director.
- Formal communications with FTA and other State and Federal agencies.

- Preparation of the DTS' annual operating and capital budget requests and any supplemental budgetary requests.
- Approval of contract contents and recommend execution of change orders.
- Execution of third party agreements as authorized by the City Council.
- Approval and formalization of claims settlements.
- Approval and execution of project closeout documents.

Other functions remaining with the DTS Director include evaluation of the performance of the Deputy Director, the Second Deputy Director, and the DTS division chiefs; compliance with City, State, and Federal regulations and policies such as civil rights regulations; and the public participation process.

2.5.2 Project Executive (PExec)

The PExec reports to the DTS Director and is responsible for the day-to-day coordination and integration functions required to assure the achievement of the overall Project objectives. The PExec ensures integration and coordination between City staff, consultant staff, and supporting agency staff. The PExec's specific responsibilities include:

- Participating with the Chief Project Officer and others to establish management policy;
- Monitoring work plans for all activities needed for successful completion of the Project;
- Managing the administrative and contractual aspects of the PMC's and GEC's work;
- Providing day-to-day oversight of the PMC's work and has the authority to redirect the PMC if necessary;
- Representing the Project to external technical interests, including local jurisdictions' engineering departments, permitting authorities, and the Hawaii Department of Transportation;
- Ensuring the safety and security requirements of the Project are met;
- Ensuring implementation of the quality assurance plan; and
- Ensuring Project compliance with FTA requirements.

2.5.3 Manager of System Safety & Security

The Manager of System Safety & Security reports to the PExec and is responsible for developing safety and security rules and procedures; overseeing safety-related tests; inspection program audits; participating in design reviews; and overseeing the

conduct of training and emergency drills. The Manager of System Safety & Security will oversee the development and implementation of the following:

- Safety and Security Program Plan (SSPP);
- System Security and Emergency Preparedness Plan (SSEPP);
- Safety and Security Certification Plan (SSCP); and
- Safety and Security Management Plan (SSMP).

The Manager of System Safety & Security has independent authority to monitor, audit and evaluate all Project activities affecting safety and security to ensure that the full intent of project requirements are met. The Manager of System Safety & Security will be responsible for review of project documents to ensure safety certification compliance.

Additional responsibilities include:

- Providing advice, assistance and coordination to various Project divisions and developing and maintaining safety standards;
- Monitoring the Safety Certification of the System; and
- Monitoring the contractor's compliance with the construction safety manual that forms part of all contract documents.
- Review of project documents to ensure safety certification compliance.
- Coordination with the Department of Homeland Security.

2.5.4 Manager of Quality Assurance

The Manager of Quality Assurance reports to the PExec and is responsible for the development of a Project *Quality Plan* that meets FTA requirements. This position is responsible for ensuring the effective implementation of the Project Quality Plan through performance of internal and external quality assurance audits and surveillances. This position reviews and approves all consultant and contractor Project Quality Plans to assure that they meet the requirements of the City's Project Quality Plan, this PMP, and FTA's *Quality Assurance and Quality Control Guidelines* (February 2002). The Manager of Quality Assurance will regularly report on the status and adequacy of the Project's quality assurance and quality control (QA/QC) program to the PExec.

The Manager of Quality Assurance has independent authority to monitor, audit and evaluate all Project activities affecting quality to ensure that the full intent of Project requirements are met.

Additional responsibilities of the Manager of Quality Assurance include:

- Providing quality assurance oversight and monitoring for compliance of project engineering, procurements, construction, inspection and testing activities, and government regulatory requirements with the Project Quality Plan;
- Ensuring follow-up and solutions to quality problems, as identified, through management of the corrective action system;
- Participating in reviews of design, contract, and procurement documents to verify that quality characteristics have been considered;
- Ensuring that quality activities are conducted as planned.
- Participating in the evaluation and disposition of non-conformances, deviations, and waivers involving the potential changes to design and quality requirements; and
- Ensuring quality audits of project and management activities having an effect or potential effect on project quality are planned, scheduled and performed as defined in the Project Quality Plan.

2.5.5 Manager of Project Procedures

The Manager of Project Procedures reports directly to the PExec and is responsible for developing RTD's organizational procedures and methods for managing all aspects of the Project. These procedures will provide detail on chains of command and reporting, establish templates for communications and actions, and develop the guidelines for the day-to-day activities for every stage of the Project. The Manager of Project Procedures will start with the PMP as a basis from which to develop and administer the Procedures.

2.5.6 Chief Project Officer

The Chief Project Officer reports directly to the PExec and provides oversight on all technical criteria and design details of the PE and FD phases, including elevated guideway structures, passenger stations, traction power and train control rooms, parking facilities, storage facilities, and the handling of architectural and technical compliance issues related to the ADA.

Major responsibilities of the Chief Project Officer are as follows:

- Establish maintenance of the design criteria and standards for the preparation, review and approval of design and construction drawings;
- Participate in design reviews;
- Evaluate the effect of design decisions and making implementation recommendations to the PExec;

- Provide progress overviews and reports on the adherence of the project to schedule, budget and scope requirements;
- Participate in Value Engineering activities;
- Participate in constructability reviews;
- Provide oversight and assistance, as required, for engineering services during the construction phase of the Project; and
- Supervise technical and administrative staff involved in all phases of project development as assigned in the organization structure.

2.5.7 Chief Public Information Officer

The Chief Public Information Officer reports directly to the PExec. Working closely with PExec, the Chief Public Information Officer manages all public liaison and information matters for the project. The Chief Public Information Officer will be responsible for public relations outreach, and media and governmental relations for the Project. More specifically, this may include the establishment or maintenance of a web-site; a liaison between consultants and the community; design of fact sheets, newsletters and other printed media to be reproduced by the RTD; production of press releases; production of displays for public meetings; scheduling and execution of meetings with the general public, elected officials and other stakeholders; and support of the efforts of the DCS regarding the project.

2.5.8 Chief of Planning & Environmental Studies

The Chief of Planning & Environmental Studies reports directly to the Chief Project Officer. The Chief of Planning & Environmental Studies is responsible for ensuring the Project remains consistent with the transportation planning and environmental documentation to meet all FTA New Starts criteria including FTA's requirement for a Before and After Study Plan; supporting development of the Operating Plan through the forecasts of system usage; and developing a bus/rail system integration plan.

The Chief of Planning & Environmental Studies will provide oversight to the EIS work to be performed by the GEC to insure compliance with NEPA and consistency with the Federal New Starts process. The Chief of Planning & Environmental Studies will insure that a Mitigation Monitoring Plan is implemented during the construction phase and will provide environmental services support upon request.

2.5.9 Chief Administrative Officer

The Chief Administrative Officer reports directly to the Chief Project Officer and is responsible for fiscal administration and reporting; ensuring the Project's financial plan is implemented; ensuring appropriate and skilled staffing needs are met; and contract and general administration for the Project. The Chief Administrative Officer

supervises the Project-related grant applications and oversees grants administration activities. The Chief Administrative Officer reviews and monitors the project budget and cash-flow, including all executed contracts, as well as City staff time billed to the project. The Chief Administrative Officer will be responsible for contract administration and will work closely with the BFS to provide support on purchasing and with the TPD to develop the RTD's annual capital budget request. Finally, the Chief Administrative Officer will work with the DHR and supporting divisions to ensure appropriate staffing levels.

2.5.10 Chief of Project Controls

The Chief of Project Controls is responsible for providing oversight on all project control elements as related to scope, schedule, and budget including cost control, cost codes, schedule development and control, document control and progress reporting. This position oversees the budget, reviews the schedule of progress, and checks billings and invoices for consistency with work progress prior to forwarding them for approval and payment. Under the direction of the Chief Project Officer, the Chief of Project Controls provides all necessary support to oversee and support the RTD administrative functions such as providing monthly progress reports, scheduling monthly coordination meetings, and related tasks.

2.5.11 Chief Facilities Engineer

The Chief Facilities Engineer reports to the Chief Project Officer and oversees the civil and structural engineering design of all physical facilities to be constructed for the project including stations, guideways, yards and shops, central control and such other support facilities as may be required. Within this group are special units for the acquisition and management of rights-of-way to be utilized for the project and a utility relocation group which will work with technical units of affected utility organizations to determine the best way to address physical conflicts between existing utilities and the infrastructure to be constructed for the Project. The Chief Facilities Engineer will be responsible for the technical review of facilities designs produced by the GEC during PE.

During the PE effort, another important function to be overseen by the Chief Facilities Engineer will be the constructability of the First Project. This will include the planning and organization of construction units as well as the maintenance of traffic during construction.

2.5.12 Chief Architect

The Chief Architect reports to the Chief Project Officer and will manage the architectural design of stations, landscaping, maintenance base, and other building structures to be developed for the Project. Working with the GEC architectural team, the Chief Architect will establish design criteria for stations, the general configuration

of the stations, and a design palate which will be used by final designers to develop detailed designs for the stations. The Chief Architect will ensure compliance with the ADA and the U.S. Department of Transportation's (USDOT's) regulations, "Transportation Services for Individuals with Disabilities (ADA)," 49 CFR Part 37. The Chief Architect will also work closely with the Manager of Systems Safety and Security to ensure that the stations designs meet all of the requirements promulgated by the various organizations responsible for fire and life safety, including, in particular, National Fire Protection Association 130 guidelines for the design of transit stations.

2.5.13 Chief Systems Engineer

The Chief Systems Engineer reports to the Chief Project Officer and is responsible for overseeing the design of all rail transit systems to be supplied for the Project including vehicles, traction power systems, signaling systems, communications systems, fare collection systems, data transmission systems, and passenger safety and information systems. The Chief Systems Engineer will oversee the work of the GEC systems team in the development of design criteria and preliminary designs related to these elements of the project. The Chief Systems Engineer will also be responsible for the development of the First Project's operating and maintenance plan.

2.5.14 Configuration Management Chief

The Configuration Management Chief reports to the Chief Project Officer and is responsible for establishing and overseeing the Configuration Management Plan for the Project. This plan is more fully described in Section 7.

2.6 Use of Consultants

2.6.1 Project Management Support Consultant (PMC)

The PMC provides in-house project management services and functions as an extension of the City's staff. Such services shall include professional, technical, managerial and other support services to initiate and complete the PE/EIS phase of the Project. The PMC will be integrated into the RTD. The PMC's work will be monitored by the PExec.

2.6.2 PE/EIS General Engineering Consultant (GEC)

The GEC will conduct PE and prepare EISs for the Project pursuant to NEPA and HRS Chapter 343 and its implementing administrative rules. As part of this effort, the GEC will be responsible for conducting public involvement activities, and conducting engineering and technical studies to support the preparation of the EIS. The GEC will assist the RTD in preparing for competitive procurement of fixed guideway revenue vehicles and developing Design-Build procurement documents for Phase I. The GEC

will also conduct preliminary engineering and New Starts PE and prepare documents to support the City's request to advance Phase II to the Final Design phase.

2.6.3 Before and After Study Consultant (BASC)

The BASC reports to the RTD and will be contracted to implement the Before and After Study Plan prepared by the RTD, as required by the FTA New Starts program. Title 49 United States Code Section 5309(g)(2)(C) requires a project sponsor to develop a Before and After Study as a condition for each new Full Funding Grant Agreement (FFGA). These studies are intended to assess the impacts of New Starts projects, compare the actual costs of the projects and ridership two years after opening to those forecast, and identify the sources of differences between predicted and actual outcomes.

2.6.4 Engineering Design Consultants (EDCs)

EDCs will provide support to RTD during all elements of engineering and design of Phase II of the First Project. The EDCs will provide design support services in three main areas. These include the following:

- Final Design of the fixed facilities;
- Final Design of the system-wide elements; and
- Engineering services during construction for both fixed facilities and system-wide elements.

Fixed facilities design includes the design of civil and structural facilities, track-work, utilities, stations, and landscaping. System design includes design of the Project's electrification system, train signal system, train-to-central control communications system, fare collection, and storage yard. Vehicle procurements for Phases I and II will be managed by separate EDCs and will include Buy America pre-award and post delivery audits. Engineering services during construction includes activities such as responding to requests for information, shop drawing review, and review of contractor value engineering and cost reduction proposals.

2.6.5 General Construction Manager (GCM)

The GCM's responsibilities are further detailed in the Construction Management Section in Chapter 10. In general, the GCM will provide services during the fixed facilities Final Design and construction phases, including Final Design oversight of the EDCs, resident engineering, office engineering, and inspection. This will include such items as performing QA inspections of all EDC and Contractor activities, reviewing all contract document submittals including shop drawings and specifications, reviewing contractor invoices, reviewing requests for information (RFIs), reviewing requests for change (RFCs), conducting inspections, value

engineering, reviewing change order estimates, and other items further described in Chapter 10.

2.6.6 System Suppliers and Construction Contractors

Construction Contractors will be responsible to construct the First Project based on the scope provided. It is not certain at this time which suppliers of the system components of the project will be included as part of the construction contract or individually procured. Such information will be developed when further engineering has been completed.

2.7 Interface with Other Agencies

The City is required to interface with other agencies during the development and implementation of the First Project. As part of the planning and initial design process, relationships have been built with affected agencies. This will continue through the life of the First Project. Regular meetings will occur between project management and staff for both public and private entities throughout the design development process.

2.7.1 Cooperating and Participating Agencies

In compliance with SAFETEA-LU Section 6002, appropriate federal and state agencies were invited by the FTA and the City to serve as cooperating or participating agencies in the environmental review process for the Project. A “cooperating agency” has jurisdiction by law or special expertise with respect to any environmental impact involved in a proposed project or project alternative. “Participating agencies” are those with an interest in the project. As cooperating or participating agencies, they will have the opportunity to be involved in defining the purpose of and need for the project, as well as determining the range of alternatives to be considered for the project.

2.7.1.1 Cooperating Agencies

The following agencies have agreed to be cooperating agencies:

- The Federal Highway Administration (FHWA) - The Project will require FHWA approval related to access to the interstate system, notably at the H-2 freeway ramps.
- The U.S. Army Corps of Engineers will be involved with issuing permits or other approvals related to streams along the alignment.
- The U.S. Department of Homeland Security (U.S. Coast Guard-14th Coast Guard District) will also issue approvals related to stream crossings.

- The U.S. Department of Defense's (U.S. Army Garrison-Hawaii) will review the planned guideway's crossing of U.S. Army property at Fort Shafter.

The State of Hawaii Department of Transportation has been invited to participate as a cooperating agency; the Project will require their approval related to the use of state right-of-way along Kamehameha Highway and Farrington Highway. The U.S. Department of Defense (U.S. Naval Base Pearl Harbor) has determined not to participate as a cooperating agency; rather, they will be involved as a participating agency.

2.7.1.2 Participating Agencies

The following federal agencies have accepted the invitation to be participating agencies: U.S. Department of Agriculture (Natural Resource Conservation Service, related to the loss of agricultural lands; the U.S. Department of the Interior (Fish and Wildlife Service), related to Section 7 consultations; the U.S. Department of the Interior (National Park Service), related to the Arizona Memorial; the U.S. Department of the Interior (U.S. Geological Survey Pacific Island Ecosystems Research Center), related to earthquakes; the U.S. Department of Transportation (Federal Aviation Administration) related to Honolulu International Airport; the U.S. Environmental Protection Agency, for overall environmental issues; and the U.S. Federal Emergency Management Agency, related to flooding.

The following state agencies have accepted the invitation to be participating agencies: State of Hawaii's Hawaii Community Development Authority, related to the Kakaako and Kalaeloa communities; the State of Hawaii Department of Education, related to potential impacts on schools; the State of Hawaii Department of Accounting and General Services, related to state projects and buildings; the State of Hawaii Department of Land and Natural Resources (State Historic Preservation Division and Division of Forestry and Wildlife), related to historic resources and endangered species; the State of Hawaii Department of Defense, for related defense issues; the State of Hawaii Department of Hawaiian Home Lands, related to lands in Kapolei and the potential maintenance and storage facility at the Navy Drum Site; the State of Hawaii Department of Health, related to clean water, air quality and noise issues; the State of Hawaii Office of Environmental Quality Control, related to implementation of Hawaii Revised Statutes Chapter 343; the State of Hawaii Office of Hawaiian Affairs, related to Hawaiian and cultural issues; the State of Hawaii University of Hawaii, related to University of Hawaii lands; and the Oahu Metropolitan Planning Organization.

The PExec will be responsible for project level interface between agencies. Formal technical agreements with each of the affected private and public entities will be executed. These agreements will be developed by the RTD, reviewed by the COR,

and may require adoption of an authorizing resolution by the City Council. Key agencies, jurisdictions and private entities affected by the Project include but are not limited to the agencies described below.

2.7.2 Federal Agencies

2.7.2.1 Department of Homeland Security (DHS)

DHS provides centralization for the national network of organizations and institutions focused on homeland protection. DHS works to enhance rail and transit security, in coordination with the U.S. Department of Transportation and other federal agencies, and in partnership with the public and private entities that own and operate the nation's transit and rail systems.

DHS's Transportation Security Administration (TSA) works to advance mass transit and passenger rail security through a comprehensive strategic approach that enhances capabilities to detect, deter, and prevent terrorist attacks and respond to and recover from attacks and security incidents, should they occur. TSA Surface Transportation Security Inspectors, from the TSA Office of Security Operations, conduct on-site inspections of mass transit and passenger rail agencies and maintain collaborative working relationships with industry representatives. They work closely with the TSA Mass Transit Security Division for support and programmatic direction.

2.7.2.2 Federal Transit Administration (FTA)

FTA awards and administers grants and oversees the expenditures of federal funds for mass transit projects. FTA contracts with a PMOC to act as an extension of its project management staff in monitoring an agency's performance on a major capital investment project. The PExec, with support from staff, will interface with the PMOC and the FTA on a regular basis.

The City understands the importance of maintaining involvement by the PMOC and the FTA at its regional and headquarters offices. The PExec will continue to provide an on-going relationship with FTA and the PMOC with open communications throughout the Project.

2.7.3 State of Hawaii

The First Project is being developed and constructed within the State of Hawaii (the State). The First Project will be required to meet state laws and regulations related to health, safety, environment and welfare.

2.7.3.1 Department of Business, Economic Development, & Tourism

The RTD will interface with the Department of Business, Economic Development & Tourism's Office of Planning in its administration of the Hawaii Coastal Zone Management Program.

2.7.3.2 Department of Health

The EIS required by HRS Chapter 343 will be coordinated with the Department of Health's Office of Environmental Quality Control.

2.7.3.3 Department of Land and Natural Resources

The RTD will interface with the Department of Land and Natural Resources' Historic Preservation Division. The State Historic Preservation Officer is the head of this division.

2.7.3.4 Department of Transportation (HDOT)

Coordination with the HDOT will occur where the First Project is in close proximity to or affects a state highway or interstate facility.

2.7.3.5 Hawaii State Foundation on Culture and the Arts (FCA)

This Foundation manages the Art in Public Spaces Program which was established in 1967 with the enactment of the Art in State Buildings Law. This designated one percent of the construction costs of new buildings for the acquisition of art, either by commission or purchase. This was expanded in 1989 by the State legislature to include having works of art for all state public spaces. The one percent is set aside into a special fund and is not subject to the state's general operating fund allowing for long term significant art projects to be planned and implemented.

2.7.3.6 Hawaii State Safety Oversight Office (SSOO)

Prior to the start of PE, the State will designate a State Safety Oversight Office to comply with federal requirements for safety oversight. The department which will house this office has not yet been determined.

2.7.4 Oahu Metropolitan Planning Organization (OahuMPO)

The OahuMPO was formed as mandated per the Federal Surface Transportation Assistance Act of 1973 and State Legislature of 1975 through the passage of Chapter 279E, Hawaii Revised Statutes. OahuMPO's function is to coordinate the activities of the "3-C" transportation planning process on Oahu. The planning itself is done largely by the City and the State planning and transportation departments, which are OahuMPO's participating agencies. Oahu MPO will be involved in the Project as a participating agency.

The OahuMPO is responsible for coordinating transportation planning on Oahu and has four components:

- Policy Committee;
- Technical Advisory Committee;
- Citizen Advisory Committee; and
- Staff.

OahuMPO is also responsible for identifying Oahu's future transportation needs and programming the federal funds for such projects and programs. This is achieved primarily through the development of the following documents:

- Oahu Regional Transportation Plan (ORTP);
- Overall Work Program (OWP); and
- Transportation Improvement Program (TIP).

OahuMPO is responsible to process Project-related amendments and/or modifications to the ORTP and TIP.

2.7.4.1 Policy Committee

The Policy Committee is the “heart” of the OahuMPO planning process. It sets the policy and direction and makes the final approval on OahuMPO matters. The Policy Committee consists of 13 members:

- Five City Council members;
- Three State senators (including the chair of the Senate Transportation Committee);
- Three State representatives (including the chair of the House Transportation Committee);
- HDOT Director; and
- City DTS Director.

2.7.4.2 Technical Advisory Committee (TAC)

The Technical Advisory Committee provides advice to the Policy Committee and the OahuMPO's Executive Director on technical matters, and ensures the technical competence of the planning process.

2.7.4.3 Citizen Advisory Committee (CAC)

The CAC is the foundation of the OahuMPO's public involvement program. The CAC provides public input to the Policy Committee and the OahuMPO's Executive

Director on transportation planning issues. As such, the CAC is involved early in the process, often meeting face-to-face with agency representatives.

The CAC provides an opportunity for citizens to get involved in the transportation planning process. The CAC members include community organizations, professional associations, neighborhood boards, special interest groups, and transportation providers.

Any organization can become a member of the CAC by attending four meetings within a 12-month period. All CAC meetings are open to the public; and participation from all citizens is welcome. Meetings are typically held on the third Wednesday of the month at 4:00 p.m. in downtown Honolulu.

3.0 MANAGEMENT CONTROL

The controls used to support the management of the Project are described below including: functional and technical control, work breakdown structure, schedule management, progress reporting, cost control and document control.

Consistent with the integrated project office policy for the RTD and the PMC, described in the Chapter 2, Project Organization and Staffing, the RTD and the PMC are jointly referred to as RTD in the sections that follow.

3.1 Functional and Technical Control

3.1.1 General

The project control systems and procedures described below provide the functional and technical control tools used to track and control the First Project's scope, schedule and cost so as to support project management's objective of delivering a scope that meets project requirements, on schedule and within the budget. Scope, schedule and cost address:

- Scope – The physical, functional scope, and quality of the completed First Project to meet the defined requirements, including the work to be performed by all participants; where quality of the completed First Project is defined by the quality and life of materials and equipment items and the levels of operational service, efficiency, safety, security and reliability and the degree of maintainability.
- Schedule – The schedule for First Project development, from planning to the start of revenue operations.
- Cost – The cost of the completed First Project.

Scope, schedule and cost variables on a project are interdependent, e.g., a change in a scope variable typically results in a change in schedule or cost, or both. The fundamental principals of the control processes used are the same for controlling scope, schedule or cost. They are to:

- Establish a control baseline;
- Track project performance against the baseline;
- Continually forecast performance at completion and compare to the baseline;
- Identify changes to the project and assess their impact on performance against the baseline; and
- Take management action to correct adverse forecast and/or change variances.

If a comparison between the baseline and actual conditions forecasts a significant difference, as determined by the Manager of Project Controls, an exception report is produced which is intended to alert management to a variable which is straying from plan. This early warning is intended to give management time to assess the cause of the problem, to evaluate alternative courses of action to restore the project to the plan and to order the concluded action be taken. When restoration to the original plan or the current baseline is impractical, the baseline will be formally revised and updated and the impact of such change on the other baselines recognized.

For the purposes of project control, the baseline will be fixed following the end of or during PE, when all of the basic design definitions will be established. During this phase, the RTD will approve the preliminary designs and specifications and to expect that the follow-on design, construction and procurements will follow consistently with the baseline definitions or values for scope, price, and completion schedule.

3.1.2 Technical Baseline/Configuration Control

Technical baseline control is achieved through configuration management, design reviews, and the quality assurance/quality control (QA/QC) program adopted for the Project. Configuration Management is discussed in Chapter 7.0 while the design review process is discussed in Section 6.6, Design Reviews. The quality assurance/quality control program adopted for the Project is described below.

3.1.3 Quality Assurance and Quality Control

A Project Quality Plan (Quality Plan) has been prepared to establish a quality program for the Project. The Quality Plan describes the roles and responsibilities of the GEC Project Team, and references this PMP regarding the overall Project Organization. The RTD Manager of Quality Assurance is responsible for the maintenance and execution of the plan as well as oversight and audit of all quality control functions. During preliminary engineering, the GEC QA/QC Manager is responsible for overseeing quality functions of the GEC and its subconsultants. As the project progresses into final design and construction, the Quality plan will be revised and the GCM Quality Manager will hold similar responsibilities related to those activities.

During preliminary and final design, the Quality Plan incorporates three components of review and checking: (1) general quality reviews by management personnel or their designees; (2) formal design reviews involving the integrated project office staff, outside consultants, City staff, and the staff of third party agencies affected by implementation of the Project; and (3) the checking of all reports, drawings and specifications, as well as relevant calculations, supporting the designs reflected in the drawings.

- General quality reviews will apply to all products disseminated for review or otherwise transmitted to third parties. Such products will typically include, but not be limited to:
 - Letters, technical memoranda, manuals, and reports;
 - Concept level drawings and sketches; and
 - Concept level cost estimates and schedules.

During the Final Design phase, the Quality Plan also provides for detailed review processes during final design, including very specific reviews that apply to camera-ready contract documents and subsequent addenda, if any. These documents will be checked to ensure that all drawings and specifications conform to the project requirements. Also, the review of camera-ready documents will include verifications that all final design review comments have been addressed, and a tabulation of outstanding issues, if any, which could result in the preparation of addenda during the procurement period.

- Formal design reviews will take place at the designated milestones. At each milestone, reviewers will generally review the documents for:
 - Conformance with approved project standards, criteria, specifications, and other project requirements;
 - Conformance to third party procurement requirements, standards, regulations, etc.;
 - Adequacy, clarity and ease of interpretation;
 - Constructability;
 - Compatibility of interfaces;
 - Errors and/or discrepancies;
 - Coordination with related designs and project elements;
 - Coordination of design drawings and specifications; and
 - Cost-effective application of the necessary standards.
- Quality Plan requirements for the review and checking of final contract drawings, specifications and calculations will be developed during PE. The checking of plans, specifications and calculations will follow standardized procedures that will include the preparation and retention of check prints, specifications and calculations by independent checkers. Certification of property/easement drawings and all specifications will be independently checked at the Final Design level of completion.

The Quality Plan lists the QA/QC responsibilities of the management personnel in the integrated Project office. Personnel charged with the management of outside subconsultants are also charged with ensuring that these subconsultants follow the procedures outlined in the Quality Plan. The Manager of Quality Assurance will monitor compliance with the Quality Plan and conduct QA audits.

The Quality Plan will evolve significantly for the design, construction, and testing/start-up phases. The direct responsibility for preparation of these revisions to the Plan will be through the GCM Quality Manager under the review and approval by the RTD Quality Manager.

In the construction phase, the Quality Plan objective will be to verify that equipment and materials installed, as well as the work performed, comply in all respects with the contract specifications. As such, the quality program will be developed with a goal of ensuring that:

- Selected equipment is tested throughout development, manufacture, and installation to verify that it functions as specified.
- Work processes are controlled to ensure that work is done in the appropriate sequence, that the production and installation processes that directly affect quality are performed under controlled conditions, and that special processes, the results of which cannot be verified by subsequent inspection and testing of the product, are appropriately monitored.
- Early detection of nonconforming conditions is accomplished, and positive corrective action is performed in a timely manner.
- Control over the configuration is maintained at all times to ensure the acceptability of equipment as established by design reviews, drawing approvals, design verification testing, and during retrofits and modification work.

The construction phase Quality Plan will also include requirements for documentation so that the work can be accepted. Record requirements will include provision for storage and retrieval of copies of QC measurements, test records, delivery tickets, inspection reports and other related material. It will incorporate standards for qualified contractors' QC programs. It will provide for the oversight of the contractor programs by the RTD and the GCM.

During the systems integrated testing and start-up phase, the Quality Plan will undergo another phase of re-development to address the key activities occurring at that time. Inspections and records requirements will be developed to assure that all accepted work is able to function together as an integrated whole system. When and if specified performance discrepancies are identified, a formal system of recordation, remediation and verification will be utilized. This phase of the Quality Plan will also address assurance for operator and maintainer training and proficiency certification.

3.2 Work Breakdown Structure

The vehicle used to integrate scope, schedule and cost is the Work Breakdown Structure (WBS). The WBS used is a structure that breaks down the scope of the Project into its component and subcomponent parts. Subsets of the component and subcomponent parts or work packages as defined in the WBS structure are assigned to the design consultants, contractors, third parties, and the RTD. Budgets and milestones are developed for each WBS work package. Since the WBS is the integrator of scope, schedule and budget, its use will be required by all consultants and contractors associated with the project.

The WBS coding levels are as follows:

- Level 1 – Project Identifier (A – First Project East Kapolei to Ala Moana Center)
- Level 2 – Identity Modifier (Project Phase / Contract Unit)
- Level 3 – General Location (Station, Line Section, or Building.)
- Level 4 – Specific Location (Station, or Line Section Identifier)
- Level 5 – General Cost Category (Guideway, Station, Utilities, etc.)
- Level 6 – Specific Cost Category (Foundations, Elevators, etc.)
- Level 7 and higher – Cost and Scheduling Tasks required to manage RTD, Subconsultant and Contractor Work
- Level 8 – Organizational Identifier (City, PMC, GEC, Design Consultant, etc.)

WBS Codes at levels 1, 2, 3, 4 and 5 are intended to serve as a framework for both progress reporting and cost loading at the Program Reporting Level. Subconsultants and contractors will develop more detailed WBS structures to measure progress, cost and schedules. The detailed structures will roll up into levels 1 thru 6 of the project WBS.

The complete WBS details are set out in Appendix C.

3.3 Schedule Management

A Master Project Schedule is used as the overarching schedule monitoring and control tool for the Project. It is used to summarize the detail schedules maintained by the project participants and control the interfaces between the detail schedules. The Master Project Schedule serves as the essential management tool for the planning, scheduling, coordination and control of the Project. The Master Project Schedule consists of numerous activities that are summarized using the WBS into a Master

Summary Schedule for most reporting purposes. The Master Project Schedule will be updated, distributed, and monitored on a monthly basis.

The Master Project Schedule revisions are listed and outlined in a separate written narrative which accompanies the revised schedule and explains the changes to the schedule from the previous month's schedule. Schedules submitted from the various Consultants and Contractors are integrated into the Master Project Schedule and are represented in the Master Summary Schedule as well. The Master Project Schedule reflects the input of all entities involved with the Project. The schedule also has the ability to allow the various sections to be rolled-up to depict the individual elements of the Project. Any impacts or updates to the individual sections will be reflected in the Master Project Schedule and the Master Summary Schedule.

This Section describes how the RTD will monitor the progress of the work against the Master Project Schedule. It also addresses the philosophy on which the schedule is based, progress reporting, the schedule update process, recovery and mitigating alternatives, and the Master Project Schedule revisions.

3.3.1 Master Project Schedule Overview

3.3.1.1 General

The Master Project Schedule will evolve in complexity over the phases of the Project. These phases include: Planning; Preliminary Engineering; Final Design; Right-of-Way Acquisition; Third-Party Procurements; Construction; and Testing and Start-Up. Each phase will present different project management challenges and is predominantly controlled by the work of different project staff members. The level of detail contained in the Master Project Schedule is directly related to the project phase. During the Planning phase, the schedule will consist of detailed planning activities with less detail provided for Final Design and Construction activities. As the Project advances more detail is added to the schedule consistent with the increase in design and construction information.

The Master Project Schedule is further developed in conjunction with funding availability. As information is developed and cash flow requirements are identified, financial consideration are evaluated more thoroughly and further refined throughout the process. Maximum flexibility will be built into the Master Project Schedule whenever possible based on previous experience on major capital projects of similar complexity and in accordance with prudent project management practices.

3.3.1.2 Responsibility

The overall responsibility for developing and maintaining the Master Project Schedule rests with the Chief of Project Controls. The Lead Scheduler will receive

and review information provided by the RTD, the GEC, EDCs, GCM, and construction contractors. Upon acceptance of this data, the Lead Scheduler will update the Master Project Schedule on a monthly basis. More frequent updates will be provided as needed.

A change to the schedule baseline requires the approval of the DTS Director.

3.3.2 Schedule Types and Definitions

3.3.2.1 Master Project Schedule

The Master Project Schedule is typically presented in a bar chart format developed from the Critical Path Methodology (CPM) schedule identifying the major elements and activities of the Project. Other formats can be generated as needed. The Master Project Schedule is the official project schedule which is approved and endorsed by the DTS Director and represents the goal commitments for the Project. The Master Project Schedule, consultant, and contractor schedules will use the P5 version of Primavera Project Planner for Windows software as marketed by Primavera Systems, Inc., unless otherwise approved by the Chief of Project Controls and the PExec. The current Master Project Schedule for the Project is set out in Appendix D.

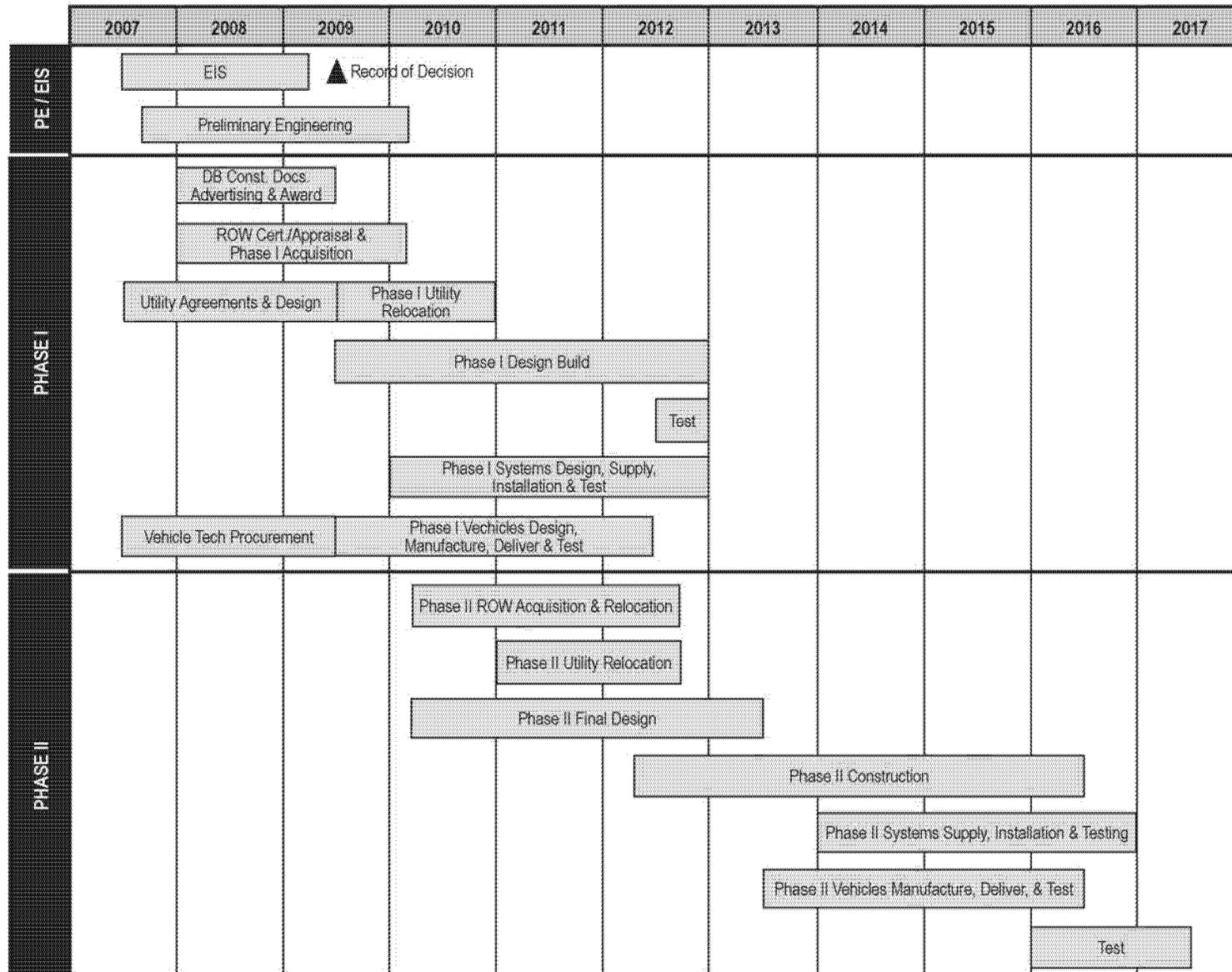
3.3.2.2 Master Summary Schedule

The Master Summary Schedule is typically presented in a bar chart format developed from the Master Project Schedule and is a direct summarization of the Master Project Schedule. The Master Summary Schedule is updated monthly along with the Master Project Schedule. The WBS will be the primary means for creating the Master Summary Schedule from the Master Project Schedule. The current Master Summary Schedule for the Project is provided in Figure 6.

3.3.2.3 Planning Schedule

The Planning Schedule addresses the planning related activities. RTD supported by the GEC assembles the information needed to prepare the schedule in accordance with the Project's scheduling procedures. The Planning Schedule is updated monthly until the Record of Decision is obtained and is incorporated into the Master Project Schedule. The Planning Schedule is discussed at progress meetings during the planning phase of the Project. The Planning schedule is incorporated into the Master Project Schedule and follows the WBS and other scheduling practices.

Figure 6: Master Summary Schedule



3.3.2.4 Design Schedule

The Design Schedule deals with the activities during the Preliminary Engineering and Final Design phases of project development. The GCM, with information from the EDC's, will prepare and maintain a detailed design schedule in accordance with the Project's scheduling procedures. This schedule will be updated monthly and will be discussed at all design progress meetings. Information derived from the updated design schedule will be incorporated to update the Master Project Schedule. The progress of the Design Schedule activities will be based on an earned value system which will be used to indicate both schedule and cost performance. The Design Schedule is incorporated into the Master Project Schedule and follows the WBS and other scheduling practices.

3.3.2.5 Right-of-Way Schedule

The Right-of-Way Schedule consists of a schedule that focuses on specific areas such as right-of-way acquisition, business and residential relocations, and right-of-way related utility relocations. The Right-of-Way Schedule is incorporated into the Master Project Schedule and follows the WBS and other scheduling practices. In addition to the ROW schedule a database will be maintained listing each parcel to be acquired and all its related attributes such as amount budgeted, date appraised, date required, etc. The database data will be used to update the ROW schedule.

3.3.2.6 Construction Schedules

The Construction Schedule deals with the construction related activities of the First Project. The underlying philosophy behind the Master Project Schedule is the requirement that contractors use a CPM construction schedule to provide the details necessary to manage and implement the work for the First Project. Elements of work will be organized in accordance with the WBS such that roll up reporting against the WBS provides a full scope accounting of the entire First Project.

During PE, the GEC will prepare preliminary schedules for Phase I and Phase II construction work. With the advancement of the Phase II design documents, the GCM and EDC will add additional detail to the Phase II construction schedule.

As the construction contracts are awarded and prior to issuing NTPs, comprehensive and detailed CPM Construction Schedules using the project WBS will be prepared and submitted by each Contractor for RTD and GCM review and approval. The CPM Construction Schedules will form the baseline and timeline for the work to be performed for major work elements and milestones. Upon approval, a roll up of the Contractors' CPM Construction Schedules are incorporated into the Master Project Schedule. The detail for the construction phase of the Master Project Schedule will be derived directly from the Contractors' monthly CPM Construction Schedule updates.

The RTD, supported by the GCM, will integrate the construction schedule into the Master Project Schedule.

3.3.2.7 Contractor Schedule Updates and Payment Requests

At the end of each monthly pay period, the Contractor will update the construction schedule by assigning actual start and actual finish dates and remaining duration to activities in progress. The effects of delays, changes, accelerations and progress by the Contractor will be documented in the monthly schedule updates and will be further explained in the written Contractor monthly progress reports. The progress reports prepared by the Contractor are required by contract. The report will explain progress in general and specifically, or the lack thereof based on the critical path; it will also detail delays and present recovery actions, whenever necessary. Progress of the work for the activities will be tabulated and totaled by the Primavera software to form the back-up for the payment request.

The GCM Resident Engineer will verify the updated information. Activities submitted for payment where the Resident Engineer does not approve the activity, progress claimed will be removed from consideration for payment. In the event of a dispute of the resident engineer's decision, the contractor may appeal through the dispute resolution process as described in the construction contract.

3.3.2.8 Systems Integration Testing and Start-Up Schedule

The Systems Integration Testing and Start-Up Schedule deals with the systems integration testing and start-up related activities. The schedule for these activities will require the input from RTD, the GCM, the Systems Contractor, and Construction Contractors. The GCM will coordinate with all involved parties and prepare and maintain a detailed Systems Integration Testing and Start-up Schedule in accordance with the Project's scheduling procedures. This schedule will be updated monthly and will be incorporated into the Master Project Schedule by the RTD. The schedule will also be discussed at all system and start-up progress meetings.

3.3.3 Cost Loading the Master Project Schedule

The Project will use a cost-loaded schedule so that activities in the Master Project Schedule are assigned a dollar value. The WBS integrates the schedule information with the cost information in order to cost load the Master Project Schedule.

The EDC will provide a cost loaded schedule to a specific WBS level. The Contractor's construction schedule will be submitted in two parts. The Part I submittal will be a summary-type bar chart (WBS Level 4 or 5 as applicable), submitted with the Contractor's bid to assure RTD that the Contractor understands the scope of the contract and the resources required. The Part II will be cost loaded and cover all the activities to be performed throughout the duration of the contract and

will be submitted by the Contractor after NTP. No progress payments will be made before RTD has approved the cost loaded schedule.

3.3.4 Master Project Schedule Updates

During PE and Final Design, the RTD's Lead Scheduler will update the Master Project Schedule progress status on a monthly basis with detailed information obtained from Project participants, including consultants. The same process will be used during the construction phase. During the updating process, the need for any required recovery or mitigating measures to keep the Project on schedule will be discussed. The PExec will be promptly informed by the Chief Project Officer if the Chief of Project Controls determines that insufficient progress is being made in a certain area.

The actual updating of the Master Project Schedule involves the assigning of actual start and finish dates, and remaining durations to activities in progress based on information provided by the Project staff and verified by the Project Controls staff. During PE and Final Design, this information will be obtained from the RTD, the GEC, the GCM, and the individual designers and their subconsultants. As Contractor construction schedules are approved, the data will be incorporated into the Master Project Schedule.

After the Master Project Schedule has been updated, the Chief of Project Control will draft a transmittal memorandum to the DTS Director for the PExec's signature. Any proposed change in the revenue service date must be approved by the DTS Director. This memorandum will point out the salient features of the update and call attention to problem areas. After the memorandum has been signed to indicate that the DTS Director concurs with the update information and any resultant impact on the Project's end date, the Master Project Schedule update will be issued as an attachment to the Project's Monthly Progress Report. Copies of the Master Project Schedule update will be kept on file

3.3.5 Recovery Plans

In the case of delays during the design program, the GEC or GCM will develop and submit to the RTD a recovery plan to achieve the critical milestones. The RTD will review the recovery plan and approve its incorporation into the master project schedule.

In the case of a construction delay, the Contractor will submit a recovery plan whenever it falls behind the approved schedule, taking into account all granted time extensions. The recovery plan may become the basis for a revision to the Master Project Schedule. After a delay has been identified and communicated to the PExec, and all the pertinent facts have been ascertained and analyzed, a decision will be

made to either absorb the delay or attempt to accelerate the work element(s) to recover the lost time. Although the FTA and the PMOC will be notified of all Project delays through the various reports and schedules, if the delay is beyond the control of the RTD, then RTD will formally notify FTA.

3.3.6 Interface of Schedule with Cash Flow Report

The Cash-Flow Report is determined from the cost loaded Master Project Schedule. After each Master Project Schedule update, the Cash-Flow Report will be reconciled by the Lead Cost Engineer to determine if changes to cash-flow expenditures are required as a result of updates to the cost loaded Master Project Schedule.

3.3.7 Use of CPM Activity Codes

The Primavera software system allows for the assigning of WBS coding and other descriptive activity codes to activities so as to facilitate selective sorting, printing, plotting and reporting of chosen activities. Although the WBS will be the primary Primavera code, in certain cases it may be necessary to use other activity codes to report on sub-networks of specific work elements or to create a special report. The Contractors may use activity codes to segregate activities into different work packages. For example, a subcontract may be divided into bid items representing the Construction Specifications Institute (CSI) divisions.

3.4 Cost Management

The Chief of Project Control will manage the Cost Management functions. During the design phase, the focus will be on establishing and tracking costs for planning and design services and the establishment of budget for future work including preparing budgets for program level activities, control estimates for design services, right-of-way estimates, and construction estimates. During construction, the focus shifts to cost reporting and forecasting, cash flow analysis, and change control. Cost reporting is performed throughout the life of the Project. This function will be accomplished by RTD in close coordination with other consultants, contractors and other project participants. The use of a cost-loaded CPM schedule is especially important for the monitoring of the construction costs after the award of the construction contracts.

The Cost Management portion of this section defines the means for monitoring project costs against the project budget, forecasting projected costs, and for reporting budget/cost variances. It describes the background and sources of funding for the project budget/cost accounts, cost updating and reporting, and financial management. Project cost reporting processes will be developed and maintained to meet FTA guidelines and requirements.

3.4.1 Responsibility

Project line management will be led by the Chief Project Officer. In support of the overall goal of successfully completing the First Project within budget, it is the responsibility of the Chief of Project Control to develop, implement and maintain effective project cost management systems that establish approved project budget baselines as well as quickly and effectively identify potential risks and exposures in terms of the approved budget baseline.

3.4.2 Budgets and Cost Estimates

The first step in cost management is to establish line item budgets for each aspect of the work. Separate budgets will be established for Phases I and II. Similar to the scheduling process, line item budgets and the cost estimates used to establish the overall budgets will be refined as additional information is developed and as the design work advances. The overall responsibility for developing and maintaining the First Project's budget (Budget) rests with the Chief of Project Control. Cost estimates, when approved by the PExec, become the basis for the Budget. The Budget cannot be changed unless approved by the DTS Director.

The current estimate for the First Project by major cost element, excluding finance charges, is set out below in Table 8.

Table 8: Project Estimate

	Base Year 2007 \$(000)	Year of Expenditure \$(000)
Construction		
Guideway & Track Elements	1,224,132	1,566,621
Stations	241,695	315,889
Yards, Shops, Admin Bldgs	115,851	138,753
Utility Relocation, Sitework	642,566	802,789
Systems	222,827	290,746
Subtotal Construction	2,447,071	3,114,798
ROW, Land, Improvements	84,360	105,722
Vehicles	250,039	323,000
Professional Services	734,121	909,940
Subtotal before Contingency	3,515,591	4,453,460
Unallocated Contingency	210,935	268,129
Total Project Cost	3,726,526	4,721,589

3.4.2.1 Planning Phase

The Budget is initially established during planning phase. The Budget covers all aspects of the work and is initially based on the estimates developed during the AA. At this time additional efforts will be expended on developing control estimates for design and specialty consultants needed for the PE and Final Design phases.

3.4.2.2 Preliminary Engineering Phase - Project Budget

During PE, the GEC is required to develop preliminary construction cost estimates and assist in the scope for the subsequent Final Design. The RTD, supported by the GEC, will prepare control estimates for the Final Design phase. The budget for design work will be updated as the design services contract are negotiated and awarded.

3.4.2.3 Final Design Phase

The initial budget for the Final Design effort will be established as an integral part of the PE estimate. The Final Design budget will be refined throughout the negotiations that result in contractual commitments with the EDCs. The EDCs will be responsible for providing construction costs estimates and advancing the quality of the construction cost estimates as the design is advanced. Utilizing the information provided by the EDCs, the GCM will maintain a total project cost estimate. When this estimate deviates from the project budget, the GCM will report the details to the RTD and discuss options for resolution. Such options may include redesign, reductions in scope, utilization of budget contingency, or adjustments to the project budget. The final estimate is the Engineer's Estimate used to evaluate the Contractor's bids.

3.4.2.4 Construction Phase

The EDC(s) for the construction contract units will be responsible for developing construction costs estimates and the Engineer's Estimate. As construction contracts are awarded and work proceeds, the construction budgets will be revised as needed based on input provided by the GCM for construction. The GCM will maintain an overall project cost estimate. When this estimate deviates from the project budget, the GCM will report the details to the RTD and discuss options for resolution. Such options may include redesign, reductions in scope, utilization of budget contingency, adjustments to the project budget, repackaging, or rebidding.

3.4.2.5 System Installation and Testing

The EDC for systems will be responsible for developing system-related costs estimates and the Engineer's Estimate. As systems contracts are awarded and work proceeds, the systems budgets will be revised as needed based on input provided by the GCM. The GCM will maintain an overall project cost estimate. When this estimate deviates from the project budget, the GCM will report the details to the RTD and discuss options for resolution. Such options may include redesign, reductions in

scope, utilization of budget contingency, adjustments to the project budget, repackaging, or rebidding.

3.4.3 Estimating

3.4.3.1 General

Cost estimates are prepared in increasing levels of detail as the design is developed and as more information is developed cost uncertainties are reviewed and each estimate becomes a control for the following stage of the project development.

The RTD will establish initial cost control by using cost estimates developed under the direction of the Chief of Project Control. Initial estimates, progressively refined through the development of design and procurement phases will form the basis for the final estimate, prior to the bid phase of the construction contract. The control estimates for design services are prepared by the RTD and are approved by the Chief of Project Control. Construction estimates are prepared by the EDC(s), reviewed by the RTD, and are approved by the PExec.

3.4.3.2 Construction Cost Estimate Formats

Construction Cost Estimates are developed during all phases of the design process by the EDC(s) using the format specified by the Chief of Project Control.

3.4.4 Cost Control Report

The Cost Control Report (CCR) is a tabulation of costs based on the Work Breakdown Structure and includes all the project's cost accounts. The CCR compares the current cost projections against the Budget. It is the source cost control/budget document from which all other cost control reports are derived, including cost information used in the Progress Reports described in the Section 3.5, Progress Reporting. It identifies each cost account using an agreed upon accounting numbering system, each account's approved budget value, costs-to-date, including retainage where applicable, and the remaining budget balance. Cost accounts in each cost category are subtotaled. Cost category subtotals are totaled at the bottom of the report to arrive at a Project total. Project contingencies that are developed and approved during the project cost estimating activities are an integral part of the CCR system. Section 3.4.13, Contingency, addresses contingency management. Earned value methodologies will be evaluated and incorporated into the cost control reporting system as deemed appropriate.

The CCR will be produced using a combination of spreadsheet and database software, which will integrate with Primavera for managing and reporting the Project's cost and schedule management information based on the WBS.

3.4.4.1 Updating the Cost Control Report

Data from each approved invoice is entered into the individual cost account spreadsheet/database system. The CCR is updated to reflect the new "costs-to-date" amount, cost to complete, and the Budget balance. When a discrepancy arises between the cost at completion and the budget, the GCM or GEC, depending upon project phase, will report the situation to the RTD and the need for a recovery plan will be determined. Non-invoice costs, e.g. costs incurred by City departments, are tracked and totaled by City cost account reports. These City reports will be made available to the Project Control staff and the information then used to update the corresponding cost accounts.

The CCR will be produced monthly and will be reviewed by the Chief of Project Controls and the Chief Project Officer. The report will be then given to the PExec and the DTS Director so that project management decisions can be made in concert with the Budget.

3.4.4.2 Reconciliation of City Accounting Reports and Cost Control Report

To ensure that all project costs are recorded, the RTD accountant will reconcile the CCR to the City's accounting reports on a periodic basis.

3.4.5 Cash Flow Report

3.4.5.1 General

The Cash-Flow Report will be organized like the CCR into the same primary cost categories defined by the WBS. Projected expenditures for each cost account will be distributed by month through the project's scheduled end date, using the cost-loaded Master Project Schedule.

The projected cash flow for each cost account will be subtotaled for the fiscal year and a "cost-to-date" column will also be included for the year for each cost account. The total projected cash flow through the entire life of a cost account may vary from the budget amount. Variances result from anticipated changes or projected overruns in a particular cost account.

For reporting purposes, each of the major cost categories will be summarized by fiscal year and then all cost categories further totaled to yield a monthly projected cash flow for the First Project.

3.4.5.2 Updating the Cash Flow Report

A Cash-Flow Report will be generated monthly to reflect updates in the Master Project Schedule or when a new cost account is added, or when a significant change

occurs, which may affect the projected cash flow. The cash flow report will be reconciled to the fund balances that are maintained by the City Treasury.

3.4.6 Changes Report

3.4.6.1 General

The Chief of Project Control will provide early identification and reporting of potential cost impacts against the approved project budget that are generated by causes such as project scope changes (adds or deletions), detail design development, Contractor/Consultant proposals and changes, material and equipment pricing trends, labor productivity and project schedule delays or accelerations. The Changes Report will be developed to meet project management's requirements and to mitigate these cost impacts.

The Changes Report presents in detail and summary a listing of approved changes, outstanding pending changes and claims, and anticipated changes for the major contracts in the Project. The amounts for approved changes are incorporated into the Project committed values and are reflected in the appropriate forecast values in the Cost Control Report. The amounts for proposed changes and claims received from consultants and contractors are subject to negotiations. These amounts are quantified as trends within the forecast values.

The purpose of this report is to itemize cost exposures and track outstanding proposed changes and claims to insure timely resolution of pending changes and identify potential cost overruns.

3.4.6.2 Updating the Changes Report

The Chief of Project Control maintains the Changes Report based on information provided to the RTD by the GCM during design and construction.

3.4.7 Budget Revision Procedures and Authority to Authorize Changes

The RTD will conduct periodic, in-depth review to reaffirm or revise the baseline budget. Proposed budget revisions will be approved by the DTS Director.

The Chief of Project Control is responsible for monitoring changes to the project budget. Any required revision of the baseline budget will be recorded in the Cost Control Reporting system. Budget changes and the DTS Director's approval will also be entered into the document control system to create a permanent record and audit trail of the change.

3.4.8 City Grant Accounting

The primary objectives of the accounting system are: (1) to ensure that the record keeping system identifies separately the receipts, disbursements, assets, liability and fund balance for each project/grant; and (2) to provide a summary of information that will enable the preparation of periodic reports that are required by grantor agencies.

3.4.8.1 Account Structure

The City and County of Honolulu Enterprise Resource Planning System will be the “official book of record” used in the accounting of all financial activities for the project. Accordingly, all eligible participating expenses will be tracked by their respective grant(s). The various grant expenditures will be consolidated along with any non-participating expenses under one capital account number.

Within the Federal grant(s) the account structure includes major expense categories, which correspond to the “GMIS Activity Line Item Codes” that are to be used to identify the budget line items.

Each major expense category will be further broken down into subcategories (i.e., work orders), which are specific tasks/assignments that will be performed by staff or under third party contract within a [grant funded] project. They will be identified by unique index codes in accounting system and will be tied to specific GMIS Activity codes. The Project Executive, with the concurrence of the Grants Management and Budget and Fiscal Services managers, will create these “cost” codes as necessary for control purposes. All grant expenses will be recorded at the cost code level and cross-referenced with the capital project.

3.4.8.2 Accounting System

A computerized financial accounting system will be utilized to monitor and account for the accrual of expenditures, and to charge the appropriate funding sources for such expenditures. Included will be a labor distribution subsystem, which will be designed to distribute staff labor and force account work, and when approved, including indirect costs to the appropriate funding sources. Upon approval of the Federal Transit Administration indirect costs will be charged to the grant(s) as a percentage of direct labor charges per the FTA-approved “Indirect Cost Rate.” Office of Management and Budget’s Circular A-87 will be used to determine eligible costs under an FTA grant.

Grant expenditures posted in the accounting system will be supported by documentation such as vendor invoices, requisitions, purchase orders, 3rd party contracts, payroll registers, timesheets, etc.

3.4.9 Processing Payables

There are three basic types of payables, which are processed for payment utilizing two different sets of procedures.

3.4.9.1 Purchase Order and Direct Payments

Purchase order payments represent the processing of payments for goods and/or services acquired through the RTD purchasing department and purchases made by authorized representatives using Procurement Cards. Direct payments refer to the processing of payment for items such as utilities, petty cash, freight, permits, postage, training materials and publications which are not acquired through the procurement department. Although included in this category, payments related to the acquisition of real estate and/or property relocations will follow the procedures for “contract payments.” The amount of payments for real estate and/or property relocations will be determined in accordance with the procedures outlined in the Real Estate Acquisition Management Plan (RAMP).

All payments shall be in compliance with the applicable Hawaii Statutes, administrative codes, and departmental procedures. With the exception of real estate items, billing requests for purchase orders and direct payments will be mailed or hand delivered to the RTD Chief Administrative Officer for approval. Approved requests are forwarded to the Budget and Fiscal Services Environmental and Transportation Department for payment.

3.4.9.2 Contract Payment

Contract payments requests are processed similarly to direct payments except that billing requests are sent to the Chief Project Officer who reviews and forwards approved billing requests to the RTD Project Executive. Approved requests are sent to the Chief Administrative Officer for a “pre-audit” by the RTD Contract Administration and Accountant. A copy will also be provided to the RTD Chief of Project Controls. The Contract Administration department will forward a copy of the approved payment request to the Budget and Fiscal Services Construction and Maintenance Department for payment. Payment is expected to be made within thirty (30) days after RTD approval of invoices.

3.4.9.3 Contract Pre-Audit

Contract Pre-Audit is a financial analysis of contractor pay-requests to determine mathematical accuracy, financial appropriateness and whether the submitted costs are allowable and reasonable costs, prior to payment. Different process are utilized in the audit to reflect the different contract types, fixed price, cost plus fixed fee or bill rate contracts.

Fixed Price Contracts. Contractor pay requests will be reviewed against the percentage of completion for the contract line items and whether the percent complete proposed is approved by RTD and is mathematically accurate. The status of change orders and contract modifications will be investigated to determine the current contract amount and total payments will be reviewed to verify the contract balance.

Cost Plus Fixed Fee Contracts. These contracts require billing for services rendered and typically include direct labor, overhead, subconsultant costs, reimbursable expenses and fixed fee. In addition to the above mentioned procedures the review includes a determination of whether the costs are allowable and reasonable, and that documentation required by the contract is submitted with the payment request.

Bill Rate Contracts. These contracts require billing for services rendered using the agreed upon bill rates. Processing of bill rate payment requests includes verification that the bill rate specified in the contract documents are correctly applied which is in addition to the procedures described above.

3.4.9.4 Approval/Files

All work orders, encumbrance requests and disbursements require the prior written approval from RTD Project Controls, Contracts, Grants Management and Accounting personnel. In addition, the RTD Accounting staff maintains files of all paid vendor/contractor invoices together with a detailed history of all disbursement by vendor/contractor.

3.4.10 City Labor

Where City labor is to be charged to a force account activity line item under an approved FTA grant, time sheets will be used to distribute labor charges to appropriate cost codes.

A work authorization system will be established by which City units submit requests for City labor work which are subsequently reviewed and approved by the PExec, prior to charges being made against the Project. These work authorizations typically cover a one-year period and are reported through the Cost Control Report based on information contained in the various City accounting reports.

3.4.11 Accounting for Construction Contracts

Construction contract units will be determined during PE and Final Design. Payment is made only for acceptable work, verified "in-place." Variations in unit quantities, contract milestones and other contract deliverables will be handled in accordance with the contracts' terms and conditions.

Each contractor monthly invoice subtotals the "payment this period" and "payment to-date" for each contract pay item. The GCM will be responsible for verifying that invoice quantities were installed in accordance with the contract documents prior to recommending payment. Recommendations for payment will be reviewed and audited by RTD prior to payment.

3.4.12 Contingency

The Project Budget allows for a contingency line item that is calculated based on the forecast costs of outstanding project risks (see the Risk Management Chapter 13) and covers:

- Areas of the budget estimate that have not been fully defined, as well as cost and quantity inaccuracies;
- Unforeseen escalation allowances over and above predicted increases in the cost of materials, labor and services, and the rate of exchange; and
- Overruns in terms of time and cost in critical areas during project execution;

The contingency will be recorded in a separate cost account. Drawdown against the contingency is subject to approval by the PExec. During the execution of the Project, the contingency allowance will fluctuate as the total project estimate is continually reviewed and revised; and the risk areas are eliminated, or new risks are identified. The status of the contingency will be included in the cost control report.

An attachment to the Cost Control Report, for limited distribution only, will provide a quantification and allocation of the contingency amount, as described in Chapter 13.

3.4.13 Funding Sources

The funding for this Project is expected to be derived from a combination of FTA New Starts funds and revenues from the 0.5 percent GET surcharge.

3.5 Progress Reporting

Progress reports will be disseminated in a timely fashion in order to allow project management to make rational decisions. Progress reporting will be accomplished through several basic reporting formats - the updated Master Project Schedule, the Monthly Progress Report, Quarterly Progress Reports, DBE Program Reports, and regularly scheduled project progress review meetings.

3.5.1 Responsibility

The primary responsibility for producing the progress reports rests with the Chief of Project Controls with input from RTD staff, the GEC, and the GCM. Unless approval

authority is delegated to the PExec, only reports approved by the DTS Director are submitted to the FTA.

3.5.2 Monthly Progress Reports

The Monthly Progress Report will be prepared by the Chief of Project Controls and will be issued under the DTS Director's signature. The report will be distributed to the RTD's key positions, the FTA, and the PMOC.

The Monthly Progress Report will consist of a transmittal letter and sections that detail accomplishments during the period and planned accomplishments for the coming period. The report will include attachments such as the latest Master Summary Schedule and cover the following topics.

- Project budget versus expenditures;
- Projections of costs to complete and total cost;
- Progress made to date versus schedule progress;
- Issues and changes;
- Safety updates;
- Quality updates;
- Design changes under consideration;
- Financial status of the Project;
- Cash flow status and projections; and
- Any anticipated funding shortfalls.

The monthly status reports generally are produced in two formats: a summary report for the benefit of the Project's funding agencies; and a more detailed report directed to the Project participants with narrative descriptions of progress, status, cost and schedule, and other issues as listed above.

3.5.3 Quarterly Progress Reports for FTA Grants

Once federal funds are provided, the RTD will prepare and submit Quarterly Progress Reports required by FTA Circular 5010.1C to FTA, inclusive of a quarterly report, via FTA's internet-based Transportation Electronic Award and Management system (TEAM-Web) offices.

Quarterly progress reports will provide the following:

- Narrative comments on each budget line item for the Project;

- Discussion of budget or schedule changes not requiring FTA approvals that were made during the past quarter;
- Comparison of scheduled activities and budgeted expenditures with actual accomplishments during the report period including, status of bid documents completion dates, bid solicitation, resolution of bid protests and contracts awarded;
- Financial Status Report including an analysis of significant project cost variances;
- Discussion of completion and acceptance of construction, procured equipment, and other work, together with a breakdown of costs incurred and costs required to complete the Project;
- Reasons why any scheduled milestones or completion dates were not met, identifying problem areas and discussing how problems will be resolved;
- Discussion of expected impacts of project delays and the steps being implemented to minimize such impacts;
- List of all outstanding claims in excess of \$100,000 and all claims settled in the report period, with a brief description of the claims and their causes;
- Projected activities for the next quarter and steps planned for carrying them out;
- Expected or projected changes in scheduled activities;
- Pertinent graphics and photographs;
- Change Order Status;
- Safety; and
- Quality Updates.

3.5.4 DBE Program Reports

Following the close of each calendar month, the RTD will submit a DBE Program Progress Report to the TPD. The TPD will use the information contained in the report to prepare the required semi-annual report, *Uniform Report of DBE Awards or Commitments and Payments*, pursuant to 49 CFR Part 26.

3.6 Progress Review Meetings

3.6.1 Coordination Meetings/Progress Meetings

During the life of the Project, management, design, and construction meetings will be held either bi-weekly or more frequently as the need arises. These coordination/progress meetings will be held to discuss planning, design and coordination issues. On a monthly basis, these meetings will review the schedule and progress payments. An agenda will be prepared and distributed in advance of each

meeting. Meeting minutes with action items will be prepared within one week following each meeting. The minutes will identify and track issues, actions and responsibilities and identify date, time, location and attendees. Responsibility for preparing meeting minutes will rest with the entity conducting the meeting.

3.6.2 FTA Quarterly Project Management Meetings

During PE and throughout the duration of the Project, quarterly project management meetings will be held to discuss pertinent issues and problems. There is no pre-set date for the meetings, which are scheduled by the FTA through its PMOC. It is assumed that the location for the quarterly meetings will alternate between Honolulu and the FTA's regional office in San Francisco. The PMOC prepares minutes of the meetings and the RTD tracks action items until their submittal to FTA.

3.6.3 Outside Agencies

Special purpose meetings will be held frequently with outside agencies, stakeholders, and designers of facilities that will be close to or in the same space as Project facilities. These meetings generally will be organized around an agenda, result in conclusions or assignments, and will be documented in meeting minutes.

3.6.4 Design Coordination / Progress Meetings

Design coordination/progress meetings are discussed in Section 6.6.3, Bi-Weekly Design Coordination/Progress Meetings.

3.7 Document Control

3.7.1 General

The Document Control Manager is responsible for making certain that the integrity of Project records is maintained and that documents are stored, retrieved, reproduced and distributed efficiently and in accordance with project guidelines. The Configuration Management Chief is responsible for maintaining the current approved configuration of the system. The Document Control Plan will set out detailed procedures for records management. The Project uses standard file indexing to provide a disciplined and appropriately structured document control system. All incoming and outgoing correspondence is sequentially numbered and logged. Project files are kept in standard filing cabinets in accordance with a frequently updated filing index. Access to master files is restricted primarily to document control staff. Appendix E provides details on the Project Filing Procedure.

The Engineer of Record (EOR) will submit original drawings on mylars for long-term storage, to be kept in fireproof cabinets for safekeeping. In addition, in a separate storage unit, the complete CADD files of all conformed drawings will be stored on

CD-ROM. Intermediate drawings, such as design review drawings, will be retained in flat files for a period of three years after the date of submission of the expenditure report upon project completion or after completing action on any litigation or claim, whichever date is later. After the expiration of the retention period, such drawings will be disposed of in accordance with current City policies for such material. All Project drawings will be logged in a master drawing log. This log will contain a complete history of revisions for each drawing. Detailed document retrieval procedures are provided in Appendix F.

Routine reproduction of drawings will be the responsibility of the document control staff. For additional details, see Appendix G. The document control staff will be responsible for distribution of reproduced documents. The distribution of controlled documents will be documented and logged to facilitate the distribution of future revisions.

At project close-out, the Chief of Project Control will coordinate long-term storage with the City's Municipal Reference and Records Center. Documents will be stored in accordance with State and Federal guidelines. DTS will comply with the FTA's record retention requirements pursuant to 49 CFR Part 18.36 (i)(11).

3.7.2 Contract Document Transmittal Reviews (CDTs)

Document Control and Configuration Management staff will maintain records of consultant and contractor submittals. The EDC(s) and the GCM will assist with the review of submittals and perform quality control surveillance. The GCM and EDC(s) will log all Contractor submittals. Copies of all transmittals will be sent to the RTD Project staff. By written agreement with the EDC(s), the review cycle will be consistent with construction contract specifications. The EDC(s) will maintain a record of all pertinent dates for each CDT submittal. Rejected submittals will trigger a meeting with the contractor to resolve any difficulties and assure prompt approval upon re-submittals. After completion of the contract, the EDC(s) will box and catalog all CDTs and transmit them to RTD. CDTs will be stored for a period of three years after final contract acceptance. After the expiration of the retention period, such material will be disposed of in accordance with current City policies for such material.

3.7.3 Project Record Documents

Project Record documents are the extension of the baseline. Project Records may include but not be limited to the following:

- Correspondence
- E-mail
- Design Standards
- Project Management Plan
- Safety and Security Management Plan
- Quality Plan
- Policies and Procedures
- References
- Reports
- Studies
- Drawings
- Specifications
- As-Built Drawings
- Contract Conformed Documents Amendments and Revisions
- Requests for Information
- Change Control Documentation
- Budgets
- Estimates
- Schedules
- Project Reports
- Communications
- Operations & Maintenance Manuals
- Parts Manuals
- Training Manuals
- Shop Drawings
- Construction Permits
- Warranties and Guarantees
- Construction Photographs
- Additional Reference Records (Design Reviews, Field Office Correspondence, Inspectors Daily Reports)

The construction contractor(s) will be required to maintain accurate, up-to-date as-built drawings in accordance with the contractor's RTD-approved Quality Control Program Plan. Periodically, the resident engineer will inspect the as-built drawings.

Once the Contractor submits the as-built drawings, the General Construction Manager will perform a preliminary review to determine compliance with contract requirements (stamped "as built", dated, signed, etc.). The drawings will be sent to the Engineering Design Consultant for more detailed review prior to being transmitted to the Chief of Project Control for final review and acceptance. As-built drawings will be retained for the life of the structure.

The GCM will be responsible for expanding the configuration management program to cover the needs of documentation of final designs, as-built documents and other construction phase records. An electronic filing system will likely be used for many of these documents, and the City's current Xerox DocuShare system is being considered. A selection of the records storage system for final design and construction will be made jointly by TRD and the GCM.

4.0 PROCUREMENT AND CONTRACTS

4.1 General

The City's procurement approach under HRS Chapter 103D is designed to foster free and open competition and to ensure efficient and economic purchase of goods and services. The RTD will comply with the BFS Policies and Procedures Manual for procurements and contracts and FTA Circular 4220.1E, Third Party Contracting Guidelines, as amended. As a result of an FTA Procurement System Review in February/March 2007, the BFS and the DTS are in the process of establishing and revising, as may be appropriate, procurement policies and procedures to ensure that the requirements for all FTA-assisted third-party contacts are met.

Whenever possible or practicable, even when competitive quotations or bids are not required, RTD will attempt to solicit competitive bids in adherence with City procurement policy. Purchases will not be parceled by dividing the purchase of same, like or related items to several purchases of smaller quantities, so as to evade the statutory requirements for competitive sealed bidding. The purchase price must be fair and reasonable.

4.2 Responsibility

Contract administration services will be the responsibility of the RTD Contract Administrator under the supervision of the RTD Chief Administrative Officer.

4.2.1 Organization/Interfaces

Contract administration support will be provided to the Chief Project Officer, Chief Architect, Chief Facilities Engineer, Chief Systems Engineer, Chief of Project Controls and Chief of Transit Planning and Environmental Studies. Contract administration support will be coordinated, not only with these Chiefs, but also with the following individuals/entities:

- RTD Grants Manager;
- RTD Accountant;
- Budget and Fiscal Services Manager;
- Construction Managers and project Engineers;
- Consultants and Contractors;
- TPD DBE Liaison Officer (DBELO);
- COR; and

- Other City and County Departments as required.

4.3 Procurement

The following sections describe the RTD approach to the procurement of professional services (including architectural and engineering services), and materials and equipment.

4.3.1 Procurement of Professional Services

Non-federally funded procurements of professional services will be conducted pursuant to HRS Sections 103D-302 (competitive sealed bidding), 103D-303 (competitive sealed proposals), 103D-304 (qualification-based proposals), 103D-305 (small purchases), 103D-306 (sole source), or 103D-307 (emergency); the Hawaii Administrative Rules for HRS Chapter 103D (“HAR Title 3”), and BFS Policies and Procedures.*

Qualifications-based competitive proposal procedures of HRS Section 103D-304 will be used only when contracting for FTA-assisted architectural and engineering services as defined in Title 40 United States Code (USC). Section (§) 541 and 49 USC §5325(b).

All other FTA-assisted professional services contracts will be procured following the HRS Sections 103D-302, 103D-303, or 103D-305 and HAR Title 3 to the extent the local requirements conform to applicable federal law and FTA Circular 4220.1E, Third-Party Procurement Guidelines. The Federal requirements will prevail in cases where there the local requirements do not conform to the Federal requirements.

Procurements for professional services are announced on the City’s website at <http://www.honolulu.gov/pur/>.

4.3.2 Procurement of Equipment and Materials

4.3.2.1 Equipment

Equipment is generally procured through a competitive low bid process. Highly specialized equipment, such as vehicles, will be procured through a competitive negotiation (RFP or RFQ/ RFP).

4.3.2.2 Materials and Supplies

Purchase of materials and supplies is accomplished either by contract or purchase order (PO) procedures. These purchases tend to be more routine and smaller in value than most other procurements and competition for items less than \$25,000 is secured

under small purchase procedures by verbal or written quote. In other cases, a bid or RFP process will be used.

4.3.2.3 **Owner-Furnished Material**

Some equipment and material such as vending machines or power rail may be purchased by the RTD and turned over to the contractor(s) for installation. This procurement approach can be used for “long lead” items, or to achieve economies of scale. RTD will determine what, if any, materials will be owner-furnished during final design and construction.

4.3.2.4 **Material Storage and Security**

Prior to entering into construction the RTD will establish procedures for the receipt and storage of all spare parts and material procured for the Project. The procedures will address material and equipment receiving, inspections and storage. The RTD will be responsible for warranty administration of in accordance with the applicable contractual requirements. The civil contractor(s) are responsible for the delivery and storage of equipment and materials as delineated in the contract terms. The Chief Project Officer may elect to employ the services of other City divisions for verification or may elect to have the General Construction Manager perform this work.

4.4 **Construction Contract Preparation and Award**

The RTD will be responsible for the day-to-day management of the contractor selection process. RTD will comply with the policies and procedures developed by the BFS and all relevant federal acquisition requirements as identified in Federal Circular 4220.1E. Relevant local references include:

- Revised Charter of the City(RCH) Section 6-303, 7-106, 9-301;
- ROH 14-25.6; and
- HRS Chapters 103, 103D, 104 and 444.

The relevant federal references may be found at http://www.fta.dot.gov/laws/circulars/leg_reg_4063.html.

In accordance with those procedures, RTD will prepare a "Request to Advertise" to seek approval from the Chief Procurement Officer prior to advertising every contract. This request must be approved by the Department of Budget and Fiscal Services. RTD with the support of the GEC will prepare appropriate plans and specifications. RTD supported by the GEC will coordinate all requests for additional information or

clarifications during bidding as well as the preparation of addenda. The RTD will coordinate with the GEC on the actual preparation of addenda documents.

Bid protests are handled in accordance with Hawaii Revised Statutes and Administrative Rules including:

- RCH, '6-303,'7-106 and '9-301;
- ROH, '14-25.6;
- HRS, Chapters 103,103D, 104,44; and
- HAR, '3-125-5,'3-126-3, '3-126-3(e), '3-126-7(a), 3-126-8(b), 3-126-7(c).

Once bids are opened, they are evaluated in accordance with the contract requirements and against the City's estimate, which is prepared prior to bidding. Once the decision is made to award, RTD will prepare an "Award Recommendation" form. All bid awards are subject to the approval of the Chief Procurement Officer. This cycle of award is depicted in Figure 7: "City Chart for Processing Construction Contracts Change Orders," taken from the BSF Policies and Procedures Manual.

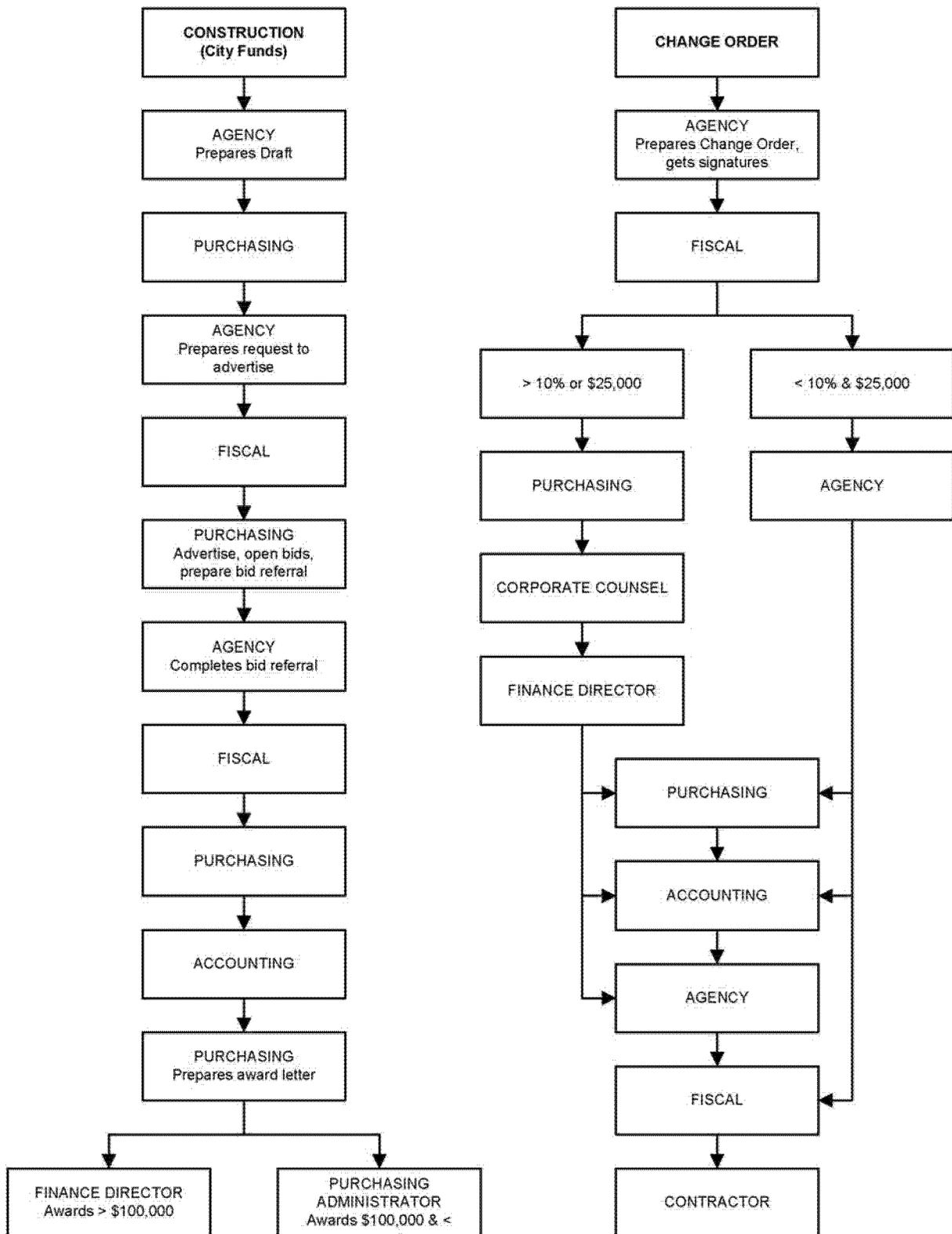
4.5 Processing of Invoices

The processing of invoices is discussed in Chapter 3.0 of this PMP.

4.6 Processing of Change Orders

Processing of claims is covered in Chapter 11.0, Claims Management of this PMP. RTD's Change Control Procedure is currently under development and will cover the roles of RTD, the GEC, the GCM, and the contractors at various stages of the project. All changes and or contract modifications for professional services contracts require the approvals of the COR and the BFS Director. Construction change orders over 10% of the original contract amount, or \$25,000 and above are subject to review by the COR and the BFS Director' approval. Claims and delays in excess of \$100,000 shall be routed to the BFS Director and the DTS Director for review and approval prior to execution.

Figure 7: City Chart for Processing Construction Contracts and Change Orders



4.7 Grants Administration

The project is expected to be primarily funded through two sources: FTA Section 5309 New Starts Funds and revenues from the dedicated 0.5 percent GET surcharge. It is the responsibility of the Grants Administrator to make certain that expenses incurred against federal grants are appropriately recorded and the Project's financial status is appropriately reported to FTA. FTA funds will be drawn by the BFS Fiscal Services Branch using the internet-based Federal Electronic Clearing House Operation system (ECHOWeb) after third-party invoices are approved for payment. The quarterly Milestone/Progress and Financial Status Reports are submitted to the FTA using Transportation Electronic Award and Management Web (TEAM-Web) system. The TEAM-Web system is a project and financial management application that was designed and developed to fulfill government mandates for increased accessibility by the public to Federal Assistance Programs and the replacement of paper-laden processes with electronic processes. The RTD with the support of the BFS Fiscal Services Branch will maintain all necessary records regarding grant revenues, any program income, and outlays in accordance with the requirements of FTA Circular 5010.1C.

4.7.1 Budget Revisions and Amendments

The Grants Administrator prepares budget revisions or grant amendments, as needed. Budget revisions will be submitted to FTA via TEAM-Web after review by the PExec and approval by the DTS Director. Grant amendments must first be approved by a resolution adopted by the City Council before submittal to FTA via TEAM-Web by an authorized City user. RTD's Grants Manager and the Project Executive are authorized users of the TEAM-Web system.

4.8 Project Closeout

When the Project is completed, the Grants Administrator will assist the PExec by preparing closeout documents: a final Financial Status Report; a final budget; a final narrative milestone/progress report; a request to deobligate any unexpended balance of Federal funds; and any other reports required by the FTA. The DTS Director will approve any deobligation amount prior to submittal of the closeout documents via TEAM-Web. In accordance with the FTA's records retention requirements contained in FTA Circular 5010.1C, all project-related files will be retained for a three-year period, regardless of whether a phase receives FTA assistance.

4.9 Contract and Wage Rates Compliance

The Chief Administrative Officer will be responsible to assure that construction contractors comply with the City's Fair Employment and Labor Practice requirements. The Chief Administrative Officer will direct appropriate RTD staff and/or consultants to perform the following:

- Not less than quarterly review of Contractor-submitted Certified Payrolls for Davis-Bacon compliance;
- Interview Contractor/subcontractor employees, at least quarterly, to verify accuracy of Certified Payrolls;
- Administer/resolve any contractor Department of Labor violations in accordance with applicable regulations and laws;
- Prepare reports as necessary to record and monitor contractor compliance; and
- Otherwise monitor the contractor(s)' activities to ensure compliance with all applicable regulations and laws.

The city does not intend to be a participant in the resolution of disputes between labor unions and construction contractors.

HRS Chapter 104 (Wage & Hours for Employees on Public Works Law) applies to any State and county public works construction project even if Federal assistance is received for the project. Generally speaking, HRS 104 has a higher standard than Davis Bacon. For example, there are more holidays under HRS 104. The City's General Conditions (July, 1999) for construction contract states:

"Federally funded or federally assisted projects. On federally funded or federally assisted projects, the current federal wage rate determination in effect at the time of advertising for bids is incorporated as part of the contract, and both Federal and State wage rates shall apply. Where rates for any class of laborers and mechanics differ, the higher rates shall prevail. The minimum federal wage rates shall be those in the U. S. Department of Labor Wage Determination Decision and Modifications in effect ten days prior to the bid opening date.

A copy of the wage rate determination, (including any additional classification and wage rate conformed under 29 CFR 5.5a(1)(ii)) and Davis-Bacon poster (WH-1321) shall be posted at all times at the site of work in a prominent and accessible place where it can be easily seen by the workers."

Detailed information on Davis-Bacon rules, including rates, can be found at <http://www.gpo.gov/davisbacon/index.html>. Detailed information on HRS Chapter 104 rules, including rates, can be found at <http://hawaii.gov/labor/rs/>.

5.0 ENVIRONMENTAL ASSESSMENT AND MITIGATION

5.1 General

Environmental mitigation measures will be identified during the EIS work which will be completed in conjunction with PE. The City and FTA issued a notice of intent to complete an EIS and completed scoping for the EIS in May 2007. The City will request approval from FTA to begin the preliminary engineering phase of the Project (the portion of the LPA that will be constructed as the First Project extending from East Kapolei to Ala Moana Center). The EIS evaluation, which will be conducted for the entire length of the project including the First Project alignments and the eastern and western alignment extensions, will be submitted to the FTA. Once these documents have been accepted by FTA (via Record of Decision), a complete list of all impact mitigation measures committed to by the Project in the environmental documents will be included in the development of an environmental mitigation monitoring plan to be updated and implemented as final design and construction continue. Mitigation commitments included in the environmental documentation will be incorporated into the design/bid/build and/or design/build contract documents.

5.1.1 Alternative Analysis/Draft Environmental Impact Statement

The City Council received the Alternatives Analysis Report (AA) for the Project dated November 1, 2006 that evaluated four alternatives to provide high-capacity transit service in the travel corridor between Kapolei and UH Manoa. The City Council selected a fixed-guideway transit system extending from Kapolei to UH Manoa with a connection to Waikiki as the Locally Preferred Alternative (LPA) on December 22, 2006. The selection of the LPA was signed into law by the Mayor on January 6, 2007, becoming Ordinance 07-001. On February 27, 2007, the Honolulu City Council gave final approval to the mass transit Minimum Operable Segment, the First Project of the LPA. Per the direction established in Ordinance 07-001, the City is initiating development of the Draft EIS (DEIS) on the First Project and future extensions consistent with the LPA that will satisfy the requirements of NEPA and its implementing regulations as well as Chapter 343 of the HRS. Following the NEPA scoping period, the City is continuing design on the Fixed Guideway Transit Alternatives to the level necessary to identify impacts and prepare the DEIS. Environmental consequences of the alternatives will be identified in the DEIS, which will be distributed for public and agency comments.

5.1.2 Final Environmental Impact Statement

The FEIS of the Project addresses comments and questions generated from the public reviews of the DEIS. Comments received on the DEIS will be incorporated into the FEIS along with identification of the preferred alternative. This phase of the study may require additional analysis and refinement of the selected First Project of the LPA, including design and alignment resulting from the DEIS. The completion of the Project's financial plan, project costs, benefits, and impacts focusing in the scope of mitigation measures to minimize environmental, socioeconomic and transportation impacts are also included in this phase of the environmental analysis. DTS will provide firm commitments to implementing required mitigation measures specified in this document. The NEPA Record of Decision and State Acceptance of the FEIS under Chapter 343 of the Hawaii Revised Statutes will conclude the environmental review process.

5.1.3 NEPA Development in Preliminary Engineering

The NEPA process for the Project will be completed during the PE phase of the Project. During this phase, the environmental analysis will focus on addressing comments and questions generated from the public reviews of the AA, DEIS, approved LPA and the FEIS. Environmental activities may also include more detailed refinement of the selected LPA with a much higher degree of confidence to the extent necessary to complete the NEPA process.

5.2 Environmental Coordination

RTD will coordinate the planning and environmental studies, and will supervise the scope of work, methodology and technical results of the different tiers of analyses associated with each environmental study phase (AA, DEIS, FEIS). The coordination effort will also require conformity with state and federal agencies requirements. This activity includes coordination with FTA, Hawaii DOT, US Environmental Protection Agency (US EPA), inter-agency coordination with Oahu Metropolitan Planning Organization (MPO), City and County of Honolulu Department of Planning and Permitting, State of Hawaii Department of Health's Office of Environmental Quality Control, Department of Hawaiian Home Lands, Department of Land and Natural Resources, Native Hawaiian organizations, private and local entities, and the public involvement process. The coordination activities include all transportation/environmental inputs originating with other organizations involved with and/or impacted by the Project.

RTD will supervise the above-mentioned activities and have weekly meetings with the GEC team that is preparing the environmental documentation.

5.3 Planning Consultant Team

The planning work will be carried out by the GEC which is organized by discipline, with key personnel responsible for each discipline. The GEC is headed by a prime consultant, and sub consultant firms specializing in a full range of disciplines. The GEC Project Manager is responsible for all work conducted by the consultant team and reports to the RTD PExec.

5.4 Codes and Standards

Contract Documents will be prepared in conformance with the technical requirements, methodology, state-of-the-art analytical procedures and professional best practices, required to ensure compliance with:

- Federal Transit Administration New Starts process;
- National Environmental Policy Act process; and
- Chapter 343, Hawai'i Revised Statutes process

5.5 Planning and Environmental Activities

The following major activities will be developed and documented at different levels of detail as part of the planning and environmental reports (AA, DEIS, FEIS):

- Purpose and Need for Action;
- Description of Alternatives evaluated including LPA;
- Affected Environment;
- Transportation Impacts
- Environmental Consequences;
- Financial Analysis;
- Comparative Benefits and Costs; and
- Comments, Consultation and Coordination.

The environmental analysis results will provide accurate information and assessment on expected impacts, as well as mitigation actions on the following subjects:

- Socioeconomic and Land Use;
- Environmental Justice;
- Utilities;
- Relocation impacts;

- Archaeological and Historic Resources;
- Pedestrian and Bicycle Facilities;
- Parklands and other Recreational Facilities;
- Visual and Aesthetic impacts;
- Air Quality;
- Noise and Vibration;
- Energy;
- Water Resources;
- Wildlife and Habitat;
- Farmlands;
- Geology and Soils;
- Contamination Impacts; and
- Impacts during Construction.

In particular, the analytical process on transportation impacts involves, among others, the development of the following tasks: transit analysis; traffic analysis; capital, operating and maintenance cost estimates; ridership forecasts (travel forecasting process); level of service analysis; public meetings; public hearings; response to comments; and quality assurance / quality control tasks. Each major activity will be thoroughly documented in thematic chapters included in the report for further reviews and comments.

5.6 Study Review and Records Control

The submittals will consist of technical reports exhaustively documenting all pertinent information, methodology, analytical tools and results at the completion of the major activities listed above. Reviews will be performed during and at the completion of each chapter and records of all key communications, decision and actions will be maintained. The compendium of revised chapters will be submitted to RTD as a draft report to evaluate its conformity with FTA and NEPA processes. In addition to the Alternatives Analysis and Locally Preferred Alternative Report, two major documents remain to be completed:

- Draft Environmental Impact Statement
- Final Environmental Impact Statement

A revised report on the FEIS may be developed during Preliminary Engineering, if necessary, to address comments and recommendations resulting from public hearings and/or technical refinements during design works.

As stated by FTA, once the DEIS has been completed and signed, a Notification of Availability (NOA) is published in the Federal Register by FTA and advertised by RTD through local media to solicit public comment. The DEIS is circulated to those agencies with jurisdiction by law, parties that have expressed an interest, either through the scoping process or in response to the NOA, and other entities potentially affected by any of the alternatives. The circulation period must last a minimum of 45 days and a public hearing must be held with at least 15 days prior notice. After completion of the DEIS circulation period, the FEIS will be prepared, including appropriate responses to all comments, commitments and adjustments received. Once the FTA has approved and signed the FEIS, it is then filed by FTA with the US EPA for publication of a Notice of Availability for a 30-day circulation period in the Federal Register and it is distributed and advertised through local media by RTD. Following completion of the circulation period, FTA may issue a Record of Decision stating that the NEPA process has been completed for the project. At this point, RTD may proceed, starting the process to enter into Final Design.

5.7 Brief Description of the Role of the General Engineering Consultant Team (GEC)

The GEC scope of services includes tasks associated with the preparation and submittal of the DEIS and subsequent FEIS. According to the scope of services, the consultant will provide professional and technical services to accomplish the following tasks:

- Transit Analysis and update;
- Development of the No-Build Alternative;
- Traffic Analysis and update;
- Capital, Operating, and Maintenance cost estimates;
- Environmental Analysis / Impacts;
- Air Quality analysis;
- Noise and Vibration assessment;
- Contamination;
- Cultural Resources;
- Travel demand modeling/forecasting

- Prepare Project DEIS;
- Meetings and Project Control – DEIS/FEIS;
- Respond to Comments – DEIS;
- Public Meetings and Public Hearings – DEIS;
- Prepare FEIS;
- Respond to Comments – FEIS; and
- Quality Assurance / Quality Control.

The DEIS/FEIS documents will address all the physical, social and economic impacts identified during the environmental/planning phase of the project.

5.8 Environmental Mitigation Monitoring

The FEIS for the Project describes mitigation measures that will be implemented as part of the Project. The Record of Decision will include the identified mitigation commitments to be implemented during final design. The ROD will summarize the potential effects of the project, the measures to be taken to mitigate those effects, the monitoring action and condition of approval required to insure that the measures are implemented. The ROD will also identify the parties responsible for implementation and the key milestones for implementation.

The mitigation management process will require close coordination between RTD, the Design Consultants, the General Construction Manager, and State and Federal regulatory/resource agencies. The management process will ensure that mitigation measures identified in the environmental documents are effectively incorporated into the construction plans and specifications. The mitigation management process will continue through construction to assure that mitigation measures requiring construction implementation are incorporated into the construction documents and implemented.

6.0 DESIGN MANAGEMENT

6.1 General

Design Management is an integral part of the design of every project and will be a key to the success of the First Project. Design Management will involve continuous monitoring of the design process governed by detailed and specific design review procedures. These procedures will establish the manner in which design review is to take place as well as the designated control points during the design activities at which these reviews will occur. As part of the design review procedures, established methods will be set forth to control changes to the Project's scope.

The primary objective of Design Management is the carefully monitored development of a detailed, high quality design that adheres to the project's budget and schedule while concurrently ensuring regular reviews by all appropriate groups, departments and agencies. The goal is to produce technically precise, comprehensively reviewed contract documents for the bid phase and ultimately the construction phase of the Project. The RTD will be responsible for overseeing this Design Management function of the Project. Within the RTD, this oversight responsibility will be vested in the Chief Project Officer.

6.2 Design Phases

There are two main phases that make up the design process: Preliminary Engineering and Final Design as described in the following sections.

6.2.1 Preliminary Engineering

The Preliminary Engineering phase of project development has historically been defined as the phase which takes a project from a planning state and brings it to approximately 30 percent level of design completion. The Project will follow FTA's definition of the PE phase within the New Starts program expressed as the process of finalizing the project definition/scope, cost and the financial plan such that:

- All environmental impacts are identified and adequate provisions made for their mitigation in accordance with NEPA;
- All major or critical project elements are designed to a level that no significant unknown impacts relative to their costs will result; and
- All cost estimating is complete to a level of confidence necessary for the project sponsor to implement the financing strategy, including establishing the maximum

dollar amount of the New Starts financial contribution needed to implement the project.

The above definition does not mean that all design must be completed in Preliminary Engineering. Rather, the definition means that engineering and other issues such as third party coordination are advanced such that the cost estimating process can specifically identify the main components of the Project and add sufficient contingencies to cover the remaining design and cost uncertainties that will be addressed in Final Design.

6.2.2 Final Design

Upon satisfaction of the items described above, referred to as PE Exit Criteria, and compliance with all applicable environmental requirements, the RTD will request the FTA's approval for entry into Final Design. Upon FTA approval, Phase II of the First Project will enter the Final Design Phase which is the last phase of project development prior to construction. The Final Design work within the New Starts program involves the completion of the project's definition, including resolution of design and/or market uncertainties through refinement and elimination of minor uncertainties associated with design scope, and through the procurement process with the receipt of bids and the elimination of minor market risk.

During Final Design, final drawings, technical specifications, and contract documents required to obtain a construction contract will be prepared. During this phase an engineer's estimate is prepared, an analysis of the construction bids is performed, and real estate acquisitions continue.

6.3 Design Management and Coordination

The Design Management and Coordination effort will be carried out by the RTD, which will be involved in coordinating the objectives of the Project as defined in the Planning Phase and coordinating with all the project stakeholders, both external agencies and DTS staff, as well as the public at large, identifying the needs for and coordinating Joint Participation Agreements as required, and supervising and coordinating all day-to-day design activities. The Division work force organization is described in Chapter 2.0 of this PMP. The RTD PExec will be responsible for all work conducted by the RTD team and will report directly to the DTS Director.

The RTD will manage the above activities by means of bi-weekly meetings with the GEC supplemented by more frequent meetings with individuals on specific issues and by design reviews at various control points. Coordination of the design will be achieved by joint technical meetings which will 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 Section 6.6, Design Reviews.

6.4 Engineering and Design Consultants

The GEC for PE/EIS will be organized by discipline with a hierarchy of key personnel responsible for each discipline. The GEC will be assisted by subconsultant firms specializing in a full range of disciplines. The GEC will produce design documents for Preliminary Engineering and a GCM will be selected for a similar role during Final Design. The GEC's Project Manager and Division Managers will 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 will be conducted with regular and frequent communication and interaction among the various subconsultant firms, their employees, the RTD, and City departments. Subconsultants will be responsible for conducting their designated work and producing their required work products. The GEC's Project Manager will be responsible for all work conducted by the consultant team and will report to the PExec and the Chief Project Officer.

The City will procure services of one or more EDCs for the Final Design phase.

The RTD will be responsible for the preparation of all required FTA deliverables for the Project in accordance with industry standards and FTA requirements. While holding responsibility, the RTD may assign some of the document preparation to the GEC or to other consultants yet to be designated.

6.5 Basis for Design

6.5.1 Compendium of Design Criteria (CDC)

An initial task of the GEC will be the preparation of the Compendium of Design Criteria (CDC) for the Project to ensure the project's design activities proceed in accordance with by both local and accepted industry standards. The CDC will be utilized as a key element of the Project's *Basis for Design*. Representative chapters will include *Systemwide Design Criteria*, *Guideway Design Criteria*, *Station and Station Site Design Criteria*, *System Equipment Criteria* and *Safety and Security Design Criteria*. Although it is anticipated that certain chapters of the CDC will be produced and submitted as completed, no design work will be permitted to proceed until the specific chapters governing those respective areas of the Project's design have been approved by the RTD. Further, once the CDC has been completed and approved, it will be maintained and updated throughout Preliminary Engineering and

Final Design to reflect approved changes and modifications to the Project's *Basis for Design*.

During the Project's design activities, it will be the responsibility of the GEC to identify, explain and justify any variance to the established design criteria and to secure the necessary approvals from the RTD's Design Control Board prior to proceeding with any non-CDC compliant design work. The Design Control Board will coordinate and distribute proposed changes to the appropriate reviewers, receive and document all review comments, determine the disposition of the proposed change, and distribute the result of that proposed change, including the modification(s) if required, to the specific chapters and sections of the CDC.

6.5.2 CADD Specification and Plans Preparation Guide

The GEC will prepare a specification for computer aided design and drafting (CADD) standards and procedures as well as a Plans Preparation Guide for the Project in order to standardize and guide the preparation of all drawings. Drawing work will not proceed until the GEC receives approval of the CADD Manual and the Plans Preparation Guide from the RTD. The application of the CADD Specification and the Plans Preparation Guide will continue in use during the Final Design and Construction phases of the Project.

6.5.3 Codes and Standards

All Contract Documents shall be prepared in full compliance with the Project's Compendium of Design Criteria and all applicable codes and standards, including, but not limited to:

- International Building Code (IBC);
- National Fire Protection Association (NFPA);
- National Electric Code (NEC);
- Rules and Regulations of the Americans with Disabilities Act (ADA);
- Federal, State and Local Accessibility Codes and Standards;
- American National Standards Institute (ANSI);
- Manual for Railway Engineering (AREMA);
- Statewide Uniform Design Manual for Streets and Highways (HDOT);
- Standard Plans and Specifications for Road, Bridge and Public Works Construction (HDOT);
- Standard Details, Specifications and General Provisions for Public Works Construction (C&C of Honolulu);
- American Institute of Steel Construction (AISC)

- Traffic Standards Manual (C&C of Honolulu); and
- Guide Specifications for Design and Construction of Segmental Concrete Bridges (AASHTO).

6.5.4 Facility Program Requirements

Coincident with the preparation of the Compendium of Design Criteria, the GEC will prepare Facility Program Requirement statements for each facility to be included in the Project. These statements will include a listing and proposed size of all spaces to be contained within each facility; stations, station sites, yard and shops facilities, traction power substations, etc. These initial programmatic statements listing each facility's spatial requirements will be submitted to the RTD for approval prior to the GEC's proceeding with the design of the Project's facilities.

During Preliminary Engineering, these Facility Program Requirements will be expanded to include finish material requirements, electrical and mechanical systems descriptions, enclosed equipment descriptions and other programmatic requirements. These statements of programmatic requirements will form a key element of the Project's *Basis for Design*, and once approved, may not be changed without action from the Project's Design Control Board.

6.5.5 General Plans & Outline Specifications

Once the programmatic requirements are established and approved, the GEC will proceed with the design work necessary to produce General Plans and Outline Specifications for all facilities. The drawings will include small scale site plans, facility plans, sections and elevations as required to fully describe each facility to a 30% level of design. Additionally, these General Plans and Outline Specifications will form an integral part of the Project's *Basis for Design* guiding the continuing detailed design to be undertaken during the Project's Final Design Phase.

6.5.6 Directive Drawings and Standard Drawings

Lagging the preparation of the General Plans, the GEC will prepare Directive Drawings utilized to further describe the Project's structures and facilities. In principle, these drawings will be utilized to describe similar or common design configurations and details that may be repeated throughout the Project. These Directive Drawings will enable the achievement of a 30% level of design completion, will establish a standardized approach to the Project's design configuration, and most importantly, will be utilized to guide and inform a consistent design effort by Section Designers and the Final Design GCM staff during the Final Design phase of the Project.

The GEC will also produce Standard Drawings for the Project's structures and facilities during the Preliminary Engineering phase. These drawings will describe configurations, assemblies, materials and details that are not to be changed or modified during the Final Design work without the express consent of the Design Control Board. These drawings will also ensure a consistent, standardized thus cost effective approach to much of the Project's design activity.

6.6 Design Reviews

6.6.1 Formal Design Reviews

Formal Design Reviews will be conducted by RTD staff, appropriate City and State departments including the Hawaii Department of Transportation (HDOT), utility companies, Federal agencies whose facilities are impacted and others who have technical input or coordination interests as appropriate. The design reviews will allow all parties to:

- Evaluate the design products (i.e., plans, specifications and estimates) as they progress;
- Measure them against applicable design criteria and standards; and
- Reassess the design requirements and solutions as the design evolves.
- Ensure ADA and safety and security requirements are incorporated.

City Departments and Entities that will review the design will include but not be limited to the following:

- Department of Transportation Services (DTS)
- Department of Design and Construction (DDC)
- Department of Planning and Permitting (DPP)
- Honolulu Police Department (HPD)
- Honolulu Fire Department (HFD)
- Department of Emergency Management (DEM)
- Department of Facilities Maintenance (DFM)

Outside agencies will review the design from the perspective of permit compliance and compatibility with existing features, facilities or planned development in addition to technical reviews. The RTD will pay special attention to design comments from outside agencies which may indicate potential problems in maintaining the Project schedule and/or budget.

Outside agencies would include but not be limited to:

- Federal Transit Administration (FTA)
- Hawaii Department of Transportation (HDOT)
- Hawaiian Electric Company (HECO) – electricity;
- Hawaiian Telcon (HT) – telephone;
- Board of Water Supply – water lines;
- Wastewater Branch – wastewater lines;
- The Gas Company – gas;
- Time Warner Cable (TW)- cable lines;
- AT&T – fiber optic cables;
- Sandwich Isles Communications Inc. – fiber optic cables;
- Department of the Navy – various utilities;
- Navy Public Works Center at Pearl Harbor;
- Department of the Army;
- Chevron Hawaii – underground petroleum lines; and
- Tesoro Hawaii Corporation – underground petroleum lines.

6.6.2 Timing, Purpose and Procedure for Design Reviews

Formal design reviews will be performed on the design work produced by the GEC. Once the *Basis for Design* is approved and individual packages have been identified, the design reviews will proceed on a package-by-package basis. These design reviews will be conducted on all contract units at the following Control Point milestone submittals:

- Preliminary Engineering (In-Progress and Final control points);
- Extended (New Starts) Preliminary Engineering;
- In-Progress Final Design (65 percent);
- Pre-Final Design Review (90 percent); and
- Final Design Review (100 percent).

The design documents expected at each control point are indicated in the GEC's professional service agreement for the Project. The design reviews occur under the supervision of the RTD Chief Project Officer. This effort will include review of design submittals to ensure:

- Adherence to the Project's Compendium of Design Criteria and Facility Program Requirements;
- Incorporation of the Project's established design directives and standards;
- Satisfaction of the applicable codes and standards;
- Accomplishment of the stated operational and functional requirements;
- That the designs are constructible and maintainable;
- That impact to adjacent facilities and systems has been satisfactorily addressed;
- That the designs adhere to the Project's budget and schedule requirements; and
- That the safety and security certification requirements have been met.

A standard review form will be sent to all reviewers as part of the review document submittal, at each control point, for their use in transmitting review comments back to the RTD Chief Project Officer. All comments received will be reviewed, verified, consolidated and transmitted to the GEC for evaluation, discussion and eventual incorporation into the design as warranted. Such evaluations and discussions with the GEC will be carried out through Comment Resolution Meetings held among the representatives who provided the review comments, the GEC, the RTD Chief Project Officer and RTD staff. The RTD Chief Project Officer will act as the coordinator for all design input originating from all groups, agencies or departments party to the review process.

The RTD will develop a systematic approach to the review of contract documents that will be documented in the Project's PEP's (Project Execution Procedures).

6.6.3 Bi-Weekly Design Coordination / Progress Meetings

Regular bi-weekly design coordination/progress meetings will be held. These coordination meetings will ensure efficiency in the design effort by facilitating continuous communications, thereby reducing the time spent on design options and variables. This will ultimately facilitate the more formal design review process. These meetings will include various disciplines, as appropriate, and will focus only on those design aspects of the Project that are undergoing development at that time. As part of the records of these meetings, the Chief Facilities Engineer will maintain an Action Items list and monitor the progress of the resolution of each of the action items.

6.6.4 Quality Assurance Audits

In addition to formal design reviews, RTD will conduct formal Quality Assurance audits at regular intervals as set forth in the Project's *Quality Plan*. These audits will assess compliance with the *Quality Plan*. See Section 3.1.3, Quality Assurance and Quality Control for details.

6.6.5 Safety and Security Reviews

At the Control Point milestone submittals, the RTD Manager of Systems Safety and Security will oversee formal safety reviews of the design including written review comments of findings from at least the HPD, the HFD and the SSOO. These reviews will be conducted in accordance with RTD's *Safety and Security Management Plan and the Safety and Security Certification Plan*. (See Chapter 15.0) and will focus on the safety and security of the completed system. Contracted safety specialists may also be included in the reviews depending on the special features of the design under study.

6.7 Design Change Control

Changes during the design phase are those changes proposed after the Project's *Basis for Design* is established. See Chapter 7.0, Configuration Management. These changes will be reviewed, verified and validated as appropriate and approved before implementation. The review of the design will include the evaluation of the effect of the changes on constituent parts (FTA Guidelines Section 2.2.3 Design Control).

6.8 Principal Design Interface Review

This section lists the primary agencies and entities whose review activities will address the myriad of design interface and co-existence issues with existing fixed facilities and systems along the alignment, at stations and other proposed transit facilities as well as the Project's operational considerations. These reviewers may also include several applicable permitting agencies and the FTA relative to the New Starts Program Guidelines.

6.8.1 Hawaii Department of Transportation (HDOT)

- General review of design deliverables;
- Impacts on state roads such as joint utilization, crossings and rerouting;
- Granting of air rights, real estate easements and permits;
- Bridge construction and inspection requirements; and
- Soils and foundations investigation and design requirements.

6.8.2 Federal Highway Administration (FHWA)

- General review of design deliverables;
- Impacts on federal highways such as crossings and rerouting;
- Granting of air rights, real estate easements and permits;

- Bridge construction and inspection requirements; and
- Soils and foundations investigation and design requirements.

6.8.3 Utilities

Several utility company's facilities and lines will be affected by the Project. The construction of the guideway and stations will require the rerouting, relocation and/or encasing of many utility ductbanks, cables, pipes or other facilities. The utility companies affected are:

- Hawaiian Electric Company (HECO) – electricity;
- Hawaiian Telcon (HT) – telephone;
- Board of Water Supply – water lines;
- Wastewater Branch – wastewater lines;
- The Gas Company – gas;
- Department of Transportation Services – traffic signal cables;
- Time Warner Cable (TW)- cable lines;
- AT&T – fiber optic cables;
- Sandwich Isles Communications Inc. – fiber optic cables;
- Department of the Navy – various utilities;
- Navy Public Works Center at Pearl Harbor;
- Department of the Army;
- Chevron Hawaii – underground petroleum lines; and
- Tesoro Hawaii Corporation – underground petroleum lines.

6.8.4 DTS – Public Transit Division, Operations Review and Input

The PTD has been responsible for overseeing TheBus since the City established its fixed-route bus system. Oahu Transit Services, Inc. (OTS) has been the City's bus management services contractor since January 1, 1992. As such, PTD and OTS personnel have extensive institutional knowledge of TheBus. This extensive knowledge will be applied to the Project for the following reasons:

- Implementation of the Project will benefit from lessons learned by TheBus operations and maintenance staff;
- The Project's facilities must coordinate with those already in place to support coordinated bus-rail operations; and
- Rail and bus operations will comprise a coordinated system, with many rail passengers using connecting bus lines.

The PTD and OTS staff will review and provide input to the Project's design and the compatibility of bus-rail passenger transfer facilities.

6.9 Value Engineering

Value Engineering (VE), as defined in FTA C5010.1C, is a process of systematically applying standardized techniques to review designs, products, or services and to identify improvements and means to achieve them that will achieve the desired program functions at the lowest possible life-cycle cost. By definition, any modifications resulting from the VE process must be consistent with established requirements for performance, maintainability, quality, safety, and community impacts.

The greatest potential savings will be found in the formative period of design for any project element, i.e., during Preliminary Engineering and specification of systems. Once Preliminary Engineering has been completed and approved for Final Design, further changes will be discouraged except where the design team may identify new Value Engineering topics for evaluation.

A VE effort for the First Project will be performed during the Preliminary Engineering phase of the project, most probably after the "In-Progress" control point submittal. The RTD will conduct sessions utilizing an outside Certified Value Specialist (CVS) to organize and conduct these sessions as the team leader. The VE sessions will be performed by a multi-disciplined team of professionals specifically assigned to this effort and not part of the Design Team. The goal of this Value Engineering exercise will be the development of recommendations to reduce costs and to improve the effectiveness of the proposed Project.

During Preliminary Engineering and Final Design, VE proposals will be reviewed by the RTD and the GEC with resulting recommendations being developed jointly as to the disposition of each proposal. The RTD PExec will have final authority in regard to the acceptance or rejection of each proposal. The RTD PExec will also be responsible to ensure that all agreed upon VE proposals are incorporated into the design documents. In addition, the DTS Director may initiate additional VE studies if required.

Contractor VE proposals are another form of VE. In this case, the Project's construction and supply and installation contractors will be invited by specification to conceive of and propose changes to their work that will produce cost savings to be shared between the contractor and the RTD. The RTD will permit VE change proposals via the contracts' special provisions, and will become involved in

evaluations of such proposals, along with the GCM. Resident Engineers are responsible for the administration of VE work during construction.

6.10 Peer Review

Peer reviews may be conducted as the need arises for specialized independent input to a particular issue that presents a unique problem or if an independent critique is desired. The need for Peer Reviews, during design, will be identified by the RTD PExec and appropriate members of the GEC team. It is anticipated that one general Peer Review will be conducted toward the end of the Preliminary Engineering (PE) phase of the work.

6.11 Permits

The permitting effort begins during the Preliminary Engineering design phase and is carried through Final Design. The GEC is responsible for determining which permits are required for the Project and coordinating their provisions with the RTD PExec while providing all necessary efforts to facilitate the process. During Final Design, this activity is to be carried on by the GCM. In some cases the RTD, as the owner, will be responsible for obtaining permits and in other cases, contractors will be responsible for obtaining the necessary permits.

6.12 Contract Document Preparation

The RTD's construction and procurement documents for civil works, as now foreseen, will be developed for contractor selection generally using traditional U.S. public works contracting practices, including award to the lowest responsible, responsive bidder. The RTD recognizes the FTA's Third-Party Contracting Requirement (Circular 4220.1E), its own Procurement Policies and Procedures and the Hawaii Administrative Rules as governing documents. Refer to Chapter 4.0, Procurement and Contracts for additional details.

The DTS has current standards for bidding contract documents. However, there may be particular aspects of some of the Project contracts that will require amending the various elements that comprise a typical set of construction documents. The RTD will review its General Conditions and other bidding contract documents for omissions and inappropriate coverage and will prepare a set of Project-oriented "boiler-plate," as necessary. It is RTD's objective to use as much of the DTS's established contract clauses as possible.

7.0 CONFIGURATION MANAGEMENT

Configuration management is a management process for defining, evaluating, identifying, controlling and recording the status of a project. It provides technical coordination processes for the development of complex systems with multiple designers and ensures maintaining consistency with the Project's performance, function and physical attributes with its requirements, design and operational information. This technical coordination is achieved by establishing a baseline description of the system and controlling changes to this baseline as the design and construction progresses. In this manner overall accountability for the project is achieved.

The Project baseline is those documents which define the current configuration and technical, budget, schedule, environmental and business attributes of the Project. Typical baseline documents include drawings, specifications, plans, contract documents, criteria, procedures and similar instruments.

All of the various parties involved in the development of the project must be able to exchange current and accurate information to ensure the production of a functioning system when all separately designed and constructed parts are finally put together to form an integrated whole. A carefully planned configuration management program is one tool which is commonly used to help in achieving these ends.

The configuration management system will:

- Provide approved and controlled documentation;
- Ensure the capability for analysis/review at designated milestones;
- Permit continuous design visibility for management assessment; and
- Assist management in achieving the required performance and schedule objectives.

This section focuses on the elements which are fully addressed in the *Configuration Management Plan*. The Project staff will then develop *Project Procedures* to implement and describe in detail the processes described in the *Configuration Management Plan*.

7.1 Configuration Management Plan and Policy

The configuration management control process defines, identifies, controls, and records status of the project baseline. Control of all documents will be managed to maintain an accurate historical record, thereby providing support and up-to-date information to all involved parties as work proceeds and issues arise in subsequent phases.

Furthermore, the plan will address the interface among the project team members during implementation and the orderly transition of all controlled project documentation to the City of Honolulu at the appropriate time.

There are five major elements at play in configuration management that each must be rigorously maintained in order to achieve successful configuration control. They are:

- Baseline Management;
- Change Control;
- Interface Control;
- Design Review Management; and
- Document Control.

7.1.1 Conformance of Contract Documents

The plan will also define the requirements for a configuration control group. This group will provide the basic services necessary to ensure conformity with all required policies and procedures including:

- Implementation of configuration control requirements as defined by the configuration management plan and applicable procedures;
- Defining configuration control requirements for all contracts, design and procurement specifications compatible with project requirements; and
- Ensuring control of design through defining requirements to Document Control Center for drawings, releases and revisions and through requirements for processing changes to baseline documents.

7.1.2 As-Built Documents

(Simon to provide text)

7.2 Responsibility

The overall responsibility for the configuration management of the Project is assigned to the Configuration Control Group headed by the Configuration Management Chief. The group will develop specific configuration management procedures as part of the Project Procedures. Functional responsibility for complying with these procedures will be delegated to the appropriate staff and consultants.

7.3 Program Components

7.3.1 Baseline Management

The initial baseline management activity is to define the elements and documents which constitute the project baseline. The Project Management staff will establish the project baseline and approve an initial Baseline Document List of those documents that are subject to baseline management. This list will evolve and expand as the project progresses. The Baseline Document List will be included in the *Configuration Management Plan*.

All baseline documents are subject to a thorough review process by all impact disciplines prior to baseline issuance. This process will ensure that all impacts to other documents and processes as well as costs and schedule impacts are identified and resolved prior to approval.

Baseline documents are also subject to a controlled distribution process to ensure that all project participants have access to the current revision of baseline documents. This will be accomplished through electronic distribution to the maximum extent feasible. Hard copies of the current revision of the baseline documents will be maintained in the Project Office Library. Electronic files in bookmarked .pdf format will also be posted to the Project network.

7.3.2 Change Control

Change control is the process of identifying, documenting, coordinating, approving and implementing changes to the project baseline through a set of open and rigorous procedures that include establishing an approval mechanism and only accepting changes that have been authorized through that approval mechanism. All Project Baseline documents are subject to the change control process. A Change Control Committee will be established to make disposition decisions about proposed changes. As the project progresses the membership of the Change Control Committee will evolve and expand. The Change Control Committee will include a member from the procurement staff for the consideration of changes to contracts documents. The Change Control Committee will meet monthly or more frequently as needed. The

configuration management staff will report to the Committee and perform the following functions:

- Supporting design organization through assistance in preparing engineering change requests, defining impacts for the changes and preparing presentations of support data for Change Control Committee action;
- Ensuring that appropriate project organizations are involved in evaluations of changes to the project baseline;
- Collecting impact statements and, through direct negotiations with responding parties and design disciplines, attempting to resolve all unfavorable responses to the satisfaction of the responder;
- Obtaining cost and schedule impacts for the change;
- Managing and documenting the deliberations of a Change Control Committee and assisting in the development of recommendations based on overall change status developed through negotiations with affected parties. (The Configuration Control Group will ensure support of proposed changes by appropriate technical disciplines and record progress of the Change Control Committee. Upon resolution of each change, they will obtain signature authorizations via Notice of Action from the chairperson designated by the PExec);
- Maintaining consolidated files of each change effort, including change request, responses by all organizations, notes of negotiations, supporting data, Change Control Committee activities, notice of actions, design changes, and package sign-off;
- Releasing documents for incorporation of approved changes and quality checking the returned documents to ensure the approved changes are properly incorporated and unauthorized revisions are not included;
- Providing the Document Control staff the documentation of the Change Control Committee's actions and revised documents for distribution and documents; and
- Preparing a periodic configuration status reports to ensure all change activities have been accounted for.

Requests for Information (RFIs) will only result in formal changes to the project following the initiation of an engineering change request.

7.3.3 Interface Control

Interface control is a separate element of the Configuration Management process which determines and manages the design interfaces by which separate elements of the project which have been designed by different organizations all fit and work together in a harmonious fashion. Various elements on a project are interdependent and that adequate design of each element independently is not enough to produce a

functioning whole. Interface control focuses on physical interfaces and should not be confused with systems integration which focuses on the functional integration of various subsystems.

The configuration control group will coordinate with the Chief Project Officer, project engineering staff, the General Engineering Consultant (GEC), the General Construction Manager (GCM), the Engineering Design Consultants (EDCs), and others to control project interfaces.

The configuration management plan will also describe methods to facilitate interface control for the Project including:

- Developing criteria for the interface management requirements necessary to assure interfaces are properly addressed by all contracts;
- Developing and maintaining identification of all design and performance interfaces between interdependent systems/subsystems - the product of this effort will be criteria for establishment of combined systems verification requirements;
- Actively participating in all design reviews to assess compliance of design elements with interface management requirements, verifying interface integrity across contract limits and assisting in resolution of interface problems that cross contract boundaries;
- Reviewing project specifications and other documentation for adequacy and correctness in treatment of interfaces, resolving conflicts arising as a result of inadequate or erroneous interface treatment; and
- Developing a contract monitoring strategy and checklist to provide a systematic approach to review of contract documents for interface requirements compliance - the checklist will be used for review and will be furnished with comments to project management indicating areas of documentation checked and level of interface involvement.

7.3.4 Design Review Management

Design reviews are formal structured systematic and orderly reviews conducted at established milestones for the purpose of assuring that the designs:

- Comply with all project requirements including operating and maintenance requirements;
- Conform to the necessary design criteria, codes, standards and baseline description;
- Meet accepted industry practices;

- Adhere to construction and procurement scheduling requirements including milestones;
- Address appropriate interfaces;
- Provide cost effective solutions; and
- Incorporate comments and action items and/or resolve issues raised in previous reviews.
- Include all safety and security certification requirements.

The design review processes also assures that:

- Project participant input and comments are considered and decisive action taken;
- Factors affecting the design are documented;
- Any Buy America issues that are inherent in the design are addressed and;
- All project requirements including operating and maintenance requirements are complied with;

At every level of design review, formal written comments will be required from all reviewers, with formal, written responses also required from document originators. As the design progresses, team members with special expertise should provide their particular review and comments on specific features. Where appropriate, they will identify elements worthy of separate in-depth value engineering efforts. See Section 6.6 for more details.

The design review process also provides the opportunity to evaluate whether the package is appropriate for competitive bidding or whether it includes sole source or restrictive procurement requirements. Overall, the design review process is intended to provide the checks and balances needed to improve the quality of the design documents and provide an additional line of defense against errors and the use of details, which have not been properly coordinated.

7.3.5 Document Control

Document Control is an integral part of the Configuration Management process. It ensures the following:

- Integrity and protection of data;
- Effective file and database management;
- Unique identification of documents;
- Data retention;
- Data status; and

- Controlled access to data.

The Project will maintain a Document Control Center which controls all Project documents. The Document Control staff will also maintain a Project Office Library which will include copies of baseline documents, current design review submittals, GEC deliverables, regulations, standards and other documentation. These documents will be available to RTD Project and consultant staff. Many documents will also be posted to the Project network for easy retrieval. A more comprehensive description of document control is provided in Section 3.7.

7.3.6 Conformance of Contract Documents

The conformance of contract documents will include all modifications incorporated along with all approved changes for contract documents. All changes to contract documents will require approval of the Change Control Board as well as other procedures required by the procurement process.

After the contract is awarded, a “conformed set” of the contract documents is developed. The complete “conformed set” will incorporate all addenda, including any addenda issued by letter only and will include a new cover sheet for each volume clearly stating “conformed set.” The design staff will prepare a “conformed set” of contract drawings and technical specifications.

The procurement staff will develop a “conformed set” of the procurement documents which also includes key information from the bid documents such as:

- Name of the contractor
- Contract person including address and phone
- Contract value
- Subcontractors
- Bonding information
- Insurance information

The complete “conformed set” both in hard copy and electronic file is compiled and issued by controlled copy to the Contractor, project team, consultants, document control and the Project Office Library, see the *Configuration Management Plan*. A copy of the conformed set is also posted to the project network in .pdf and native file format.

As the contract progresses all approved changes will be incorporated and distributed to holders of controlled copies of the contract document. At contract completion all additional as-built changes will be incorporated into the Project Records Documents.

8.0 PROJECT COMMUNICATIONS

RTD is responsible for developing and initiating the Communication and Community Relations Program for the Project. RTD will handle outreach activities to build partnerships with the public. Specifically, RTD will organize meetings and public hearings; recruit, organize and facilitate community advisory groups; and produce publications and mailings. These activities are all targeted at providing the community and other stakeholders with current information about the Project.

8.1 Communications/Media Relations

The benefits of involving the public in a participatory process are multifold. First, it increases the prospects for agreement on a solution or at a minimum, informed consent, and the chances for ultimate implementation of a project. It enables identification of community issues early in the project development process so that those issues may be adequately addressed. Public involvement also greatly reduces the probability of project delays and litigation. Finally, it enhances the legitimacy of a project and that project's sponsoring agency(ies). Ultimately, a public involvement program sincerely committed to involving the public and taking action on their input yields a significantly more popular and sustainable result. In addition, federal requirements necessitate meaningful citizen participation as a significant element in projects like the Project.

8.1.1 External Communications

8.1.1.1 Mission

The mission is to inform the community about the Project's progress and to actively seek and incorporate input from the public into the decision-making process, to assure that the Project meets the needs of the community, based on the following guiding principles.

- Public involvement activities directly linked to project milestones, technical activities, and decision-making;
- Adequate opportunities for public involvement and time for public review and comment;
- Reasonable access to technical and policy information;
- Demonstration of explicit consideration and response to public input obtained, and when significant written and oral comments are received, a summary, analysis and report on the disposition of comments shall be made part of the final report;

- Solicitation and consideration of the needs of those traditionally underserved by existing transportation systems to ensure their involvement in decision-making, help prevent disproportionately high and adverse impacts upon these stakeholders, and assure they receive a proportionate share of benefits - traditionally underserved populations include, but are not limited to, low income households, minority households, and Americans with Disabilities Act (ADA) populations;
- Periodic reviews of the effectiveness of the public involvement program to ensure full and open access is being provided to all who are interested or who could be interested in the project;
- Coordination of the program with associated third party agencies to avoid conflicts and misinformation about the Project;
- Coordination of the program with local, state, or other relevant ongoing outreach programs; and
- Provision of timely information to many agencies and individuals, including those representing other local jurisdiction concerns.

8.1.1.2 Goals

The goals and the objectives to achieve the mission are as follows:

- **Develop public understanding of project.**

Objectives:

- Inform the public about Project issues through public workshops, newsletters, fact sheets, web site, exhibits, and other techniques;
- Use neutral reviewers to evaluate public information materials for effectiveness and ease of understanding prior to release to the public; and
- Solicit feedback on level of understanding through activity comment cards, feedback forms, and informal interviews.

- **Provide opportunities for early and continuing public participation in the decision-making process and encourage participation.**

Objectives:

- Develop comprehensive list of stakeholders, categorize list, evaluate categories, and obtain information from stakeholders to determine the best method of communication/participation for each; and
- Provide timely and regular notice of public involvement activities and Project developments.

- **Maintain accountability, credibility, and accessibility of the Project team.**

Objectives:

- Implement documentation and response process to include “action taken” feedback on specific comments received from the public;
- Provide regular opportunities for information exchange with agency representatives, stakeholder groups, and others interested in the project; and
- Coordinate within the RTD and other agencies to ensure consistency of message and non-duplication of communication efforts.

- **Obtain input from a broad range of citizenry.**

Objectives:

- Utilize non-traditional methods of soliciting participation and input (e.g., on-line information, displays at malls/special events, use of cultural media, language interpreters);
- Regularly monitor RTD participation in local public events and evaluate for range of citizen representation;
- Present information in the most direct and appropriate way possible to overcome potential language, economic, or cultural barriers; and
- Anticipate and provide for the needs of persons with hearing, sight, and mobility disabilities.

- **Inform and involve the news media to maximize the potential for informed coverage.**

Objectives:

- Develop relationships with key media personnel to generate significant, accurate and balanced coverage of the Project;
- Respond to media inquiries in a timely, consistent manner;
- Proactively provide information to the media; and
- Designate a central point of contact to be consistently responsible for distributing information to the media, both proactively and reactively.

- **Solicit and incorporate public input on specific technical issues.**

Objectives:

- Encourage active participation of the public, groups, and agencies early so that their input is part of the project decision-making process.

8.1.1.3 Strategy

The strategy is to create a communications policy that:

- Maintains continuity with and improves upon outreach efforts from earlier Project phases;
- Ties outreach activities to Project milestones;
- Identifies stakeholders/target audiences and tailors communications efforts to meet the needs of those groups;
- Provides opportunities to communicate regularly with all stakeholders through various methods, such as news releases, news conferences, publications, website, presentations, etc.; and
- Provides procedures for appropriate review and/or approval of:
 - Key messages/talking points,
 - Media releases,
 - Collateral materials,
 - Summary reports.

8.1.2 Internal Communications

8.1.2.1 Mission

The mission for internal communication is to:

- Ensure all employees and related city staff members are informed of the latest Project developments, policies and the “official position” in order to avoid conflicts and misunderstandings, as well as misinformation about the Project;
- Improve employee morale and teamwork to foster a unified vision and goal; and
- Improve communication and coordination between Project staff and other transit staff to develop a unified transit system and message.

8.1.2.2 Goals

The goal of internal communication is to:

- Inform employees and city personnel of major Project developments, policies and facts about the Project;
- Keep RTD informed about input – issues, questions, concerns, support, opposition – resulting from the communications program.

8.1.2.3 Strategy

The strategy for improving internal communication is to:

- Inform employees and city personnel of major Project developments, policies and facts about the Project through consistent, reliable reporting procedures.

8.2 Public Involvement

8.2.1 General

RTD is responsible for the public involvement functions for the Project. Responsibilities include development and implementation of a comprehensive and inclusive public involvement program to apprise the public and media of Project plans and developments.

The Chief Public Information Officer, under direction of the PExec, will be responsible for ensuring that public involvement activities support the goals and objectives of the Public Involvement Program and are closely linked and integrated with Project milestones, and that all stakeholder contacts are thoroughly documented in the Project files.

The goal of public involvement is to provide information to the public about the Project's progress and to actively seek and incorporate input from the public into the PE/EIS phase of the project, to assure that the project meets the needs of the community. Although the Project has been underway (in various forms and phases) for some time, the current effort is critical from a public involvement perspective. Now is the time for the community to help shape the specific, detailed designs for construction of the Project. The nature of the effort and its significance to the community will likely increase community interest.

8.2.2 The Public Involvement Plan

Early and effective community input can reduce or even eliminate any potential negative impacts of the project. A Public Involvement Plan (PIP) will be developed by the GEC. The PIP will include activities and strategies that are consistent with previous project phase efforts and that are directly linked to Project milestones, technical activities, and decision-making.

The primary objectives of the Project Public Involvement Program are to:

- Keep the business community aware of the Project status;
- Establish and maintain contact with residents and businesses within the Project area;
- Maintain continual opportunities for public input;
- Provide media interface; and

- Develop and maintain consistent communication between the Project Team and the public and other stakeholders including elected officials and other agencies.

The overall desired outcome is a project that meets the transportation need, is fully considerate of public and agency stakeholder input, respects budget constraints, and is technically feasible. The PIP will help to achieve this outcome by facilitating meaningful information and idea exchange among the agency staff, affected/interested property owners, business owners, and residents, and the project technical staff. The involvement and participation activities will be closely tied to key technical milestones and special effort will be made to ensure that participants fully understand the Project's goals and processes.

9.0 RIGHT-OF-WAY ACQUISITION

The Real Estate Acquisition Management Plan (RAMP) is being developed as a separate stand-alone document, with the intention for its use as the guiding plan for real estate acquisition, relocation activities and property management for the Honolulu High-Capacity Transit Project.

9.1 Overview

The Real Estate Acquisition Management Plan (RAMP) has been developed to outline the policies and procedures that City must adopt 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 which 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.

The Overall goal and focus of the RAMP is to assist the Real Estate Team members, and other Project personnel, in directing a common effort to secure real property in support of the Project. The property to be acquired is necessary for the construction and operation of a rail system, including stations, transit guideways, and ancillary facilities such as traction power substations, system appurtenances, maintenance and storage facility, transit centers and park-and-ride lots, and utility relocation. The RAMP is identified as a requirement of the HHCTC Project Management Plan (PMP). Reference is made within the RAMP to the PMP, and other documents guiding the Project as a whole.

The intent of the RAMP is to:

- Provide an overview of the Acquisition Process;
- Define the roles of City, other Project personnel, consultants, or subconsultants involved in title reports, appraisal and appraisal review, acquisition and/or relocation services, property management services and environmental assessment services;
- Outline acquisition strategies and decision-making processes;
- Identify coordination requirements and processes;
- Define tasks and assign responsibility for those tasks;

- Establish project controls in order to monitor acquisition schedule, costs, and quality controls; and
- Provide for monitoring progress to completion and adherence to laws, regulations, and procedures.

The RAMP contains the policies and procedures that City will utilize to comply with the Federal and State requirements.

- Section 2 of the plan gives a review of the development of the Federal and State Legislation, which controls public acquisition and relocation activities;
- Section 3 describes the proposed City internal real estate process. The purpose of Section 3 is to outline the steps for implementing an acquisition and relocation program; and
- Section 4, 5, 6, 7, 8 and 9 contain information relating to appraisal, acquisition, relocation, and property management functions. This information has consolidated and integrated the Federal Laws and regulations and will provide the basic parameters for the development and operation of the real estate program.

9.2 Outline of the RAMP

The Real Estate Acquisition Management Plan (RAMP) contains the following component sections:

- 1.0 REAL ESTATE ACQUISITION MANAGEMENT PLAN
- 2.0 PUBLIC ACQUISITION AND RELOCATION POLICIES
- 3.0 CITY TRANSIT PROJECT REAL ESTATE PROCESS
- 4.0 APPRAISAL OF PROPERTY
- 5.0 ACQUISITION OF PROPERTY
- 6.0 RELOCATION PROGRAM
- 7.0 PROPERTY MANAGEMENT
- 8.0 PROCEDURES FOR SALE AND LEASE OF CITY-OWNED REAL PROPERTY
- 9.0 PROJECT TRACKING

EXHIBITS

1. HHCTC Location Map
2. RTC Project Organizational Chart
3. RTC Responsibility Matrix (Project Tasks/Activities)
4. Sample Form Parcel Database
5. Sample Brochures – Acquisition & Relocation

APPENDICES

- A. Acronyms
- B. Glossary
- C. 49 CFR Part 24
- D. FTA Circular 5010 (1B) Chapter 1, Sections 7 and 8 Grant Management Guidelines
- E. Resumes of Real Estate Staff
- F. Right of Way Work Schedule (don't change – referenced in document as F)
- G. Meeting Schedules
- H. Parcel Listing
- I. Right of Way Parcel Plans
- J. Forms (what's required)?
- K. Relocation Residential Brochure
- L. Relocation Business Brochure
- M. Relocation Notices
- N. Right of Way Process Chart
- O. GSA Appraisers List
- P. Contractual Functions Matrix
- Q. Authority to Condemn Matrix
- R. Offer of Just Compensation Authorization Matrix
- S. Acquisition Schedule
- T. Plan Change Authorization Matrix
- U. Department of Budget and Fiscal Services (Section 6-201 through 6-204)
- V. Real Property Transactions Involving The City And County Of Honolulu (Chapter 37)
- W. Lease And Rental Of City Real Property, Including Fees (Chapter 28)
- X. City Relocation Policies And Procedures (Index Code 31.20)
- Y. Scope of Services for Title Searches
- Z. Scope of Work for Appraisals

10.0 CONSTRUCTION MANAGEMENT

10.1 Responsibility

The overall responsibility for construction management will be assigned to a general construction management consultant (GCM), with oversight by the RTD Chief of Construction.

10.1.1 Organization

The GCM will employ a core staff of experienced professional management and field representatives who will manage a Construction Engineering and Inspection (CE&I) workforce. Although the contractor firms will be responsible for controlling the quality of their work, the GCM will be responsible for the QA inspection of the construction. In addition, the Manager of Quality Assurance is responsible for conducting formal Quality Assurance audits at regular intervals. These audits will assess compliance with the Project Quality Plan. See Section 3 of this PMP and the Project Quality Plan for a more in-depth discussion of QA/QC.

10.1.2 Safety

Construction safety will be the sole responsibility of the Contractors. The GCM will report to the Contractor and RTD any observed non-compliance with the Contractor's approved Accident Prevention Program Plan. The Accident Prevention Program will be conducted in accordance with a current Construction Safety Manual which will be prepared during the final design program. This manual will be incorporated into every construction contract and requires that Contractors, among other things, designate a safety representative, hold regular "tool-box" meetings, submit for approval and conform to an Accident Prevention Program and follow the requirements of OSHA Construction Industry Standards 29 CFR Parts 1910 and 1926.

Contractors will be required to prepare monthly safety reports including but not limited to safety-related incidents, accidents, and a log of lost time due to accidents.

The Manager of Systems Safety and Security will be responsible for the overall Safety Certification of the system in accordance with the Safety Certification Program Plan. Details of the role of the State Safety Oversight Office in the final acceptance or sign-off of the Project and the relationship between RTD and State Safety Oversight Office in the Safety Certification of the Project will be developed during the PE/EIS phase of the project. The roles and responsibilities of the Manager of Systems Safety are described in the Project System Safety Management Plan.

The GCM construction staff will promptly notify the Contractor of any apparent safety violations.

10.1.3 Construction Management Guidelines

The conduct of the day-to-day management of the construction will be governed by the policies and procedures of this PMP, and as supplemented by the Resident Engineer's Manual prepared by the GCM and approved by RTD.

10.1.4 Construction Engineering and Inspection Services

CE&I services will be performed by the GCM and subconsultants under contract to the City. The primary functions will be to:

- Perform QA inspections of all Contractor activities to assure compliance with the contract documents;
- Review all Contractor contract document transmittals (CDTs/shop drawings) prior to incorporation into the work by the Contractor in conjunction with the Engineer of Record;
- Conduct weekly progress review meetings with the Contractor to ascertain job progress and identify and resolve problems;
- Review and approval of Contractor cost-loaded CPMs initially and monthly prior to recommending payment of monthly invoices;
- Review monthly Contractor invoices and recommend payment;
- Respond to all Contractor Requests for Information (RFI);
- Coordinate any Contractor issues with the original designers of the facilities;
- Negotiate all changes with the Contractor and perform control estimates prior to such negotiations. The RTD shall participate in all change order negotiations;
- Maintain an accurate and up-to-date record of the daily construction progress. Such record shall include: inspector daily reports (IDRs), extensive use of photographs, minutes of all meetings and correspondence files (including all e-mails);
- Maintain CDT logs including date submitted by the Contractor, date returned to the Contractor and disposition code;
- Respond to every Contractor notice-of-potential claim and take all steps necessary to mitigate delays and damages;
- Analyze all Contractor claims and make recommendations to the RTD as to possible resolutions; and
- Supervise original designers in performance of remedial or additional designs as may be necessary to resolve conflicts or problems arising out of the work.

10.1.5 Inspecting Guidelines

The CE&I team will use only experienced, qualified inspectors in the performance of their duties. However, as a guide to inspectors, RTD will utilize the Resident Engineer's Manual to establish minimum standards.

10.1.6 Change Order Estimating

Whenever possible, change order negotiations will take place prior to the commencement of the change work. If a change order cannot be executed prior to initiating the work, Force Account records will be maintained by the Contractor and monitored and approved by the GCM. As mentioned above, all change order negotiations will be preceded by the preparation of a control estimate by the GCM and a review of such estimate by the RTD. The control estimates shall be in sufficient detail to allow the negotiations to take place on an item-by-item basis. The RTD may choose to participate in all change order negotiations. All change orders will be subject to the approval of the City. In all change order negotiations, all the direct costs and the time costs for each change notice shall be discussed and agreed to as per the Contract documents.

10.1.7 Value Engineering During Construction

Value Engineering during construction is governed by the relevant Article of the Contract General Conditions. Briefly, it is anticipated that the Contractor will be able to propose changes to the work for RTD review. Any net savings resulting from adopted changes are shared between the Contractor and RTD. The sharing formula will be determined during final design prior to issuance of the contract. This Article sets out the procedure for the preparation of the proposals and generally states that adopted changes will not alter the "... essential function or characteristic of the Work ..."

10.1.8 Other Construction Management Activities

The GCM program will also include other construction activities such as a procedure for regular meetings with Contractors and other involved parties, a procedure for reviewing and approving as-built documentation, a correspondence control procedure, and other related functions. The details of this program will be included in subsequent versions of this Project Management Plan.

11.0 CLAIMS MANAGEMENT

Construction claims principally are caused by: unforeseen or changed project conditions; changes in the scope of work; late provision of drawings, access, permits, equipment or materials; inadequate drawings or specifications; systems interface issues and interference in the work. The goal of effective claims management is to minimize RTD's claims exposure and fully resolve and document all claims.

11.1 Claims Prevention

11.1.1 Design

Claims may result from inadequate drawings and specifications. To minimize the potential of claims in this area, RTD will retain an experienced professional Design Consultant to develop the detailed design of the Project. The design will also be subjected to value engineering and constructability reviews. The design management program for the Project is covered in Chapter 6.0 of this PMP.

The end result of these well-coordinated and reviewed documents will be to minimize claims exposure to RTD.

11.1.2 Contract Clauses

Another step taken to minimize RTD's claims exposure is to utilize specific contract clauses designed to minimize risks and clearly establish the responsibilities of the parties. The following list of typical contract clauses are meant as a guide to allow the reader to understand the steps taken during contract document preparation to minimize the claims exposure but is not intended to be all-inclusive.

General Conditions

- Interpretations
- Liability and Indemnification
- Contractual Relationships
- Coordination and Access
- Warranty of Work
- Inspection
- Progress Schedules and Requirements for Maintaining Progress
- Suspension of Work
- Final Inspection and Acceptance

- Progress Payments
- Changes
- Contaminated soils
- Environmental mitigation
- Differing Site Conditions
- Contractor Proposals
- Extension of Time
- Notice of Potential Claims
- Submittal of Claims
- Disputes
- Force Account Work
- Termination
- Liquidated Damages

In addition to these clauses there is additional language in the General Conditions of the Contract pertaining to milestone dates and liquidated damages, all designed to minimize claims. All liquidated damages amounts will be set after a calculation of the potential damages that RTD could suffer from the Contractor delay.

RTD's use of a cost-loaded CPM schedule during construction is a key component of RTD'S claims management program. The application of these techniques, explained in detail in Chapter 3.0 of this PMP, document the as-built conditions of the work through contractually required monthly CPM updates. As the CPM update forms the basis for the monthly progress payment, the Contractor will be required to accurately update the schedule monthly. All time related claims will be required to be documented with CPM reports as specified in the "Construction Schedule" of RTD's Technical Specification and the "Submittal of Claims" provision of RTD's General Conditions of the Contract.

The review of Contractor contract document transmittals (CDT) has been grounds for possible claims in the past. To minimize this possibility, the time allowed for shop drawing reviews is specified in the contract and the Contractor will have to schedule the shop drawing production/review cycle on his CPM. The GCM will be required to maintain a computerized CDT log to ensure prompt review of all shop drawings. RTD will spot check the shop drawing review process to ensure that Consultants are not masking potential errors during the shop drawing review process. This has also been the basis for past Contractor claims.

Contractor Requests for Information (RFIs) have been used by Contractors in the past to fabricate claims. However, some RFIs are valid and should be expeditiously responded to. To formalize the RFI process, a specification section has been developed, including a form, which the Contractor must use, to ensure quick resolution to all such requests. The specification allows RTD a certain period of time to review and respond to the request. This will minimize the potential for delays caused by last minute Contractor demands for information.

11.2 Claims Avoidance During Construction

The Master Project Schedule is developed with the goal of having all right-of-way available and cleared of utility conflicts prior to the start of construction of the civil line section contracts. This area has historically been the basis for delays. Claims avoidance during construction is directly related to the quality of RTD's field representatives and the quality of the contract documents. The GCM employees will be selected on the basis of qualifications and appropriate related experience, subject to RTD's approval. RTD will have the right to remove any consultant employee from the work for nonperformance.

There are three types of disposition of an RFI: 1) further information is provided to the contractor to address the concerns/issues stated in the RFI; 2) the engineer recognizes a problem with the design, resulting in a directed change order; 3) the contractor disagrees with the RFI response and notifies the GCM that he considers it to be a change condition via a notice of intent to claim. Detailed procedures to address these possibilities will be included in the construction management plan.

The role of the GCM is explained in Chapter 10.0, but with respect to claims management, the GCM representatives will:

- Document the work as it progresses using photographs, audio/video taping, Inspector Daily Reports (IDRs), Resident Engineer's letters and e-mails, reviewing and verifying the dates in the Contractor's CPM updates prior to processing monthly invoices, CDT log, RFI log, and minutes of all meetings;
- Respond in writing to all Contractor notice of potential claims within the time frame set forth in the construction contract;
- Promptly analyze all Contractor claims and recommend in writing to RTD a possible course of action;
- Support RTD in negotiating the claim and preparing any subsequent change order as necessary;
- Mitigate damages and delays by suggesting solutions to the Contractor;

- Review all CDTs and RFIs in accordance with the time frames set forth in the contract;
- Comply with the Claims Management and Change Order procedures; and
- In the event the Contractor fails to submit a time and/or cost claim on a timely basis as specified, the RTD may make its own determination based on the facts.

Some of these steps could be considered claims review, not claims avoidance; however, the quick resolution of a minor claim can often minimize the potential for the claim festering into a much more serious one. Therefore, some of these actions are also considered prudent claims avoidance.

The GCM and all consultants and Contractors will be subjected to QA audits by the Manager of Quality Assurance to ensure compliance with this process.

11.3 Claims Resolution and Administration

The goal of the claims resolution process is the prompt settlement of all claims after a careful and fair analysis of the facts. The owner is always better served by quickly resolving claims while the facts are fresh.

Specific contractual language is used to define the time limitations for notifying RTD of a potential claim and for submitting the completely documented claim. The contract also specifies the documentation required with each claim for it to be considered. The documentation process is meant to minimize frivolous claims and isolate the issues.

The GCM will be responsible for analyzing the claim and recommending to RTD a negotiating strategy in coordination with the Engineer of Record. As part of the claims analysis process the Contractor's claim will be subjected to an audit conducted by RTD's Internal Audit Division. RTD will review the GCM analysis prior to the start of negotiations. RTD will be involved in all claims negotiations. Any dispute between the Contractor and a determination or interpretation by Engineer shall be resolved by the Contracting Officer in accordance with the Disputes of the General Conditions provisions of the Contract. This contractual provision is considered an alternative dispute resolution technique designed to eliminate frivolous claims and litigation. During the final design phase, in consultation with the COR, a decision will be made whether to develop a dispute review process or to simply proceed to litigation.

11.4 Change Orders

All claims negotiations will be subsequently reduced to writing in the form of a change order. After RTD's approval that a change is required, the GCM will be required to prepare a control estimate. This control estimate shall be submitted to RTD prior to receiving the Contractor's proposal. Any change involving time must include a schedule analysis by the GCM and approved by the Chief of Construction. The process for handling indirect costs associated with time impacts will be developed during final design and incorporated into the construction management procedures manual. Every attempt will be made to negotiate the issue of time as the direct costs of changes are negotiated. RTD is placed at a disadvantage by leaving the time elements of changes to be resolved at the end of the contract. Any changes, which effect the configuration of the system, will be subject to the change request process.

RTD will review and approve the GCM control estimate prior to negotiations and will participate in all negotiations.

After negotiations, the GCM will draft the change order for RTD approval prior to sending it to the Contractor for signature. After RTD approval of the draft, the change order is finalized and signed by the Contractor. If agreement is not reached with the Contractor, RTD will direct the Contractor to proceed under force account.

The change order will be reviewed and concurred to by the Project team prior to submittal to the Project Director for concurrence. Once the Project Director's concurrence is obtained, the change order is forwarded to the City Council for approval.

All Project change orders will be processed in accordance with the requirements of 49 CFR Part 18.30 – Changes, and will also be consistent with FTA's Third Party Contracting Requirements as set forth in the latest version of FTA Circular 4220.1E.

The GCM will review all changes to determine whether they have resulted from an error or omission on the part of the EDCs. The GCM will report his findings to the RTD Chief of Construction, along with an assessment of the cost impacts associated with the error or omission. RTD will make a final determination whether to make a claim through the design consultant's errors and omissions insurance. When a change is required due to an error or omission in plans and specifications and has a substantial monetary impact, RTD may seek compensation through the design consultants' errors and omissions (E&O) insurance. Refer to the Risk Management Section 13 for a discussion of RTD's E&O insurance requirements for the Project.

12.0 LABOR RELATIONS AND POLICY

12.1 Statutory and Regulatory Requirements

RTD is responsible for complying with all labor relations related statutory and regulatory requirements that constrain, control or otherwise impact the Project. Significant requirements are described in the following sections.

12.2 Federal Requirements

As a recipient of federal funds, the City and its contractors will comply with all required federal regulations. In executing the Project, the RTD will conform to federal requirements in the personnel/labor area and will meet other applicable federal regulations.

12.2.1 Civil Rights Requirements

The City will comply with all civil rights program requirements that apply to transit projects and identified in the FTA Master Agreement. All required civil rights program submissions will be approved by the FTA and periodically updated in accordance with guidelines. Applicable Civil Rights Programs include the following:

- 49 USC §5332;
- Section 19 of the Surface Transportation Assistance Act of 1978;
- Title VI of the Civil Rights Act of 1964, as amended, 42 USC §§ 2000d *et seq.*, and with the USDOT regulations, "Nondiscrimination in Federally-Assisted Programs of the Department of Transportation – Effectuation of Title VI of the Civil Rights Act," 49 CFR Part 21;
- Title VII of the Civil Rights Act of 1964, as amended, 42 USC § 2000e, and all applicable equal employment opportunity requirements of U.S. Department of Labor regulations, "Office of Federal Contract Compliance Programs, Equal Employment Opportunity, Department of Labor," 41 CFR Parts 60 *et seq.*, which implement Executive Order No. 11246, "Equal Employment Opportunity," as amended by Executive Order No. 11375, "Amending Executive Order No. 11246 Relating to Equal Employment Opportunity," 42 USC § 2000e note;
- Section 1101(b) of SAFETEA-LU, 23 USC § 101 note, and USDOT regulations, "Participation by Disadvantaged Business Enterprises in Department of Transportation Financial Assistance Programs," 49 CFR Part 26;

- Title IX of the Education Amendments of 1972, as amended, 20 USC §§ 1681 *et seq.*, and with implementing Federal regulations that prohibit discrimination on the basis of sex that may be applicable;
- The Age Discrimination Act of 1975, as amended, 42 USC §§ 6101 *et seq.*, and with implementing U.S. Health and Human Services regulations, “Nondiscrimination on the Basis of Age in Programs or Activities Receiving Federal Financial Assistance, 45 CFR Part 90;
- The Age Discrimination in Employment Act, 29 USC §§ 621 through 634 and with implementing U.S. Equal Employment Opportunity Commission regulations, “Age Discrimination in Employment Act,” 29 CFR Part 1625; and
- All laws relating to access for individuals with disabilities.

12.2.1.1 Non-Discrimination

In planning, constructing and implementing the Project, the RTD will conform with the nondiscrimination provisions of Section 19 of the Surface Transportation Act of 1978 that provide that no person will be excluded from participation in, be denied the benefits of, or be subjected to discrimination on the basis of race, color, creed, national origin, sex, or age on any project, program, or activity funded in whole or in part through FTA financial assistance. This nondiscrimination provision will apply to employment and business opportunities and is to be in addition to the provisions of Title VI of the Civil Rights Act of 1964.

FTA ensures non-discrimination through oversight of grantee implementation of required civil rights regulations and policy. The DTS will be subject to FTA compliance reviews and assessments under Title VI of the Civil Rights Act of 1964, (including aspects of Environmental Justice), Equal Employment Opportunity (EEO) program, DBE program, and the ADA requirements. DTS will conduct its own compliance reviews not less than semiannually.

12.2.1.2 Title VI (Service Delivery/Benefits)

RTD will adhere to Title VI requirements. Once Title VI submissions have been approved by FTA, updates will be provided every three years unless otherwise requested by the FTA. As a recipient of Federal funds, the DTS will be responsible for ensuring that the information described in Table 9 is submitted to the Federal Transit Administration (FTA) as part of their Title VI Program.

Table 9: Title VI Requirements

Provision	Circular 4702.1A	Citation/ or Reference	Reporting Requirement
Title VI Complaint Procedures	Chapter IV, part 2	49 CFR 21.9(b)	A copy of procedures for filing a Title VI complaint
Record of Title VI investigations, complaints, or lawsuits	Chapter IV part 3	48 CFR 21.9(b)	A list of any Title VI investigations, complaints, or lawsuits filed with the agency since the time of the last submittal
Access to Services by Persons with LEP	Chapter IV, part 4	49 CFR 21.5(b) and the DOT LEP Guidelines	Either a copy of the RTD's plan for providing access to meaningful activities and programs for persons with limited English proficiency which was based on the DOT LEP guidance or a copy of an alternative framework for providing access to activities and programs.
Notifying beneficiaries of their rights under Title VI	Chapter IV part 5	49 CFR 21.9(d)	A notice that RTD complies with Title VI and procedures the public may follow to file a discrimination complaint.
Inclusive public participation	Chapter IV part 9	DOT Order 5610	A summary of public outreach and involvement activities undertaken since the last submission and a description of steps taken to ensure that minority persons had meaningful access to these activities.

12.2.1.3 EEO/Affirmative Action

The City provides equal opportunity for employees and applicants for employment. It promotes equal access to users of city facilities and services and works to eliminate discrimination in all aspects of city employment, services and public accommodations. The City's Equal Opportunity Program provides leadership and guidance in areas of civil rights and equal opportunity, develops anti-discriminatory programs and policies, enhances awareness through education and training and embraces a vision for our workforce that reflects the diversity of Hawai'i at all levels.

The City and RTD are committed to ensuring that the work force on the Project reflects the diversity of the local area and that businesses, including DBE firms and small businesses, are able to participate in the project to the greatest extent feasible.

RTD and its consultants, contractors and suppliers will comply with Federal regulations dealing with equal employment opportunities, prevailing wages and other elements of affirmative action. The Federal laws prohibiting job discrimination include the following:

- **Title VII of the Civil Rights Act of 1964 (Title VII):** prohibits employment discrimination based on race, color, religion, sex, or national origin;
- **The Equal Pay Act of 1963 (EPA):** protects employees who perform substantially equal work in the same establishment from sex-based wage discrimination;
- **The Age Discrimination in Employment Act of 1967 (ADEA):** protects individuals who are 40 years of age or older;
- **Title I and Title V of the Americans with Disabilities Act of 1990 (ADA):** prohibits employment discrimination against qualified individuals with disabilities;
- **Sections 501 and 505 of the Rehabilitation Act of 1973:** prohibits discrimination against qualified individuals with disabilities who work in the federal government; and
- **The Civil Rights Act of 1991:** provides monetary damages in cases of intentional employment discrimination.

12.2.1.4 Disadvantaged Business Enterprises Administration

The DBELO of TPD is responsible for assuring compliance with DBE regulations and policy. These include 49 CFR Part 26, FTA Circular 4220.1E, and the City's DBE policy statement.

The major functions of the DBELO include:

- Setting DBE goals as appropriate for each contract utilizing USDOT funds;
- Ensuring subcontractors identified as DBE firms are certified as such by the HDOT;
- Ensuring DBE firms perform commercially useful functions and the work committed to a DBE firm at contract award is actually performed by a DBE firm;
- Ensuring prompt payment by prime contractors (including retainage) to subcontractors;
- Maintaining the contractual clauses to ensure third-party contractors' compliance with the DBE requirements, including "flow-down" contractual provisions to subcontracts;

- Issuing information on upcoming contracting opportunities to enable DBE firms to participate as contractors or subcontractors;
- Submitting to FTA the semi-annual DBE reports and the City's annual DBE goal for FTA-assisted projects; and
- Acting as liaison and advocate as necessary in disputes between contractors and DBE subcontractors.

12.2.1.5 Americans with Disabilities Act

The City and RTD comply with the ADA that protects qualified individuals with disabilities. A qualified individual with a disability is a person who can perform the essential functions of a job with or without a reasonable accommodation. The ADA also prohibits making inquiries into the existence, nature or severity of a job applicant's or employee's disability; and requiring medical examinations of job applicants before a conditional offer of employment has been made.

RTD and its contractors will comply with all applicable requirements of the ADA; Section 2004 of the Rehabilitation Act of 1973, as amended; Section 16 of the Federal Transit Act, as amended; and the following regulations and amendments:

- USDOT regulations, "Transportation Services for Individuals with Disabilities (ADA)," (49 CFR Part 37).
- USDOT regulations, "Nondiscrimination of the Basis of Handicap in Programs and Activities Receiving or Benefiting from Federal Financial Assistance" (49 CFR Part 27).
- USDOT regulations, "Americans with Disabilities Accessibility Specifications for Transportation Vehicles," (49 CFR Part 38).
- Department of Justice regulations, "Nondiscrimination on the Basis of Disability in State and Local Government Services," (28 CFR Part 320).
- USDOT regulations, "Nondiscrimination on the Basis of Disability in Public Accommodations and in Commercial Facilities," (28 CFR Part 36).
- General Service Administration regulations, "Accommodations for the Physically Handicapped," (41 CFR Subpart 101-19).
- EEO Commission "Regulations to Implement the Equal Employment Provisions of the Americans with Disabilities Act," (29 CFR Part 1630).
- Federal Communications Commission regulations, "Telecommunications Relay Services and Related Customer Premises Equipment for the Hearing and Speech Disabled," (47 CFR Part 64, Subpart F) FTA regulations, "Transportation for Elderly and Handicapped Persons," (49 CFR Part 609).

12.2.2 Wage and Hour Requirements

RTD will comply with all federally decreed wage and hour requirements, including but not limited to the Davis-Bacon Act, 40 USC; the Copeland Act, 18 USC Section 874, et. Seq. as supplemented by Department of Labor regulations set forth in 29 CFR Parts 1, 3, 5, 6, and 7.

12.3 State and Local Requirements

The Project's participants, including the consultants and contractors must identify and comply with all relevant State and local employment laws and regulations. Relevant local laws include:

- HRS Chapter 378, Hawaii Employment Practices, provides protection for employees in the State by defining unlawful discriminatory practices;
- HRS Chapter 104, Wage and Hours of Employees on Public Works, relates to wages and hours of work for employees on public works projects;
- HRS Chapter 386, Workers' Compensation Law;
- HRS Chapter 396, Hawaii Occupational Safety and Health Law;
- HRS Chapter 378, Hawaii Employment Practice Act: This act protects the rights of employees to express breast milk during any meal or break time required by law;
- ROH Section 1-18 requires that a contractor have and enforce a policy prohibiting sexual harassment.

12.4 Local Labor Conditions

12.4.1 Existing Labor Agreements for City and OTS Employees

12.4.1.1 City Employees

City employees in white collar positions are represented by the Hawaii Government Employees Association; American Federation of State, County and Municipal Employees (AFSCME) Local 152. City employees in blue collar positions are represented by the United Public Workers, AFSCME Local 646. Firefighters are represented by the Hawaii Fire Fighters Association Local 1463 and police officers are represented by the State of Hawaii Organization of Police Officers.

12.4.1.2 OTS Employees

OTS, as the employer of record, negotiates with the Hawaii Teamsters Local 996, the exclusive bargaining representative of bus personnel.

12.4.1.3 Other Labor Agreements

Other than the agreements cited above, the City does not have ongoing labor agreements with construction unions.

12.4.2 In-State Construction

A directory of labor unions in Hawaii is available at: <http://clear.uhwo.hawaii.edu/UnionDirectory.html#U>. HRS Chapter 104 is the wage and hour law on State and county public works construction. Every public works construction project over \$2,000 is covered. The use of Federal funds will also impose certain requirements, including those regulatory requirements of the U.S. Secretary of Labor.

All RTD contracts will carry the Federal and locally mandated clauses pertaining to employment and human relations. Where there are differences between the Federal and local requirements, the more stringent requirement will apply. In the case of wage determination rates for construction contracts, the higher of the Federal or local wage rate(s) will prevail.

12.4.3 Out-of-State Manufacture/Assembly Within the United States

Some elements of the Project will manufactured and/or assembled at out-of-state locations. The labor conditions and any bargaining unit representation at out-of-state manufacturing plants will be matters of fact which are not subject to Hawaii regulations. Nonetheless, contact terms can be developed to address specific issues that may pertain to this project and out-of-state manufacturers may choose whether or not to participate based on those terms. Additionally, all RTD contracts, including those for equipment manufacture and assembly out-of-state will carry the federally mandated clauses listed above.

13.0 RISK MANAGEMENT

13.1 General

BFS administers the City's Risk Management Program. The program, established under Section 2-5 of the Revised Ordinance, covers all City departments and agencies except the Board of Water Supply and Oahu Transit Services, and excludes workers' compensation and employee benefits. The program focuses on insurance and self-insurance to minimize the adverse financial impact of losses, as well as claims management, loss prevention and other activities.

Principal responsibilities related to risk management include:

- Identify and evaluate the exposures to accidental loss associated with the Project;
- Evaluate and recommend alternative risk control and risk financing mechanisms for the best methods to protect the City's exposure;
- Determine the appropriate amounts of insurance to adequately protect the Project financing, including both the liability and property exposure areas;
- Prepare and present risk management budget requirements for the Project;
- Assist in development and implementation of a safety, public and occupational, and security loss control program to reduce the ultimate costs and liabilities associated with the Project;
- Develop and implement a coordinated claims program to track the project's loss experience, including frequency, severity, incident rates, and cause and type of loss;
- Develop financial security and solvency standards required for insurers and underwriters that will provide property and casualty insurance or surety bonds to the City, contractors, suppliers, or other parties associated with the Project;
- Assist in development of policies and procedures for construction site safety requirements, insurance, industrial safety, the establishment of safety and security goals and standards, and administrative practices;
- Review and approve certificates of insurance, evidences of property insurance, and surety bonds presented by outside contractors/suppliers; and
- Interact and coordinate with other entities in those areas that may impact the City's responsibilities.

During the Final Design phase, BFS will evaluate various insurance options including owner-controlled insurance programs.

13.2 Major Sources of Risk

The major sources of Project risk are as follows:

- Design Risks
- Construction Risks
- Financing and Economic Risks
- External Political and Social Risks

Some risks have impacts that are less severe than others, however all must be considered in order to reduce cost overruns and schedule delay.

13.2.1 Design Risks

Risks during design on the Project may include the following:

- Scope of work
- Constructability
- Schedule
- Design criteria
- Design standards
- Data reliability
- Design complexity
- Design completeness
- Accountability for design
- Engineering competence
- Construction plans
- Site conditions
- Environmental mitigation
- Construction methods
- Materials supplies and deliveries
- Safety program
- Quality & performance
- Real Estate Acquisitions
- Regulatory requirements
- External relations
- Cost estimating

Many of these potential design risks can be avoided or reduced through effective planning and attention to detail during the design process. RTD has taken care to ensure a level of qualification and experience in its design team that is appropriate to the level of work being undertaken.

13.2.2 Construction Risks

Potential risks related to the construction phase of the Project might include the following:

- Faulty workmanship
- Weather, floods and fires
- Contractor competence
- Permitting delays

- Unforeseen site conditions
- Contract disputes
- Accidents
- Hazardous materials on site
- Unidentified utilities
- Endangered species on site
- Interferences
- Other utility-related delays
- Lack of materials or equipment
- Design errors or omissions
- Archeological delays
- Subcontract problems
- Third party litigation
- Delays related to real estate or right of way acquisitions
- Design or scope changes

Many of these potential construction risks can be avoided or reduced through effective planning and other pre-construction measures. Of particular concern are tasks and activities on the Project critical path, which can delay the entire Project if they are at risk. RTD takes well-determined steps to share or transfer construction risks via appropriate contract terms or insurance policies.

13.2.3 Financing and Economic Risks

13.2.3.1 Financing Risks

Risks associated with the financing of the Project will be identified, assessed, and addressed by the RTD's Chief Administrative Officer. Financing risks are associated with potential shortfalls in funding from the various sources of finance. In addition, RTD's funding is addressed on an annual basis in BFS's annual Executive Program and Budget to the City Council. A potential risk associated with Project financing may occur if additional funds are needed to cover cost growth, additional scope, problems or delays encountered during construction of the Project. Since financing must be in place over the life of the Project, monitoring of projected costs and associated funding requirements requires close cooperation between the Chief Administrative Officer and the PExec who is ultimately responsible for Project implementation.

13.2.3.2 Economic Risks

Economic risks are associated with multiple revenue sources, and there are several public revenue sources for the Project. Tax revenues are often the most difficult to assess. With respect to construction costs, however, RTD will address the following potential risks:

- Potential contractor bankruptcies;
- Local labor costs and availability;

- Productivity changes;
- Number of bidders on contracts;
- Lack of competition;
- Higher costs of materials/material availability;
- Equipment costs and availability;
- Inflation;
- Workload of local contractors; and
- Pricing by RTD contractors.

Economic risks will be addressed by RTD during both the capital cost estimating process performed during design and during the contracting process at which time bids are received and evaluated by RTD. During Preliminary Engineering, the GEC has been assigned the responsibility to evaluate the construction/procurement program from a perspective of labor, equipment, and material availability. Appropriate contract clauses and insurance programs will be established to cover many economic risks during the contracting process, while some economic risks may be accepted and borne by RTD.

13.2.4 External Political and Social Risks

External political and social risks affecting the Project during design and construction may be associated with the following:

- Relations with local municipalities;
- Relations with public and private utilities;
- Community relations in neighborhoods near the Project;
- Master agreements with utilities;
- Public interferences due to construction activities;
- Public response to accidents or incidents during construction;
- Relations with governing board members;
- Relations with FTA, HDOT, and other State and Federal Agencies;
- Changing environmental regulation;, and
- Changes in laws affecting the construction or transit industries.

These and other similar risks can have an impact on Project costs, schedules and operations.

13.3 Approach to Risk Management

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 contingency reserves required; planning of procurement strategies in order to reduce, share or transfer risks; and implementation of insurance strategies to protect RTD from potential damages or losses during construction and startup. Comprehensive planning, including the development of this Project Management Plan, is fundamental to RTD's approach to risk management. Major aspects of RTD'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 following sections.

13.3.1 Risk Planning and Analysis

Risks are systematically assessed during the design process, corresponding to design review milestones and updates to the cost estimates for each capital project. During the design review process, each element of a project is subjected to comprehensive technical reviews for completeness, accuracy, and other questions. An updated capital cost estimate is prepared, corresponding to the design review milestones described in Chapter 6.0, during which each element of a project is assessed for uncertainty. Contingency factors are then assigned to the cost estimate for each element; resulting in a contingency reserve based on the risks and uncertainties associated with the status of a project. Prior to award of construction contracts, all aspects of a project are again reviewed, as a basis for establishing contract terms and conditions. At this time, appropriate insurance coverage will be determined for the Project, based on risk sharing and mitigation strategies. During construction, each project is subjected to technical, safety and quality reviews to prevent accidents, mistakes and other problems which might lead to cost growth or schedule delays.

13.3.2 Application of Lessons Learned

RTD will apply lessons learned from past capital projects and the transit industry. These include experience with real estate acquisition, public involvement, local inter-agency agreements, interfacing with utility companies, bidding procedures for construction contracting, estimating costs of local construction labor, planning for on-site engineering and supervision, insurance strategies, schedule interfaces, and other issues. These lessons are incorporated into RTD's project planning estimating process, contracting process and schedules, budgets and insurance policies.

Lessons learned from within the transit industry are obtained by both RTD and RTD's consultants from other transit agencies around the USA, from FTA and from

transit industry publications and organizations. Key new information related to design issues; including new features or technologies will be incorporated into the Project and other facilities. 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 risks and costs on the Project.

13.3.3 Multi-Organizational Coordination

RTD's Chief Administrative Officer has primary responsibility for developing plans to finance the cost of project risk. RTD's executive management does most of the political and social risk assessments. RTD and BFS are responsible for planning and implementing RTD's insurance programs and policies. During conceptual planning and preliminary engineering, RTD's PExec, the Chief Project Officer, and GEC have responsibility for initial identification of design and construction risks, and estimating associated contingency funds needed for the Project.

During the final design and construction of the Project, risk management is a multi-organizational, team-based process, led by RTD and assisted by the GCM. RTD will conduct detailed risk identification and assessment activities, in order to finalize cost estimates and schedules. This process requires close working relations between sectors within the RTD. RTD then works closely with BFS to plan and implement appropriate construction contracts, procurement packages and the insurance program for construction, delivery, integration and startup of the Project. During construction, close cooperation occurs between the RTD's Chief Administrative Officer and BFS, to monitor and report on progress and projected final costs and delivery schedules.

13.3.4 Risk Reduction During Design

RTD will make every effort to reduce or eliminate risks during the design phase of the Project. Major elements of RTD's risk reduction process during design include thorough project planning; a comprehensive design review process; value engineering; constructability reviews; formal configuration management; safety and quality planning; completion of design prior to award of construction contracts; site assessments for hazards, contamination and general conditions; project systems integration and interface meetings; thorough construction planning; periodic bottom-up cost estimates corresponding to design milestones; engineering oversight of design work by consultants; quality reviews; safety reviews; and other activities. These activities and processes result in more complete and accurate cost estimates, risk transfer and insurance strategies related to known risks, prior to award of contracts for construction.

13.3.5 Risk Transfer and Sharing During Construction

Because the largest percentage of costs associated with the Project is expended during construction, this phase will receive considerable attention. Contract documents prepared by personnel who are fully knowledgeable of construction management and engineering issues and requirements are critical to the achievement of optimal risk allocation. During the final stages of the design process, and prior to the initiation of the Invitation for Bid process, RTD, and BFS will meet to assess risks, determine risk transfer opportunities, and agree on contract clauses and insurance strategies which address risks during construction.

A Construction Safety and Security Program that includes risk avoidance, quality assurance, risk retention, and risk control techniques is required for each RTD capital project. Contract documents transfer responsibility for providing a safe work site for both employees and the public to RTD's construction contractors. Many construction-related risks can be avoided or reduced by thorough planning and other actions taken during pre-construction phases. RTD and BFS will review each contractor's safety program to verify that job-specific hazards have been identified and addressed prior to start of work.

13.3.6 Insurance Coverage

The City is primarily self-insured for all risks of loss or damage, and purchases excess insurance above the self-insurance program to provide additional financial resources to cover the City's liabilities. In addition, commercial insurance is purchased to address unique risks or to satisfy statutory or contractual obligations. Insurance options to be considered include those listed and described below:

- **Owner Controlled Insurance Program (OCIP).** Under OCIP, one party (generally the owner) purchases most of the insurance coverage for the Project on a blanket basis. This project coverage is then available for the benefit of all the Contractors and Subcontractors as well as for the benefit of the owner and the construction manager;
- **Contractor Controlled Insurance Program (CCIP).** A CCIP is structured similarly to the OCIP program, but the Contractor purchases the insurance and oversees the program. The same coverage, as outlined under the OCIP, may also apply; and
- **Traditional Insurance Program (TIP).** With a TIP, each entity is required to procure and maintain separate insurance for its respective legal liability. The contractors will be required to secure and maintain various types of insurance throughout the duration of the contract for the protection of the contractor, the Council, and other entities as appropriate.

13.3.6.1 Design Period Risk Coverage

RTD develops and enforces insurance requirements for design professionals of every tier. All consultants and Contractors engaged by RTD to perform detailed or final design are required to have, at a minimum, professional liability insurance coverage (sometimes called “errors and omissions” or E&O insurance). The primary design entity is required to have and maintain E&O coverage for the benefit of RTD and all subconsultants. The limits of liability are determined by RTD in concurrence with BFS after a review of the contract scope of services. E&O coverage will be provided by an insurer licensed to do business in the State of Hawaii. RTD’s professional services contracts (and consultants’ subcontracts) will stipulate the minimum terms of coverage required. Design team members must provide such coverage over the duration of the contract. They are required to disclose the terms of the coverage, including deductibles and limits. They are required to certify that such insurance is in place. In addition to E&O coverage, all design consultants and Contractors are required to carry:

- Workers’ Compensation Insurance for all employees;
- Public Liability Insurance, on a comprehensive basis; and
- Automobile Liability Insurance for bodily injury and property damage.

RTD’s contracts administrator is responsible for maintaining up to date certificates of insurance in accordance with contract requirements for all contracted activities on the project.

13.3.6.2 Construction/Installation Period Risk Coverage

Insurance

With the advice and counsel of BFS, RTD will develop and enforce insurance requirements for general Contractors. These requirements balance competitive interests of effectiveness, availability, cost, and third party requirements. At a minimum, general Contractors are required to maintain coverage for general liability, automobile liability, workers’ compensation, and performance and payment bonds.

The insurance companies providing coverage are required to name RTD as an additional insured on the liability policies and loss payee on the property policies. Waivers of subrogation are also required. It is the responsibility of the general Contractors to require and verify that subcontractors maintain appropriate insurance.

Bonding Requirements

A five percent bid bond, a 100 percent performance bond, and a payment bond in an amount in accordance with the FTA regulations, are required for all construction contracts. Approval of the payment and performance bonds, by the Corporation Counsel and BFS, is a pre-requisite to issuing notice-to-proceed.

13.3.7 Contingency Planning

Contingency planning is conducted by RTD and BFS during the cost estimating process for the Project, and updated periodically over the life of the Project. Contingencies and risks are assessed at each major design milestone during final design and during the contracting process prior to construction. In general, the extent of contingency planning, including budgetary reserves, corresponds to the status and maturity of the design, as well as the stage of implementation, for any given capital project. Subjects receiving special emphasis during the development of project contingency plans include indemnity, consequential damages, differing conditions, and delays.

13.3.7.1 Contingency Reserves in Cost Estimates and Budgets

During preliminary engineering RTD will establish general guidelines for contingency reserves for use in project budget estimates during final design. Higher or lower values than the guidelines can be used if specific conditions warrant subject to approval by the PExec

13.3.7.2 Monitoring and Control

Project risks must be monitored after they have been identified, assessed and measured, and after risk allocation strategies have been selected and implemented. As the Project progresses and work is completed, the contingencies that need to be maintained generally decrease. In addition, the characteristics of certain risks may change over the life of the Project. For instance, site conditions may require additional risk analysis and contingencies or an accident may result in more detailed risk analysis to address a specific issue. RTD is responsible for monitoring risks and contingencies on the Project.

13.4 Organizational Responsibilities for Risk Management

13.4.1 Engineering, Planning and Development Department

RTD and BFS have the primary responsibility for risk planning and management on the Project, during the design, construction and startup phases. Within RTD, the primary responsibility for risk planning and management on the Project lies with the PExec. The PExec will oversee the RTD functions, including grants administration, engineering, project controls, and quality assurance to provide a multi-disciplined approach to risk identification and analysis. This approach also allows for consideration of the interaction between the four major risk categories when assessing the impacts of potential risks.

The RTD is responsible for the design, development and implementation of this Project. Identification of construction risks is a major aspect of the construction

planning process, during which appropriate contracting and insurance strategies are defined. RTD will identify both risks and ways to reduce those risks, via oversight, planning, or pre-construction actions. For instance, preconstruction surveys are conducted to document site conditions in order to mitigate third party claims after construction has begun. RTD's Chief of Construction is responsible for oversight of construction contractors and for monitoring construction-related risks.

13.4.2 Risk Management

BFS has overall responsibility for programs and activities that address accidental losses, and is the primary department responsible for planning, coordinating and implementing insurance programs. BFS is the key organization, along with the RTD, responsible for risk management on this Project.

Insurance strategies are a significant element of RTD's risk management process, and are a means of transferring or sharing risks RTD itself cannot wholly control. Risk financing, risk transfer and risk control are techniques used to address accidental losses. BFS coordinates these activities during the contracting process, by ensuring that risks are addressed and that appropriate insurance language is included in every major engineering and construction contract awarded by RTD.

BFS works closely with RTD Corporate Counsel and other departments during the project planning process and during the Invitation to Bid/construction contracting process.

13.4.3 Contract Services

Ultimately, RTD relies on terms and clauses in contracts to reduce, share, or transfer project risks. The Purchasing Division within BFS is responsible for providing support to the RTD related to administrative and contractual aspects of managing the engineering and construction contracts on the Project. This includes assistance related to identification of procurement-related risks and risk allocation strategies appropriate to individual contracts. The Purchasing Division works closely with the BFS's Risk Management Program, Corporate Counsel and RTD during the contracting process, in order to ensure that contracts conform to RTD plans and policies related to risk reduction and cost savings strategies.

13.4.4 Budget and Fiscal Services (BFS)

BFS is responsible for ensuring that RTD has adequate funding for the Project. BFS will work closely with RTD in addressing project-financing risks. BFS is responsible for generally assessing local economic risks that might impact capital project costs. BFS is responsible for coordinating with the RTD's PExec for obtaining and needed capital cost estimates to support BFS in preparation of City annual Executive Program and Budget.

13.4.5 Other RTD and City Organizations

Other RTD and City Departments may be involved in risk reduction or mitigation activities, including the Mayor and City Council depending on the size, nature or timing of the individual risks. The RTD PExec is responsible for identifying other organizations needed to adequately address risks on the Project.

13.4.6 Pre-Revenue Security Risks

Upon contract completion and turnover of works to the RTD, certain special security risks will arise prior to revenue operations. During the construction phase, RTD will develop a program for ownership and control of the Project works and the right-of-way during this interim period.

14.0 PUBLIC ART PROGRAM

14.1 Background

Started in 1971, the mission of the Mayor's Office of Culture and the Arts (MOCA) is to promote the value of arts and culture throughout communities in the City and County of Honolulu. Created by City Ordinance, the program is overseen and administered by a Commission, originally founded in 1968, consisting of eleven (11) members, excluding ex-officio members, who are appointed by the Mayor and approved by the City Council. There is one member for each of the below-listed categories except for the "drawing, painting, printmaking and sculpture" category which has two Commission members. Each member is appointed for a five (5) year term or in the case of a vacancy, for the remainder of the unexpired term.

Member Categories:

- Design: graphic, industrial, visual;
- Urban Design: architecture, landscape architecture and interior design;
- Drawing, painting, printmaking and sculpture;
- Crafts: ceramics, weaving, woodworking, etc.;
- Music: contemporary and classical;
- Theatre arts; drama;
- Dance;
- Multi-media: cinematography, photography and television;
- Literature: prose and poetry; and
- At Large.

14.2 Objectives

The objectives of the Commission are to:

- Assist the City in attaining national preeminence in culture and the arts;
- Assist the City in the preservation of the artistic and cultural heritages of all its people;
- Promote a community environment which provides equal and abundant opportunity for exposure to culture and the arts in all its forms and;

- Encourage and provide equal opportunity for the development of cultural and artistic talents of the people of Honolulu.

14.3 Budget and Funding

The City Ordinance establishing the program calls for an amount equal to but not less than one percent (1%) of the construction phase appropriation for the construction of any City building to be appropriated to the Commission for the acquisition of works of art. The monies are to be utilized solely for the following purposes:

- Acquisition of works of art, including the commissioning of artists and the purchase of art work;
- Site modifications, integration of art into the project functions installation, display and interpretive work necessary for the exhibition of works of art;
- Upkeep services, including maintenance, repair and restoration of works of art; and
- Storing and transporting works of art.
- Labor to install or erect art.

For the Project, the magnitude of the public art program budget will be based on one percent (1%) of the construction value of the station elements of the Project, budgets being established for each station in the same manner. The Mayor's Office of Culture and the Arts (MOCA) management of the program shall be included in that budgeted amount.

There may be cases where selected artwork replaces part of the project scope, such as a floor mosaic which replaces a portion a station's flooring material or a mural that replaces an area of a station's wall finish material. In such cases, the value of the replaced materials will be negotiated as a credit for station work not done, as a result of the art installation, and that amount will be credited to the artist's budget.

14.4 Responsibilities

The respective responsibilities of those entities party to the public art program for the Project shall be as follows:

The Mayor's Office of Culture and the Arts (MOCA):

- Implementing, administering and monitoring the public art program for the Project;

- Coordinating with RTD, the PE Consultant, the FD Consultant(s) and the Construction Contractors including resolution of concerns or problems;
- Representing the interests of the artists;
- Evaluating the acceptability of artwork for the Project;
- Establishing and conducting an art and artists selection process;
- Developing and circulating a Prospectus for station/station site artwork;
- Selecting and contracting with artists;
- Making payment to artists;
- Monitoring artist's budget and schedule adherence;
- Assistance with artwork implementation including installation;
- Final approval and acceptance of all installed artwork; and
- Maintaining the artwork.

Rapid Transit Division (RTD):

- Arranging for transfer of the one percent (1%) funding amount to MOCA;
- Coordinating with MOCA, the GEC, the GCM, the EDC and the Construction Contractors including resolution of concerns or problems;
- Representing the interests of the transit project;
- Providing input to the Prospectus' developed by MOCA; parameters and nature of each station;
- Evaluating the acceptability and locations of artwork for the Project;
- Informing the GEC, the GCM and the EDC of the specific artwork(s) to be incorporated in the station/station site's design, drawings and specifications;
- Including work scope in the GCM and EDC contracts addressing coordination and budgeting tasks associated with the inclusion of artwork at stations and/or station sites;
- Including work scope in the Construction Contractors' contracts addressing coordination and costs associated with the inclusion of artwork at stations and/or station sites; and
- Coordinating with MOCA on their final acceptance of the installed artwork.

Artists:

- Responding to MOCA Prospectus' seeking design proposals;

- Developing Conceptual Design descriptions and working budgets for proposed artwork;
- Coordinating with RTD and the GEC regarding the incorporation of artwork proposals into the design of stations/station sites and the associated design drawings;
- Developing Design Development refinements and more precise budgets for the artwork;
- Coordinating with RTD and the EDC regarding the incorporation of artwork into the design of stations/station sites and the associated construction drawings;
- Coordinating with MOCA, RTD, the GEC, the GCM, the EDC and the Construction Contractors in the resolution of concerns or problems;
- Conducting the design, fabrication and installation of the artwork in compliance with the schedule and artwork budgetary constraints;
- Fabricating and installing the artwork, or causing it to be fabricated and installed; and
- Coordinating with MOCA and RTD on the final acceptance of the installed artwork.

GEC, GCM and EDC:

- Providing input to the Prospectus' developed by MOCA; parameters and nature of each station (GEC);
- Coordinating with MOCA, RTD, and the artist(s) in the resolution of concerns or problems associated with the incorporation of artwork within stations or station sites;
- Coordinating with RTD, MOCA, and the artist regarding the incorporation of artwork proposals into the design of stations/station sites and the associated design and construction drawings; and
- Assisting the artist with estimates of interface costs such as mounting requirements, artwork bases etc., cost of which must be included in the budget for each work of art.

Construction Contractors:

- Coordinating with MOCA, RTD, the GCM, the EDC, and the artist(s) in the resolution of concerns or problems associated with the incorporation of artwork within stations or station sites;

- Constructing the necessary mounting requirements, artwork bases or whatever is required, as set forth in the construction documents, for the proper interface(s) with the artwork; and

Assisting the artist and/or the artwork installer with the installation of art as set forth in the contractors' special contract provisions; schedule, access, temporary facilities etc.

14.5 Selection Process and Conceptual Design

Artwork may be acquired by commissioning new work specifically for a station or by purchasing existing works of art. During the Project's Preliminary Engineering (PE) design phase, MOCA will establish an art and artist's selection process for the Project's stations, conducted for all stations at one time or, incrementally in groups of stations.

14.5.1 Acquired Artwork – Consideration of Acceptability

In the case of acquired artwork(s), MOCA shall evaluate the acceptability of such works of art for the Project, and make commensurate recommendations to the (RTD) that certain artwork(s) be considered for incorporation in the design of specific stations or station sites. RTD will so inform the GEC who will proceed with full consideration for the inclusion of that artwork in the station's preliminary design drawings and report their findings to RTD. These findings will include the preparation of a working estimate by the GEC as to the costs associated with the artwork's incorporation into the station or station site. These costs shall be included in the overall one percent (1%) budget amount determined for the respective transit station. Should there be concerns or problems identified with the artwork's inclusion, the respective issues will be discussed among RTD, the GEC and MOCA's Program Coordinator to achieve a resolution of all such issues.

14.5.2 Commissioned Artwork – Selection Process

In regard to the commissioning of new artwork, MOCA shall conduct an artist selection process. A Prospectus will be developed by MOCA for each of the stations being considered for commissioned art setting forth the station's specific nature and parameters, as determined by RTD and the GEC, as well as the schedule and budget for the respective artwork project. In response to the Prospectus invitation, artists will submit design descriptions of their proposals in form and format as set forth by MOCA in each Prospectus. MOCA shall then select the winning artists and negotiate contracts for the work which will be implemented in three (3) phases; the Conceptual Design, Design Development and Implementation Phases.

14.5.3 Commissioned Artwork – Conceptual Design Phase

The Conceptual Design Phase for the artwork will require the artist to develop their proposals to sufficient levels of design detail for evaluation by RTD and the GEC. Once so informed by RTD of a proposed artwork's conceptual design and its availability, the GEC will proceed with full consideration for the inclusion of that artwork in the station's preliminary design drawings and report their findings to RTD. Additionally, these conceptual proposals will be accompanied with a working budget developed jointly by the artist and the GEC for all aspects of the artwork. As with the acquired artwork option described above, should there be concerns or problems identified with the artwork's inclusion, the respective issues will be discussed among RTD, the GEC and MOCA's Program Coordinator to achieve a resolution of all such issues.

14.6 Design Development and Implementation

14.6.1 Acquired Artwork – Incorporation of Requirements into Construction Documents.

During the Final Design effort, the requirements necessary to incorporate acquired artwork at a station site or within a station will be finalized and shown in the station's construction documents. The GCM will update the working estimate for the artwork's inclusion at that station or station site. As stated, these costs shall be included in the overall one percent (1%) budget amount determined for the respective transit station. Should concerns or problems be identified at this time with the inclusion of any artwork, the respective issues will be discussed among RTD, the GCM, the EDC, and MOCA's Program Coordinator to achieve a resolution of all such issues.

14.6.2 Acquired Artwork – Installation

The installation of acquired artwork at station sites or within stations shall be guided by the joint cooperation of RTD, the GCM, the respective construction contractors and the MOCA Program Coordinator. MOCA shall be responsible for inspection of the artwork's interface conditions/construction and when determined by MOCA to be acceptable, MOCA will be responsible for the delivery of the artwork to the construction contractor(s). It shall be MOCA's determination as to whether the contractor has sufficient skills to install the artwork or if a separately contracted artwork installer shall be utilized, in which case MOCA shall select, contract for, and make payment to the installation contractor. Approval of the artwork's installation shall be made by MOCA and transmitted to RTD.

14.6.3 Commissioned Artwork – Design Development Phase

In the case of commissioned artwork, the second phase of the artist's work will be the Design Development Phase which will take place during the Project's Final Design Phase. The artist will be required to refine and advance all aspects of the artwork's conceptual design to enable its inclusion in a station or station site's construction drawings and specifications. The artist's work may include the construction of scale models of the artwork, material samples and the names of potential fabricators if applicable. The artist, working jointly with the EDC, will update and precise the working estimate for the artwork resulting from the refinement of their proposals and the Consulting team's estimates of incorporation costs. Should concerns or problems be identified at this time with the inclusion of any artwork, the respective issues will be discussed among RTD, the EDC and MOCA's Program Coordinator to achieve a resolution of all such issues.

14.6.4 Commissioned Artwork - Installation

The third and final phase of a commissioned artist's work is the Implementation Phase of that artwork which will take place during the Project's construction. The fabrication and installation schedules for the artwork will be coordinated with and determined by mutual agreement of RTD, the construction contractor(s), the MOCA Program Coordinator and the artist. In cases where the artist intends to install the artwork, MOCA shall coordinate all such activities with RTD and the construction contractor(s), all issues of responsibility and indemnification being addressed in the MOCA contract with the artist to RTD's satisfaction. If it is determined that a separate artwork installer shall be utilized, in similar fashion, MOCA shall contract for those services, appropriately set out in terms of schedule, installer responsibilities, and issues of indemnification addressed to RTD's satisfaction. Approval of the artwork's final condition and installation shall be made by MOCA and transmitted to RTD.

14.7 Maintenance of Project Art Elements

All artwork installed within the stations, or at station sites shall be inventoried, inspected and maintained by the Mayor's Office of Culture and the Arts (MOCA). On or before March 1 of every year, MOCA shall submit a report to the Mayor and City Council citing the results of their annual inventory and inspections. That report shall include an annual maintenance, preservation and restoration program recommendation, including a description of the program, its needs and anticipated accomplishments as well as citing the amount of funds budgeted for the upcoming fiscal year. Funds are provided from the annual operating budget to accomplish this work.

15.0 SAFETY AND SECURITY

15.1 General

The City and County of Honolulu is committed to achieving the highest practical level of transit safety and security for the Honolulu High-Capacity Transit Corridor Project (HHCTCP). To reach this goal, a Safety and Security Management Plan (SSMP) has been prepared to ensure that system safety and security principles are applied throughout each phase of the HHCTCP. The SSMP was prepared in full compliance with the provisions of Federal Transit Administration (FTA) Circular 5800.1 – Safety and Security Management for Major Capital Projects.

The SSMP formalizes the technical and management strategies for determining safety and security risk acceptance for the HHCTCP. It describes the integration of system safety and security activities for each phase of the HHCTCP and establishes responsibilities and accountabilities for these activities. Specifically, the SSMP:

- States the City and County of Honolulu’s commitment and philosophy to achieve the highest practical level of safety and security for the transit customers, employees, and emergency responders;
- Establishes and manages safety and security activities intended to minimize risk of injury and property damage, and to maximize the safety and security for transit system customers and employees;
- Defines the methods for identifying, evaluating and resolving potential safety hazards and security vulnerabilities
- Integrates the safety and security functions and activities throughout the HHCTCP organizational structure and activities;
- Defines the safety and security responsibilities for HHCTCP staff and contractors;
- Provides for the documentation and verification of safety and security requirements in HHCTCP designs and specifications, and in testing and start-up activities;
- Evaluates activities to assure continued development and advancement of safety and security throughout phase of the HHCTCP; and
- Establish the framework for construction safety and security

The Department of Transportation Services (DTS) is responsible for planning and designing the HHCTCP. The DTS Director ensures that resources are allocated to meet the Safety and Security Management Plan (SSMP) goals and objectives. The DTS Director has assigned responsibility for implementing the SSMP to the Second

Deputy Director of the Rapid Transit Division (RTD), a division within the DTS. The RTD Second Deputy Director is supported by the RTD System Safety and Security Manager who will manage and coordinate the day-to-day activities described in the SSMP. However, ultimately execution of the SSMP rests with the DTS Director. All HHCTCP consultants and construction firms are expected to execute the provisions of the Safety and Security Management Plan and to fully cooperate in achieving its goals and objectives.

The SSMP will be reviewed just prior to the initiation of each phase of the HHCTCP. It will be updated, as required, to ensure that it continues to be effective in achieving the highest level of practical safety and security. Refer to the latest version of the SSMP, which is reference document to the PMP, for particulars.

15.2 Certification Program

A key program of the HHCTCP Safety and Security Program is the Safety and Security Certification Program. The certification program will demonstrate the safety and security operational readiness of the HHCTCP to enter revenue service. A certification program plan, HHCTCP Safety and Security Certification Program Plan, will be written specific to the HHCTCP and will be based on the Federal Transit Administration's (FTA) *Handbook for Transit Safety and Security Certification*. The certification program plan will cover and fully detail the certification process for all phases of the HHCTCP from preliminary engineering to the start of revenue operations.

15.3 Safety and Security Review Committee

A safety and security review committee, known as the Safety and Security Oversight and Review Committee (SSORC), will be the principle forum for formal discussion of HHCTCP safety and security issues. The SSORC will:

- Review and evaluate proposed designs;
- Evaluate safety hazards and security vulnerabilities identified through analyses, assessments, and other methods;
- Assist in the development of safety and security requirements; and
- Recommend measures to control identified hazards and security vulnerabilities.

The SSORC will be comprised of HHCTCP consultants and key representatives of City and County of Honolulu, including:

- Honolulu Police Department

- Honolulu Fire Department
- Department of Emergency Management
- Honolulu Emergency Services Department

The Surface Transportation Security Inspector (STSI) from the Transportation Security Administration and a representative of the Hawaii Rail Safety Oversight Agency (once designated) will be invited to participate on the SSORC as observers. The RTD System Safety and Security Manager will chair the SSORC.

16.0 TESTING AND START-UP

The Testing and Start-Up phase of a project is the transition and linkage between the Construction and Revenue Service phases. The purpose of Testing and Start-Up is to accept the newly constructed project. Acceptance follows verification that the project meets the contractual specifications by conducting systems performance and integrated testing. In addition, a period of pre-revenue service will follow the testing phase to familiarize management, operations and maintenance personnel with the new system prior to beginning revenue service.

The overall responsibility for Testing and Start-up of the Project lies with the RTD's Manager of Systems Engineering and Director of Operations. The RTD, the GCM and contractors will develop the Test Plans and respective tests based on RTD's requirements for adoption as described herein. The functional responsibility for complying with these procedures will be delegated to the appropriate staff and consultants.

This Chapter of the Project Management Plan contains a description of RTD management approach to the Testing and Start-Up Phase of the Project. It includes a discussion of start-up preparations, test program planning, test program elements, preparations to be made for operations and maintenance, operations staffing, training, and safety and security requirements.

16.1 Start-Up Preparations

The RTD will develop a Rail Activation Plan sufficiently in advance of the revenue operations date and will also commence preparations for commissioning the new rail service and planning all start-up events at that time. As part of the planning effort, the RTD will prepare an Integrated Test Management Plan and the Rail Activation Plan.

16.2 Integrated Test Management Plan

Each construction, supply or installations contract for the Project will require the Contractor to demonstrate by tests – “contract acceptance tests” – that the scope of contract has, in fact, been provided. This is especially true of systems, systems components, rail vehicles, and other electrical-mechanical equipment items within the scopes of particular contracts. It is not enough, however, to conclude that each Contractor has met its requirements on a contract-by-contract basis, for the RTD needs to know whether the entire rail line works well across contract interfaces. Therefore, there is need to test the integrated whole and that responsibility lies with the RTD.

Where a system component of a Contractor interfaces with a facility or system component of another Contractor, the RTD must conduct an overall series of tests to be assured the two elements are compatible and perform jointly as intended. Contract boundaries must incrementally be tested until the integrated whole has been demonstrated to be ready to run. The RTD will draft and adopt an Integrated Test Management Plan, then implement the plan as scheduled in the Plan. Before any Contractor is awarded Final Acceptance, such Contractor must assist in the implementation of an Integrated Test Management Plan, wherein that Contractor's work products are included in the test scope. The Integrated Test Management Plan will be subdivided into two parts, the first concerning management of the plan and the second defining specific integrated tests to be performed. The outline of the plan, essentially the index of the Integrated Test Management Plan, is as follows:

Part 1 - Integrated Test Program Management:

- Introduction
- Test Program Organization and Roles
- RTD Staff
- RTD Consultants
- Integrated Test Team (ITT)
- Safety Certification Organization(s)
- Affected Contractors
- Acceptance Testing
- System Integrated Testing
- Test Program Management and Control

Part 2 - Specific Integrated Tests:

- Test Summary Sheet
- Subsystem Tests
- Vehicle Acceptance and Safe Braking Tests
- Traction Power Supply Integration Test
- Local Facility Monitoring and Control Test
- Supervisory Control and Data Acquisition (SCADA) Integration Test
- Radio Test
- Train Control/Signaling/SCADA Interpretation Test

- Other Communications Tests
- System Readiness Drills
- Rail Activation Plan Interface

An Integrated Test Management Plan will be drafted by RTD staff in accordance with the above outline, and then advanced within the RTD structure for appropriate approvals and adoption. Once adopted, it will be implemented as planned including the detailing of the various tests.

16.3 Activation Planning

Beyond the Integrated Test Program described above, there are many other activities the RTD must perform to help assure that the Project is ready on the scheduled revenue operations date. The RTD will prepare a written Rail Activation Plan for review and approval that will be combined with the Integrated Test Program, describing all activities beyond the tasks of construction and installation completion, contract acceptance testing and integrated testing.

Development of the Project Rail Activation Plan will commence at the end of Final Design. The Plan will be prepared by the RTD with GCM and other consultant input as necessary. Leadership for the plan will be provided by the Manager of Systems Engineering and the Director of Operations with support from the Engineering, Construction, Safety and Security, and Community Outreach Divisions; and the Quality Assurance Manager. The approach to Plan development will be to list all elements and events that lead up to revenue service, then to develop a special start-up schedule network, demonstrating the activity logic and event durations. The Rail Activation Plan will be organized into main topics of coverage such as:

- Scope of the Plan
- Management Requirements
- Integrated Test Team
- Other RTD Staff
- RTD Consultants
- Local Coordination Committee
- Organization of RTD
- Staffing and Training of RTD and Contractor Personnel
- Job Descriptions
- Recruitment/Mobilization

- Section 13-C Conformance (if applicable)
- Development of Training Programs
- Development of a System and Related Procedures to Control the Performance of Testing While Contractor Construction Work is Still Ongoing
- Liaison and Interface with Bus Operations
- Training Equipment, Facilities and Aids
- Off-Site Training
- In-House Training
- Pre-Revenue Operations Training
- Operations and Maintenance (O&M) Plan Updating
- Service Scheduling
- Rail Rule Book and Standard Operating Procedures
- Rail Safety Training
- O&M Cost Estimate Updating
- Fare Policy Adoption
- Revenue Estimate Updating
- O&M Performance Monitoring System
- Maintenance Scheduling
- Facility Availability
- Operational Safety and Security Program
- Negotiations of Local Agreements (HFD, HPD, Emergency Medical Services (EMS))
- Negotiation of Power Supply Agreements with HECO
- Protection and Maintenance of Accepted Facilities
- Establishment of Utility Service Arrangements
- Stocking of Expendable Supplies and Spare Parts
- Purchase of Maintenance Tools and Equipment
- Temporary Storage of O&M Equipment and Supplies
- System Testing Coordination
- Contract Acceptance Tests
- Integrated Tests

- Pre-Revenue Simulations
- Utilities for Testing
- Redesign and Retrofit
- Verification of Safety and System Assurance
- Bus Network Changes
- Revised Bus Routes and Schedules
- New/Relocated Bus Stops and Shelters
- New Bus Destination Signs
- Reassignment of Operations and Equipment
- Public Information and Media Progress Notifications
- State Safety Oversight Office (SSOO) Review
- Expanded Advertising and Concession Programs
- Adoption of New Policies and Procedures
- Opening Day Plans
- Ride-Free Break-In Period
- Revenue Operations Date Reschedule Plans
- Schedule of Start-Up Events
- Last Six Months of Planning
- D-Minus Ninety Days
- Documentation of All of the Above.

As for other written plans defining programs or sets of activities, an ad hoc Rail Activation Group formed of appropriate staff members of the RTD, the Design Consultant, HPD, HFD, and other closely involved agencies will guide the preparation of the Rail Activation Plan. The draft plan will be advanced within the RTD for adoption and then will be implemented.

16.4 Operations and Maintenance Period

Any startup of a new rail system operation experiences a “burn-in” period wherein the newly assigned operations and maintenance personnel, the traveling public, the motor vehicle and pedestrian traffic, and other bodies learn to live with rail operations. During a break-in period there may be need to call back Contractors and suppliers to make adjustments, repairs, replacements, and perform other warranty and

guarantee work. It also will be a period for verifying that the system assurance requirements are being met.

The burn-in period will also determine how the community is interfacing with rail operations. Any incidents that occur that reflect on safety or security will be thoroughly evaluated to determine whether the facilities, equipment, education program or operating procedures need improvement.

16.5 Systems Testing Procedures, Analysis and Results

This section describes the objectives, methodology, management controls, and major milestones in the conduct of a test program intended to verify the Project's readiness for revenue operations.

16.5.1 Objectives

The objectives of the testing program are:

- Verification of contract compliance;
- Validation and demonstration of system performance;
- Demonstration of safety and service characteristics, including emergency response scenarios; and
- Training of new personnel and integration of personnel, equipment, and procedures into the system operations.

16.5.2 Types of Tests

Five types of tests will be required under the System Testing and Start-Up Program. The following definitions include examples to distinguish the general uses of each of these types of tests.

16.5.2.1 Qualification or Design Verification Testing

Design verification tests are performed to prove that designs meet the RTD's specification requirements. They will usually be performed on pre-production units or on the first unit of a production run. Examples are substation load tests, rail car body structure tests, and rail car water-tightness and climate room tests.

16.5.2.2 Manufacturing Tests

Manufacturing tests are a general category of tests that will be performed on a sampling basis or routine basis to verify adequate quality control and manufacturing process. They may represent milestones for continued assembly or construction activities.

16.5.2.3 Acceptance Tests

Acceptance tests will be performed on individual items, to verify performance at the equipment level, subsystem level, and complete system level, after installation or assembly. On equipment contracts, these tests will normally be identified as advanced milestones and are linked to contract progress payments. At the system level (e.g., vehicle acceptance), these tests require interface validation with other system elements (e.g., traction power system).

16.5.2.4 System Integrated Tests

System Integrated Tests are individual tests or series of tests that require the interface of more than one system or facilities element. They will be designed to verify the integration and compatibility between or among individual elements. A number of these tests will be contractually required tests of individual Contractors. Examples of these include the train control dynamic tests that integrate vehicles, traction power and train control. The tests that are beyond the contractually required tests of individual Contractors will be planned, performed, witnessed, reported, and documented by the RTD. Individual systems contracts will provide additional support during Final Integrated Testing and will be held accountable for the integrated systems tests of their respective components. The tests are conducted to validate total system performance.

16.5.2.5 Pre-Revenue Tests

Pre-revenue tests are the series of tests that use the complete functional capabilities of all system elements. Such tests are beyond the contractually required tests of individual Contractors. Performance of these tests shall be completed prior to initiation of revenue service. They evaluate representative system schedules, personnel, procedures, and equipment. These tests commence after system elements relating to systems operations are complete and accepted.

16.5.3 Test Management Approach

The management of the test program is divided into two categories. The first category consists of design verification, manufacturing and acceptance tests that will generally be managed by the Resident Engineer responsible for the contract to which they relate. An exception to this will be made for any on-site acceptance test not in the category of equipment installation verification which will be the responsibility of the Test Program Coordinator. The Test Program Coordinator will report to the RTD's Manager of Systems Engineering who will be responsible for providing oversight of the overall test plan. The second category of tests, systems integration and pre-revenue, also will be the responsibility of the Test Program Coordinator. During the latter phases of the Project, schedule coordination and organization of other facilities

or support elements will be the responsibility of the Test Program Coordinator. There are four major activities for the performance of both categories of tests:

- Establish test requirements;
- Perform tests;
- Report test status, document, and analyze test results; and
- Develop plans to retest/correct any deficiencies found during tests.

16.5.3.1 Establish Test Requirements

The requirements for testing system elements are established based on consideration of several factors:

- Functional criticality
- Developmental nature
- Procurement/installation relative to construction sequences
- Historical experience including manufacturer recommendations

Each element of the system will be examined in terms of these factors and the established test requirements. Where test requirements relate directly to contract performance specifications, the tests shall be Contractor tests and will be included as part of the contract requirements. Each Contractor will be responsible for submitting a test plan which will include procedures for each identified test including the pass/fail criteria for each test. The Test Program Coordinator will be responsible for assembling the individual contractor submitted test plans and combining them with RTD tests into an overall Test Plan for the Project. Documented test results will be required for each test performed. Where test requirements are beyond the contractual responsibility of any system or civil element Contractor (e.g., systems and pre-revenue types of tests), the tests shall be termed RTD tests and shall be managed accordingly.

The definition of contractor tests is the responsibility of the Engineering Design Consultant's Project Engineer/Architect for the relevant contract. The Systems Engineering Manager and the RTD operations and maintenance staff provide oversight and technical support. Coordination of support requirements (system facilities and interfaces with other system elements) is the responsibility of the GCM's Resident Engineer, but the Test Program Coordinator and RTD Operations and Maintenance staff will provide coordination assistance. The Test Program Coordinator will assure that all Contractor tests are compatible with the RTD's policy, system wide schedule and the requirements of other contracts. The definition of RTD tests, and the specific objectives and method of establishing them, will be

developed by the Test Program Coordinator based on input from the various agency departments.

16.5.3.2 Perform Tests

Tests will be executed in one of three ways: Contractor off-site tests, Contractor on-site tests, and RTD tests. Each is described below.

Contractor Off-Site Tests

Tests assigned to the Contractors that are not performed at the point of final installation are termed off-site testing. Examples include most qualification and manufacturing tests. There are four basic activities involved in off-site testing:

- Review of test plans, procedures and reports.
- Witnessing of the tests.
- Verification of test performance and results.
- Status reporting of submittals and tests and test completion reporting.

Review of test plans, procedures and reports is the responsibility of the GCM's Resident Engineer. The Test Program Coordinator may provide technical support. Test plans and procedures must be reviewed by the GCM's Resident Engineer to ensure that the specification requirements are met including all technical and agency requirements. The Contractor will perform execution of the tests, in accordance with the contract specifications and the test plan and/or procedures, as approved.

The Contractor shall provide test specimen(s), equipment and operating personnel. Monitoring and acceptance of the tests will be the responsibility of the GCM's Resident Engineer. RTD quality assurance staff and Engineering Design Consultant may request to witness these tests. Auditing or witnessing of tests by quality assurance may be performed on a spot check or random sample basis. Status reporting of all significant Contractor off-site tests shall be the responsibility of the Resident Engineer.

Contractor On-Site Tests

Tests assigned to the Contractors that are performed at the point of final installation are termed on-site testing. Examples include acceptance tests and Contractor system tests.

Basic activities involved in Contractor on-site testing are:

- Review of test plans, procedures and reports
- Scheduling of tests

- Equipment operation or use of other system elements
- Witnessing of tests
- Verification of test performance and results

Review activities are again the responsibility of the Resident Engineer, supported by the Test Program Coordinator. RTD quality assurance staff and Engineering Design Consultant may request to witness these tests.

The Test Program Coordinator, in conjunction with the RTD Operations Division, will meet on a regular basis to coordinate the schedules and resolve potential problems associated with the on-site testing. As test plans and procedures are reviewed, the need for other system elements to be functioning will be identified and resources coordinated.

Actual test execution will be the responsibility of the Contractor who must provide the necessary test equipment, test operators and data recording. Where operation and/or maintenance of other system elements (equipment outside the Contractor's responsibility) are required, such operation shall be provided by RTD personnel or by other Contractors through coordination by the on-site test scheduling meetings. Monitoring, execution, verification, status, and completion reporting are performed with similar responsibilities as described in off-site testing.

RTD Tests

The major activities in RTD tests (system and pre-revenue) are:

- Identification of requirements;
- Preparation and review of test parameters and procedures;
- Test supervision and execution; and
- Status and test completion reporting.

Responsibility for these activities rests with the Test Program Coordinator. Responsibility for certain aspects of these tests is also vested in the Vehicle Procurement Resident Engineer and RTD Rail Operations and Rail Maintenance personnel. In general, the role of the Test Program Coordinator will vary with increasing responsibilities assumed by the RTD Rail Operations Division, particularly during the pre-revenue test phase. There are three types of required agency tests, and they will occur in sequential order:

- On-site rail vehicle acceptance testing and burn-in;
- On-site systems testing (integration of equipment, facilities, personnel, and procedures); and

- Pre-revenue testing (operations of total system, simulating normal, abnormal, and emergency conditions).

Preparation of test procedures for vehicle acceptance testing will be the responsibility of the Vehicle Contractor with oversight of the Vehicle Procurement Resident Engineer. The Test Program Coordinator will review the procedures in conjunction with the RTD Vehicle Procurement Resident Engineer and the RTD Rail Operations Division. Preparation of procedures for systems tests will be the responsibility of the Test Program Coordinator. Rail Operations, Rail Maintenance and other RTD staff including Quality Assurance, as required, will review procedures. Rail Operations, Rail Maintenance, and the Test Program Coordinator will coordinate preparation of test procedures for the pre-revenue tests. Test supervision and execution responsibilities will vary according to the type of test. Sign-off approval and acceptance responsibilities will be determined in the systems acceptance testing plan to be developed during Final Design. Systems tests designed to verify the equipment integration will be the responsibility of the Test Program Coordinator using Rail Operations and Rail Maintenance personnel for equipment operation, security, and maintenance services. Pre-revenue tests will be planned and managed by the Test Program Coordinator and executed by Rail Operations personnel. Test result reports of all RTD tests shall be the responsibility of the person conducting the test. The Test Program Coordinator will keep documentation of all tests performed.

16.5.3.3 Status Reporting of Submittals and Tests

Effective test reporting has two objectives. First, an overall knowledge of test progress is vital for an understanding of the status of individual contracts and the system as a whole. Second, the status of tests that have relationships with other contracts or tests must be closely monitored to ensure coordination and prevent delays. The primary responsibility for providing the input on test documentation submittals (test procedures and test results) and status of individual Contractor tests will be with the GCM's Resident Engineer who will submit such data to the Test Program Coordinator for compilation. The Test Program Coordinator, in turn, has the responsibility to closely monitor testing and notify the Resident Engineers when late or unsuccessful tests may interfere with other project activities. The reporting of test status, test results and test completion of systems tests will be done by the Test Program Coordinator or designee. Reporting of test status, test results, and completion of pre-revenue tests will be done by Rail Operations.

16.5.3.4 Test Documentation

The GCM's Resident Engineers and Test Program Coordinator are responsible for assuring that all their test documentation is prepared and available for review. Documentation shall include a description of each test required in the contract documents, the results of each test including fail and pass dates, names of test

witnesses, test reports, and the acceptance of the test by the Resident Engineer or Test Program Coordinator. The Test Program Coordinator will be responsible to maintain a master log of all tests required and their status. This log will become part of the back-up documentation necessary for safety certification.

16.5.3.5 Test Completion Reports

At the completion of each test, the individual responsible for approval of the test results will complete a test completion report and submit it to the Test Program Coordinator. Approval of, the test results will be reported on this form and any need for additional retests will be identified. The Test Program Coordinator will compile test completion reports.

16.6 Modifications or Retrofits

During system or pre-revenue testing, necessary changes to various project elements may be identified. Any such change will take the form of a modification or retrofit. Determination of the need for any modifications or retrofits will be based on the results of the system testing and start-up program, and must be carefully coordinated with the management of change orders and warranties. Agreement on the scope of and assignment of financial responsibility for modifications and/or retrofits will be negotiated and administered by the Resident Engineer, or through the claims resolution process described in Claims Management Chapter 11.0 of this Program Management Plan.

16.7 Start-Up Planning

Start-Up of the Project is an inherently complex process requiring exceptional intra-agency coordination and planning. As the Project approaches revenue service, a confluence of coordination challenges brings multiple pressures. Among the anticipated challenges are:

- The Project construction and integrated testing phases will be nearing completion, a point in the overall process that is often exceptionally time sensitive and for which few “workarounds” are available to deal with unresolved issues.
- New operations and maintenance personnel are needed in the Operations Department to operate and maintain the new-start line.

In advance of revenue operations, the RTD will designate a Manager of Rail Activation. The function will reside in the RTD Operations Division and the Manager of Rail Activation will report to the Director of Operations throughout the start-up process. The position will be responsible for managing the identification, critical path scheduling, interdepartmental coordination, and progress reporting of all RTD

activities directly supporting the commencement of revenue operations. An initial task will involve assuring that a coordinated training program is implemented. Each division involved will be accountable for its respective responsibilities during start-up. The most heavily involved divisions will include the Project staff, Rail Operations, Rail Maintenance, the Chief of Safety and Security, and Community Relations. Close coordination with TheBus will be important. The Manager of Quality Assurance will also be involved in these activities.

16.7.1 Start-Up Plan

The Manager of Rail Activation will convene an Integrated Test Team (ITT) to oversee the start-up effort. The first priority of the ITT will be to guide the development of a comprehensive Rail Activation Plan (RAP). The plan will outline the requirements and tasks necessary to activate and operate the rail line and the key steps and timetable required.

Preparation of the Rail Activation Plan will be the responsibility of the RTD staff supervised by the Manager of Rail Activation. The Rail Activation Plan will be used as a guide during the activation of the rail line and as a reference manual in future operation. Progress reports on the entire scope of start-up activities will be issued monthly. The start-up activities program will continue past the date of commencement of revenue operations until all identified open items in the program have been closed.

16.7.2 Start-Up Schedule

The schedule for implementation of the plan will be prepared as a separate document, referred to as the "Start-Up Schedule." Functional groupings of start-up activities will be represented. Activity groups will include:

- Completion of construction;
- Bus/rail service planning;
- Operating budgets programming;
- Personnel hiring and training;
- Procurement parts and services;
- Maintenance of facilities/equipment;
- System safety certification;
- Systems activation;
- Integration testing; and
- Marketing/customer services/community relations activities.

Those managers responsible for performance of the various functions will prepare the sequence and timing of activities in this schedule. The stated sequence and timing of events will be followed closely to meet the established date for the start of revenue service. A program of regular coordination meetings will be held during this period. The frequency and content of the meetings will be determined during the start-up planning process.

16.7.3 Start-Up Target Date

Progress toward the start-up date will be continually evaluated during the testing and start-up phases. The ultimate decision on the start-up date will be made by the RTD's Chief Executive only after assurance of the system's safety, security and reliability is made. A fundamental requirement for determining the opening date will be the availability of the entire length of the line, including all line segments, vehicles, and system elements for a period of at least two months for purposes of testing, training, and simulated operation. Full revenue rail start-up will be integrated with the existing bus service.

16.8 Operations Planning

16.8.1 Basic Operating Plan

The basic information as to line operations, the location of stations, the headways required to carry the expected passengers and other similar information was determined during preliminary engineering and will be set forth by the RTD in a Rail Operations and Maintenance Plan. The plan will assume the timing of peak headways and non-peak headways. Critical information on the means of achieving the service level will also be contained in the Rail Operations and Maintenance Plan.

The plan defines the work requirements and will set forth the personnel and training needs required to accomplish the Project objectives. Changes in the basic operating plan are expected to be made from time to time as additional information becomes available as to ridership levels, vehicle characteristics, legal and regulatory directions, and other factors which may affect the operation.

16.8.2 Rail Transportation Plan

The Rail Transportation Plan in the Rail Operations and Maintenance Plan will define the operating requirements and hiring needs by time periods, including considerations of training and qualifications. This plan will take into account the demands for project operation and other capital and operating charges.

16.8.3 Rail Maintenance Plan

The Rail Maintenance Plan within the Rail Operations and Maintenance Plan will determine the work requirements by years for the Project operation. As a result of long-lead time in filling many of the jobs requiring apprenticeship training, hiring efforts for such positions will begin at least two years prior to revenue operation. A complete discussion of the maintenance needs and the times at which the employees must be brought into the system will be contained in the Rail Operations and Maintenance Plan. The maintenance items include rail vehicle maintenance, maintenance of way and systems maintenance.

16.9 Operations Staffing

The staffing of functions for train operators, rail vehicle maintenance, and plant/right-of-way maintenance will reside in the Rail Operations and Rail Maintenance divisions. Personnel requirements for the start-up and operational phases will be developed as part of the Rail Operations and Maintenance Plan. New personnel will be brought in and training programs will be developed.

The rail operations personnel will normally report to the Yard and Shop facility. This facility will continue to serve as headquarters for Operations. Operations hiring will begin even before the formal Start-Up Plan and Schedule are developed. Operations staffing must be available to respond to the following advance activities:

- Acceptance of the first rail car for revenue service;
- Substantial completion of all construction and procurement contracts prior to system start-up;
- System verification testing starting before pre-revenue service testing; and
- Simulated or pre-revenue service starting before full revenue service.

The entire Operations staffing program will be described in detail in the Rail Operations and Maintenance Plan, which will be updated to adjust to any operational changes. Increases in numbers of non-operational positions (e.g., accounting, revenue collection, community relations) will be considered early in the start-up period. Rail Operations and Rail Maintenance staff will work to ensure the timely hiring and training of all personnel.

16.10 Training

Prior to the start-up phase, an outline of the education and training program for the Rail Operations staff will be developed through a combined effort of suppliers, vendors, consultants, and training staff. Depending on the topic involved, the City

may request multiple training sessions by contractors and/or suppliers for a period of months until a sufficient number of operations and maintenance staff are proficient.

Specific course requirements, lesson plans, and detailed training materials will be created by RTD and contractor rail training staff with support from engineering staff, equipment suppliers and Contractors, and engineering consultants. The training program will be finalized near the completion of construction to be ready to support the testing and start-up efforts.

As a part of each system and facility contract, a “train the trainer” program will be provided to educate RTD supervisory personnel in all details related to the safe operations and maintenance of their respective equipment. Training to RTD technical staff (maintenance and engineers) shall be at a factory certified level. Supervisory personnel, initially trained by the Contractor, will provide similar training in their discipline for other RTD or contractor personnel operating and maintaining equipment. The training program will be developed in Computer Based Training (CBT) format and provided to RTD Training, Maintenance and Engineering staff to enable them to perform future training sessions as needed. The training program will also include training manuals and instructor workbooks. Following the completion of initial Contractor training, the RTD and its contractors will be responsible for providing, maintaining and updating the training program. As required under individual contracts, and under the GCM Resident Engineer’s coordination and monitoring, Contractors and suppliers will be responsible for the training that they provide.

16.10.1 Rail Transportation Training

The training program for project operations will include both classroom and field work for all controllers, supervisors and train operators. Principal reference documents to be used in the training program for the controller, supervisor, and operating training courses will be the RTD Book of Operating Rules and RTD Standard Operating Procedures. Prior to the start-up phase, these documents will be developed by RTD. Additional training materials will be identified and obtained as necessary.

16.10.2 Rail Maintenance Training

During delivery, initial testing, and “burn-in” operations, maintenance personnel will be trained to maintain and operate the vehicles and facilities. The vehicle maintenance group will also perform vehicle inspections, operate test vehicles as required, set up and use shop equipment, and perform other related functions. These personnel will be involved in car maintenance, testing, and modification as much as possible while working side-by-side with the car supplier’s personnel. Maintenance training will be provided through specialized courses prepared and conducted by

equipment manufacturers and suppliers in accordance with the contract provisions. This training will include both classroom instruction and on-the-job training. The RTD will be responsible for additional training to supplement Contractor training, and for on-going maintenance functions not covered by Contractor training.

16.10.3 Training Provided by Supply Contractors

16.10.3.1 Manuals

The preliminary submittal of the training and maintenance manuals will be at least 120 calendar days prior to the start of the training program. The manuals will be reviewed and approved by RTD staff to ensure that all contract requirements are met. The final submittal of the training and maintenance manuals will be at least 30 calendar days prior to the start of the training program.

Training Manuals

Contractors and suppliers will provide training manuals that present a step-by-step introduction to equipment functions and operation, including a full description of the basic safety and other design principles on which the system is based. These manuals will be suitable for use in the Contractor-run training program and for future staff training by the agency. Additional training materials will be developed to supplement the Contractor supplied training materials for any identified specialized areas of operation or equipment functions.

Maintenance Manuals

Detailed procedures for all aspects of servicing, adjusting, testing, and repair will be provided in the maintenance manuals. These manuals will cover all levels of maintenance, from field adjustment, test and component replacement to shop adjustment, overhaul, and test of components or apparatus. The manuals will contain systematic failure isolation procedures.

Standard manufacturer maintenance instructions may be used for individual components or equipment, however, specific instructions and additional details in an operations and maintenance manual form will be provided for the integration of this equipment into an overall system maintenance plan.

16.10.3.2 Rail Vehicle Manuals

The rail vehicle supplier will be required to provide the RTD with an educational program to ensure satisfactory use, service, and maintenance of the furnished equipment. The program will be designed for trainees having no prior knowledge of rail vehicles or their features, and will bring trainees to a level of knowledge sufficient to ensure employee safety and knowledgeable performance of vehicle operations and maintenance. Training will be provided for three categories of

personnel: engineering and supervisory personnel, maintenance personnel and train operating personnel. The following minimum qualifications will be required of all trainees:

- Maintenance trainees must possess the basic mechanical and/or electrical skills pertinent to their craft, minimum level of education such as high school diploma or higher and a fundamental understanding of their responsibilities in terms of safety.
- Operator trainees must meet rail operator qualifications, as well as basic requirements in education, safety, and responsibilities as required by the RTD (for example, Commercial Drivers' License).

Contractor-provided classroom instruction must include physical analysis and functioning of the equipment under discussion, but also the essentials of routine maintenance, including lubrication schedules, maintenance materials, and maintenance methods and procedures where applicable. The Contractor's recommendations for test frequency, limits and methods, including required instruments, will be covered in detail where applicable. The instructions will cover methods of access, removal, dismantling, or application when they are not self-evident. Since overhaul procedures are to be supplied in detailed maintenance manuals, they need not be included in the instructions.

At the conclusion of the classroom instructions, the Contractor will furnish the RTD with a complete set of mock-ups, lesson plans, classroom notes, film, slides, tapes, and all other materials and teaching aids used in presenting the courses to a level equivalent to the Contractor courses, as approved by RTD staff.

The formal classroom instruction will be conducted in a suitable classroom furnished by the RTD.

The vehicle manufacturer must develop training courses and class schedules, as well as all other appropriate manuals and training materials.

16.10.3.3 Traction Electrification System

This section of the PMP is written as if the traction electrification system will be a standard third rail technology. If another power distribution system is selected this section will be rewritten as appropriate. The Traction Electrification System includes the traction power substations, third rail power distribution system, associated feeder lines, and the return circuit.

The Systems Contractor will be required to provide a training program to ensure satisfactory inspection, use, servicing and maintenance. A training program will

provide participants with a level of knowledge to permit safe and knowledgeable operation and maintenance of the Traction Electrification System until adequate proficiency is demonstrated by all rail staff. All RTD operations and maintenance staff will be trained in electrical safety. This training will be incorporated into all system familiarization courses for new rail employees. Substation training will consist of classroom instruction and demonstrations of equipment operation, inspection, routine maintenance, Traction Electrification System test procedures, switching, emergency operations, and safety procedures.

Third rail training will consist of classroom instruction and demonstrations of safe maintenance procedures, emergency and permanent repair for every type of third rail construction used in the Project, routine and surprise inspection procedures, identification of materials and tools, and safety procedures.

Return circuit training will consist of classroom instruction and on-site demonstrations of description of problems, inspection procedures, powering-down procedures (both manual and automatic), identification of return circuit materials and equipment, and safety procedures. Traction Electrification System trainees (Technicians) must have prerequisite mechanical and electrical skills. The Contractor will submit a detailed outline and a course schedule prior to contract completion. Training manuals will be submitted to the RTD prior to their first class. A major component of the Traction Electrification System training will be to increase the level of awareness for trainees of the importance of the system safety to the RTD as well as the public.

16.10.3.4 Signal/Communication System

The signal system includes all equipment that governs train movement through the system including centralized signal control equipment and signals. The communication system includes fiber optic cable transmission system (CTS), supervisory control and data acquisition and centralized train control equipment.

The Systems Contractors will provide training for the RTD. All of the trainees should have mechanical and electrical maintenance skills, as well as the basic requirements set forth by the RTD. The training will include three parts:

- A thorough explanation of the function of the system and the basic safety principles involved, its various safety features, and the basic levels of required maintenance;
- Detailed instruction on all special maintenance functions required such as: microprocessor controllers and microprocessor based systems, relay test and adjustment, switch mechanism and adjustment, SCADA, track circuit maintenance; and

- Hands-on experience with maintenance and adjustment of equipment, participation in simulated installation and preliminary testing and actual adjustment where possible.

A plan for the various levels of training will be submitted to the RTD for review prior to contract completion. Included in the plan will be sample lessons, descriptions of training aids, hours of instruction to be provided, and a preliminary schedule for training sessions.

16.10.3.5 Fare Collection System

Fare collection equipment includes ticket vending machines (TVM), ticket office machines (TOM), fare gates (if used), and centralized revenue data collection equipment.

The fare collection equipment contractor will prepare instruction programs and materials and provide instruction necessary to train all RTD personnel involved in the operation and maintenance of the fare collection equipment. Three levels of training effort are anticipated:

- Revenue service personnel to collect monies, replenish ticket stock and change, and accumulate record data;
- Maintenance personnel to perform scheduled maintenance and make field repairs to equipment; and
- Shop personnel to perform detailed overhaul and repair of components.

All revenue service personnel will be given a short training program to cover the routine service functions of collecting monies, replenishing ticket stock and change, clearing basic jams, and accumulating records data on ticket sales and validations. At least two courses will be held to cover different shifts. A selection of maintenance technicians, who will perform the detailed overhaul, repair, and adjustment of fare collection equipment, will be given a comprehensive factory certified instruction program in the operation and maintenance of the equipment. The length of the course will be recommended by the Contractor and subject to agency approval.

A plan for the various levels of training will be submitted to the RTD for review and approval prior to the start of the training program. The plan will include sample lessons, proposed training aids, hours of instruction to be provided, and a preliminary schedule for training sessions. Training and maintenance manuals will be provided with detail procedures for all aspects of fare collection equipment servicing, adjusting, testing, and repair. The manuals will cover all levels of maintenance from field adjustment, test and component replacement, to shop adjustment overhaul and test of components or apparatus. The manuals will contain systematic failure isolation

procedures and diagnostic test procedures for all modules and electronic cards. The manuals will include detailed explanation of all equipment functions. These manuals will be suitable for use in the Contractor-run training programs and for future training for the RTD's own staff by knowledgeable RTD personnel.

Standard manufacturer maintenance instructions may be used for individual components or equipment, but specific additional details will be provided for the integration of overall system maintenance.

The preliminary submittal of training and maintenance manuals will be prior to the start of the training program. These manuals will also be used in conjunction with this program and will be reviewed by the RTD based on this pre-start-up use.

16.10.3.6 Track Maintenance Training

This section is written with the assumption that the selected system will be a rail based technology. It will be revised as necessary if another technology is selected. Contractor-provided training will include classroom instruction and field instruction. The courses must cover all aspects of track and special trackwork, inspection requirements, and repair procedure for all the various rail and track components used in the rail system. The training will include instruction on:

- Emergency and permanent repairs to rail, switches and associated components;
- Procedures for cutting, drilling and welding of "T" rail sections;
- Methods for surfacing and aligning track; and
- Use of the track tools and equipment normally used in maintenance and repair operations.

The training course must include review of proper methods of track and switch inspection; Federal Railroad Administration (FRA), Association of American Railroads (AAR), and American Public Transit Association (APTA) standards; gauging; and safety precautions. Discussions of the specialized requirements for rail construction and maintenance on an electrified transit system using third rails for power distribution, running rails for return circuits and track circuit signal control will be included.

Written and practical demonstration will be developed for certification.

16.10.4 Orientation for Employees

An orientation program will be developed for all RTD rail and selected other employees to enable them to function effectively and safely within the system. Such a program should include the following activities:

- Overview of RTD operations: description of rail system (stations, track, traction electrification system, signals, fare collection equipment, and vehicles), instruction on safety rules, operating rules and emergency procedures.
- Inspection of vehicle; tour of system, including operations facility and yard; review of previous day's classroom material, the equipment systems, materials, etc., discussed in the classroom.
- Instruction on communication systems: radio, telephone, central control, CCTV, and reporting procedures. Second review of operating rules and procedures.

Personnel from other agencies or Contractors who may have need to work on or near the facilities or right-of-way may be required to receive training in transit safety and procedures, with emphasis on the need to notify and obtain permission of the agency before entering upon RTD property or doing any work on the system.

16.11 Spare Parts and Inventory Control

The RTD will establish strict procedures for the receipt and storage of all spare parts and material procured. Receiving inspections will be conducted on all incoming material and supplies. Once spare parts are delivered and accepted, the material will be securely stored and issued in accordance with RTD inventory procedures.

All capital assets procured by the RTD will be controlled and managed in accordance with management and budget requirements. The RTD will develop a parts database that will provide automated materials management with the capability for tracking receipt of goods, inventory accounting, and procurement forecasting.

16.12 Pre-Revenue Operations

The operational testing program, including simulation of regular operations and a variety of special and emergency situations, will be scheduled prior to the start of revenue service.

All RTD and contractor rail transportation and maintenance personnel will participate in the operational testing program. Some of the tests will call upon fire, police, and rescue agencies, as well as utility personnel. Various operating situations will be simulated, and the adequacy of response relative to safety of people, protection of property, and maintenance of service will be measured. Pre-revenue testing and simulated revenue operations will be performed in accordance with the requirements specified under the System Testing Procedures section of this Program Management Plan. In analyzing pre-revenue performance and results, several items will be given consideration, including:

- Notification procedures
- Central control response
- Train schedule verification
- Transportation supervisory response
- Maintenance response
- Police/fire/rescue performance
- Power sectionalization
- Performance of re-railing equipment
- Accident investigation procedures
- Single-tracking performance
- Simulated bus bridge operations
- Train evacuation
- Assumption of authority
- Rescue train or car mover dispatch
- Continuation of service
- Simulated public notification

A preliminary listing of operational performance by days will be prepared when the system design has been completed.

16.13 Safety Certification

The State Safety Oversight Office (SSOO) may be responsible for approving and certifying certain safety elements of the rail system. RTD staff will coordinate with the SSOO to obtain the necessary approvals as described in Chapter 15.0 of this Project Management Plan and in the Project *Safety and Security Management Plan*. The final responsibility for safety certification and authorization to initiate operations is vested with the Director of the Department of Transportation Services.

16.14 Warranty Management

Warranty management procedures will be established during Final Design in a plan developed by the GCM and approved by RTD.

17.0 JOINT DEVELOPMENT PROGRAM

The definition of joint development provided by FTA's website states that "Joint development involves the common use of property for transit and non-transit purposes." This generally takes the form of ground or air-rights leases of transit agency-owned property with the lease revenue stream accruing to the transit agency and the costs of development falling on the developer. Terms of development vary widely from project to project and from transit system to transit system, and may be quite unique.

Joint development is a product, but it is also a process which precedes the product and continues after the product is constructed. As used for the Project, some commonly accepted characteristics of joint development will include the following:

- Land and related interests in real property owned or controlled by the transit entity at or near stations (and possibly other transit facilities);
- Capacity for the incremental use of the real property beyond the direct operation of the transit system;
- Physical and functional integration of transit with development;
- Construction and ownership of improvements to real property by others than the transit entity; and
- The long-term leasing of the incremental rights in real property to others than transit with transit entity retaining ownership of the land.

Actual joint development does not refer to other related initiatives, which include more limited integration of adjacent private property developments with the transit property. In these cases, private development does not actually occur on transit-owned property, such as System Interface, (projects with direct connections between system facilities and adjacent development owned by others), which may involve connection-fee agreement programs, with fees accruing to the transit agency. Coordination of adjacent construction, interim leasing of transit-owned land and sale of excess property are other initiatives which may be administered in some way by or on behalf of the transit entity.

Additionally, the FTA has recently issued Final Agency Guidance on the Eligibility of Joint Development Improvements Under Federal Transit Law (FR/Vol. 72, No.25/Wednesday, February 7, 2007/Notices), which modifies the underlying policy of joint development improvements: "FTA encourages incidental uses of real property that can raise additional revenues for the transit system or, at a reasonable cost, enhance system ridership. FTA approval is required for these incidental uses of

real property which must be compatible with the original purposes of the grant.” This provision has been interpreted to mean that transit agencies can sell or lease land holdings financed by federal grants without having to return proceeds, as long as the grantee retains control over projects, and funds are used to shape communities being served by transit (i.e., for transit-oriented development and joint development). It is recognized that property acquired with federal funds cannot be sold by the City without FTA prior approval.

17.1 Honolulu High-Capacity Transit Project Joint Development Program

The RTD is responsible for the Project’s real estate-related decisions and joint development activities (refer to “HHCTCP Joint Development Policy and Guidelines”). RTD anticipates that it will acquire a limited number of land parcels at Project stations and other Project facilities as part of the construction process. Some of these parcels may, in addition to accommodating the requisite transit functions, also be appropriate for transit-oriented or joint development and could form the basis of a developer offering. Where appropriate, joint development will enable a higher, denser use of land parcels than that which could be accomplished solely by transit system uses.

Although no specific plans have been formulated, RTD anticipates that a developer(s) could act in partnership with RTD to develop such sites in ways that support transit activity, increase ridership and provide enhanced quality of life benefits to the community. The selected developer(s) would assemble resources and teams that could design, finance, and construct mixed-use, transit-oriented developments that are acceptable to the RTD and the surrounding communities as well as the various City departments and regulatory agencies. The RTD envisions that the developer(s) would ultimately own, operate and maintain all building and site improvements, with lease revenues accruing to the transit entity/City; or, alternatively, that developer(s) would purchase and develop parcels determined by the RTD to be appropriate for sale.

APPENDIX A: GLOSSARY OF ACRONYMS AND DEFINITIONS

Acronyms

AA	Alternative Analysis
AAR	American Association of Railroads
AASHTO	American Association of State Highway and Transportation Officials
ADA	Americans with Disabilities Act of 1990, as amended
ANSI	American National Standards Institute
AREMA	American Railway Engineering and Maintenance of Way Association
ATC	Automatic Train Control
BASC	Before & After Study Consultant
BCS	Baseline Control Survey
BFS	Budget and Fiscal Services
BWS	Board of Water Supply
CAC	Citizen Advisory Committee
CCR	Cost Control Report
CCTV	Closed Circuit Television
CDT	Contract Document Transmittals
CE&I	Construction Engineering and Inspection
CFR	Code of Federal Regulations
CIP	Capital Improvement Program
CO	Contracting Officer
COR	Department of Corporate Counsel
COTR	Contracting Officer's Technical Representative
CPM	Critical Path Method
CSI	Construction Specifications Institute
CTS	Cable Transmission System
CVS	Certified Value Specialist
DBE	Disadvantaged Business Enterprise
DBELO	Disadvantaged Business Enterprise Liaison Officer
DDC	Department of Design and Construction
DEIS	Draft Environmental Impact Statement

DEM	Department of Emergency Management
DFM	Department of Facilities Maintenance
DPP	Department of Planning and Permitting
DPR	Department of Parks and Recreation
E&O	Errors and Omissions
ECHO	Electronic Clearing House Operation
EDC	Engineering Design Consultant
EEO	Equal Employment Opportunity
EIS	Environmental Impact Statement
EMS	Emergency Medical Services
ENV	Department of Environmental Services
EOR	Engineer of Record
EP&D	Engineering, Planning and Development
EPA	Environmental Protection Agency
FCA	Hawaii State Foundation on Culture and the Arts
FEIS	Final Environmental Impact Statement
FFGA	Full Funding Grant Agreement
FHWA	Federal Highway Administration
FRA	Federal Railroad Administration
FTA	Federal Transit Administration
GCM	General Construction Manager
GET	General Excise Tax
HAR	Hawaii Administrative Rules
HBC	Hawaii Building Code
HDOT	Hawaii Department of Transportation
HFD	Honolulu Fire Department
HMTV	Honolulu Municipal Television
HPD	Honolulu Police Department
HRS	Hawaii Revised Statutes
IDR	Inspector Daily Report
ITT	Integrated Test Team
JPA	Joint Participation Agreement
LPA	Locally Preferred Alternative
LRV	Light Rail Vehicles

MIS	Major Investment Study
MOCA	Mayor's Office of Culture and the Arts
MOS	Minimum Operable Segment
MPO	Metropolitan Planning Organization
NEPA	National Environmental Policy Act
NFPA	National Fire Protection Association
NOA	Notification of Availability
NTP	Notice to Proceed
O&M	Operations and Maintenance
OahuMPO	Oahu Metropolitan Planning Organization
OCIP	Owner Controlled Insurance Programs
ORTP	Oahu Regional Transportation Plan (ORTP)
OWC	Overall Work Program
OTS	Oahu Transit Services, Inc.
PE/EIS	Preliminary Engineering/Environmental Impact Statement
PEP	Project Execution Procedures
PExec	Project Executive
PMC	Program Management Consultant
PMOC	Project Management Oversight Consultant
PO	Purchase Order
PTD	Public Transit Division
PS&E	Plans Specification & Estimate
PSA	Professional Services Agreement
QA	Quality Assurance
QA/QC	Quality Assurance and Quality Control
QC	Quality Control
RAMP	Real Estate Acquisition and Relocation Management Plan
RCH	Revised Charter of the City and County of Honolulu 1973
RFI	Request for Information
RFP	Request for Proposal
ROD	Record of Decision
ROW	Right-of-Way
RTD	Regional Transit District
SCADA	Supervisory Control and Data Acquisition

SSCP	Safety and Security Certification Plan
SSEPP	System Security and Emergency Preparedness Plan
SSMP	Safety and Security Management Plan
SSOO	State Safety Oversight Office
TAC	Technical Advisory Committee
TED	Traffic Engineering Division
TIP	Transportation Improvement Program
TOD	Transit Oriented Development
TPD	Transportation Planning Division
TSTD	Traffic Signals and Technology Division
USC	United States Code
USDOT	United States Department of Transportation
VE	Value Engineering
WBS	Work Breakdown Structure

Definitions

1. **Change Order:** A formal modification to the scope of work of the project, often involving cost or schedule adjustments.
2. **Cost-Loaded CPM:** A technique using the critical path method in which activities in the schedule are assigned discrete dollar amounts. Payment of these amounts is made upon the completion of said activities.
3. **Contracting Officer (CO):** The Director of Budget and Fiscal Services.
4. **Contracting Officer's Technical Representative (COTR):** The person or persons designated by the Contracting Officer to act on his behalf in the administration of the contract within the limits of their respective authorization.
5. **Full Funding Grant Agreement (FFGA):** Agreement between the federal government FTA and the City and County of Honolulu that sets forth the scope of the Project that will be constructed using Federal and Non-Federal funds, establishes a financial ceiling with respect to FTA's participation in the project, establishes a time for completion and specifies the mutual understandings, terms and conditions relating to the construction and management of the Project.

6. **Master Project Schedule:** The primary schedule developed by the Project team which includes and coordinates the work of the various project segments and contractors.
7. **Milestone:** A discrete segment of the Project which when complete, represents identifiable and important progress.
8. **Project Controls:** The project management staff assisting the Project Executive in all aspects of cost, schedule, contract administration, and configuration management.
9. **Project Management:** The set of functions which implement a project, safeguarding quality, time and cost.
10. **Project Management Team:** Project Executive and first line managers collectively responsible for ROW, engineering, construction, administration and finance, quality assurance and project control for the Project.
11. **Project Management Plan (PMP):** The dynamic document, which establishes the framework for administering implementation of the Project.
12. **Punch List:** List of items to be completed by a contractor to meet closeout quality control standards.
13. **Resident Engineer:** The person responsible for the field administration of each civil and systems construction contract.
14. **Schedule:** The tool for managing and tracking of Project activities. It includes the Master Project Schedule, which governs all aspects of project work, detail schedules and individual phase schedules.
15. **Quality Plan:** The Quality Plan defines applicable quality policy for the project and applicable quality procedures. Quality Plans are developed consistent with all other requirements of a grantee's quality management system. Contractors need to comply with the Quality Plan and applicable sections of the Quality Procedures. Vendors, consultants, and contractors of the organization are required to develop, implement and maintain that plan.

Note: Additional terms are defined in the applicable sections of this Project Management Plan and in respective contracts.

APPENDIX B: QUALIFICATIONS OF KEY STAFF

This appendix of the PMP presents the qualifications and experience of the key City and PMC staff responsible for managing the Project. This material is presented to demonstrate the technical capacity of the staff assigned to the Project.

Wayne Yoshioka – Department of Transportation Services Director

(Simon to provide)

Kenneth Toru Hamayasu, P.E. – Project Executive

Kenneth Hamayasu has worked for the City and County of Honolulu’s Department of Transportation Services (DTS) for 34 years; the last 17 years as the DTS’ Chief Planner. Mr. Hamayasu is currently the Project Manager for the Honolulu High-Capacity Transit Corridor Project (HHCTCP). In addition to the HHCTCP, Mr. Hamayasu has managed, administered, and participated in other major rapid transit development projects and studies since 1972.

- 2007 Project Manager, HHCTCP - Preliminary Engineering (PE) and Environmental Impact Statement (EIS).
- 2005-2006 Project Manager, HHCTCP - Alternatives Analysis (FTA assisted).
- 1998 – 2004 Project Manager, Primary Corridor Transportation Project (FTA assisted). Responsible for preparing the federal and state environmental disclosure statements; preparing the final engineering plans and construction bid documents; construction management oversight; and administration of contracts.
- 1988 – 1994 Planning Manager, Honolulu Rapid Transit Program (FTA assisted). Responsible for preparing alternative analysis, draft and final EISs; overseeing patronage forecasting and traffic mitigation plan during construction; and FTA grants management activities.
- 1978 – 1982 Patronage Forecaster, Honolulu Area Rapid Transit (FTA assisted). Responsible for overseeing the transit ridership and traffic volume forecasting to support the preparation of the final environmental impact statement.
- 1972 – 1976 Patronage Forecaster, Preliminary Engineering and Evaluation Program (FTA assisted). Responsible for transit ridership and traffic volume forecasting.

In addition to his work with FTA-assisted major capital projects, Mr. Hamayasu's experience includes developing and updating island-wide long and short range transportation plans; directing or participating in numerous traffic engineering studies and designs, such as intersections and traffic calming; and directing or participating in bus operation plans and studies, including those relating to bus fare structure, new routes, and facilities.

Mr. Hamayasu is a civil engineer registered in the State of Hawaii.

Manager, Systems Safety & Security
(Position Vacant)

Manager of Quality Assurance
(Position Vacant)

Manager, Project Procedures
(Position Vacant)

Simon Zweighaft, P.E. – Chief Project Officer

Simon Zweighaft is a senior project manager with 38 years of experience in virtually every element of transit program management and project implementation. His experience managing large programs is solidly supported by many years of technical experience including preliminary design, environmental impact studies, planning, design criteria, consultant selection, contract management, final design, and construction administration for major automated guideway transit, light rail, and heavy rail transit projects. During his career, Simon has served as project manager, director of engineering, manager of project development, chief of planning, and in several other key roles.

Mr. Zweighaft is a civil engineer registered in five states and he has been a project manager for the design of several very large mass transportation projects including the Miami Metrorail and People Mover Systems, the Los Angeles Blue Line Light Rail System, the Baltimore Central Line, the London Docklands Light Railway and the Hudson Bergen Light Rail line. Additionally, he has provided senior consulting advisory services on many other transit projects both domestically and internationally.

From 1994 through 1996, Simon held the position of president of TY Lin International, a major worldwide bridge engineering firm headquartered in San Francisco. Among the many projects accomplished by his firm were detailed design roles in all of the viaduct structures for the H-3 Expressway.

Elisa Yadao – Chief Public Information Officer

Elisa has 29 years of experience in communications and related fields in the state of Hawaii. She has served as a communications consultant to a variety of commercial and not-for profit clients, providing a variety of services including strategic communications planning, media training and consulting, crisis communications, and editorial and video production. Current and former clients include the Hawaii State Bar Association, TeamPraxis, CH2M HILL, the Honolulu Board of Water Supply, the State Department of Education, the State Department of Health the Kamehameha Schools, Central Pacific HomeLoans, City Bank, the University of Hawaii Sea Grant College Program, the Native Hawaiian Center of Excellence, and several political candidates.

Michael Schneider – Project Development Director

Mike Schneider's 35-year career has spanned urban and intercity transit and rail, highway and toll road development, innovative financing programs, and public-private partnerships for infrastructure development throughout the world. Professionally, Mr. Schneider is a civil engineer, urban planner, and transport economist whose primary area of expertise is the planning and development of transportation systems and facilities. He has managed corridor studies, investment strategies, economic and financial evaluations, feasibility assessments, alternatives analyses, transportation improvement plans, and design programs that have led to the development of systems for virtually all modes of transportation. Throughout his successful business and entrepreneurial activities, Mike remained firmly rooted in his professional practice, authoring some 75 publications and juried publications in the fields of finance, technology, planning, transport, project delivery and management. He has served as project director or principal-in-charge for projects such as the Oahu Primary Corridor Transportation Project in Honolulu, and numerous previous phases (AA/DEIS, system procurement, PE/FEIS) of the Honolulu Rapid Transit Development Program.

Wes Mott – Chief Administrative Officer

Wes Mott's 30 years of experience and qualifications as chief administrative officer have focused exclusively on the engineering and planning industry and have included the following positions:

- Financial Business Manager;
- Contracts Manager;
- Operations Manager;
- Administrative and Controls Manager;

- Financial Advisor to Joint Venture Boards (EMC, LA TIMED, Eastside Light Rail Transit, Mission Valley East Light Rail Transit); and
- Chief Financial Officer, CTV, Inc., SR 125 Project.

His areas of expertise are as follows:

- Development, administration, financial, controls and reporting of joint ventures, limited partnerships and privatization projects;
- Understanding of risks and how to evaluate and price alternatives;
- Knowledge of the Federal Acquisition Regulations (FAR), Generally Accepted Accounting Principles (GAAP), Financial Accounting Standards (FASB) and Government Accounting Standards (GASB); and
- Mergers & acquisitions, including financial due diligence and integration of acquired firms and disaggregation of units sold to others.

Doug Tilden – Chief Architect

Doug Tilden has 39 years of experience providing architectural expertise and management on major transportation projects, particularly large, complex transit projects. He has served as chief architect, lead architect, and station design advisor on transit projects across the country and around the world, including those funded through FTA's New Start program such as the Dulles Corridor Metrorail project. Other specific projects on which he led the architectural work include Korea High Speed Rail Project in Seoul, Korea; the Miami METRORAIL project in Miami, FL; and the Athens METRO Project in Athens, Greece.

Harvey Berliner, P.E. – Chief Facilities Engineer

Harvey Berliner has 42 years of experience providing engineering/project management for major transit systems. Harvey served as director of facilities engineering for the Taipei Metropolitan Area Rapid Transit System, where he managed the preparation of preliminary engineering documents; assisted in negotiations with detail design firms; reviewed detail design documents; assisted with the coordination of outside agencies; and assisted with systemwide electrical/mechanical engineering. He was responsible for the development of systemwide detail designs such as trackwork; elevators and escalators; signage and graphics; and station furniture, fixtures, and equipment; as well as some architectural finishes and the design of one storage and maintenance yard. As project manager for the No. 7 Line Subway Extension in New York City, Harvey and his team produced design documents for a \$1.3 billion tunneling, excavation, and structural construction contract. He also served as project manager for the Newark City Subway Extension and the Hudson-Bergen Light Rail Transit system in New Jersey; and as senior supervising civil engineer for the Metropolitan Atlanta Rapid Transit Authority (MARTA) system in Georgia.

Jurgen Suman – Chief Systems Engineer

Jurgen Sumann is a systems engineering manager with 40 years of experience in transit - particularly rail transit - project development and implementation. He was project manager for the North County Transit District's Sprinter 22-mile DMU light rail system in Oceanside, CA and systems design manager for several projects of the Northstar Commuter Rail in Minneapolis, MN. He served in several positions for the Hiawatha Light Rail Transit in Minneapolis, MN: design/construction manager, assistant general manager of rail operations, and assistant general manager of design and construction.

Robert Badelbou, Ph.D. – Chief of Project Controls

Dr. Badelbou has over 36 years of experience in project controls, project management, construction management, contract management, and claims management. He was one of the pioneers and early users of Primavera (since 1984) and has provided training for contractors in planning and scheduling, project management, construction management, and utilizing Primavera. Dr. Badelbou has served as Senior Project Controls Manager, Project Controls Manager, and Scheduling Engineer on a variety of transportation and other construction projects including the Los Angeles Metro Red Line, and I-595 in Florida.

Configuration Management Chief

(Position Vacant)

Faith Miyamoto – Chief, Transit Planning & Environmental Studies

Faith Miyamoto has 23 years of experience working with Federal and State environmental impact documents. Ms. Miyamoto has been employed by the City and County of Honolulu for 19 years, of which 18 have been with the City's Department of Transportation Services as an environmental planner. Ms. Miyamoto worked on the NEPA and State of Hawaii environmental impact documents for the Honolulu Rapid Transit Program (1989 to 1994), and the Primary Corridor Transportation Project (1998 to 2004), and the Alternatives Analysis for the Honolulu High-Capacity Transit Corridor Project (2005 to 2006). Prior to joining the City, Ms. Miyamoto was a planner with the State of Hawaii Office of Environmental Quality Control, the office responsible for implementing Hawaii's environmental impact statement law.

APPENDIX C: WORK BREAKDOWN STRUCTURE (WBS)

APPENDIX D: MASTER PROJECT SCHEDULE
